

A DICTIONARY
OF
PHILOSOPHY

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A uniform system of abbreviations has been adopted for ease of reference. The word or words contained in the heading of each article are not repeated in that article but are referred to by the initial letter or letters; in the article on Aristotle, for instance, the name "Aristotle" is replaced by the letter A.; in the article on Absolute and Relative Truth (two different categories compared) the letters A.T. are used for "Absolute Truth" and R.T. for "Relative Truth"; A. & R.T. represents the full title. References to books are given in italics; references to other articles are followed by the letters q.v.; where the title of an article consists of several words it is enclosed in brackets and preceded by the word "see". This double system has been adopted because (a) some of the headings contain a number of words and come alphabetically under the initial letter of the first, whereas the (q.v.) comes after the last word; (b) italics alone would not suffice because the editors have followed the usual British practice of printing the titles of books, foreign words and expressions, etc., in italics. All other abbreviations are self-explanatory.

A

Abélard, Pierre (1079-1142), French philosopher and theologian; in the dispute about the nature of the universal, q.v. (the expression of the struggle between materialism and idealism) supported the idea of conceptualism (q.v.) which is close to materialism. He also polemised against scholastic realism (see Realism, Medieval). A.'s book *Sic et Non* demanded that religious faith be restricted to "rational premises" and revealed irreconcilable contradictions in the utterances of the church authorities; under medieval conditions this book was of progressive significance and was condemned by the Catholic Church as heretical.

Abilities, in a broad sense, the psychic properties of the individual which regulate his behaviour and serve as the condition of his activity. Potentially, A. are represented by a system of conditioned and unconditioned connections adapted for the performance of some activity. The formation of this activity, in which A. make themselves manifest, is at once the formation of the relevant system of nervous connections. A. already formed become the points of departure for the development of A. of a higher level. The most universal A. of the individual are his sensory capacities, which improve during the entire length of his philo- and ontogenetic development. In the special sense, A. stand for the set of psychic properties that fit the individual for a definite, historically developed type of professional activity. In contrast to animals, whose A. are a synthesis of generic and individual experience handed down through the mechanism of biological heredity, man's A. are a product of social development. Their formation implies the acquisition by the individual of

the forms of activity worked out by mankind in the course of its socio-historical development. Thus, man's A. depend not only on the activity of his brain, but above all on the level of historical development attained by mankind. In this sense, man's A. are closely associated with the social organisation of labour and the pertinent system of education. In exploiting society the formation of A. in working people is retarded in every possible way. At the same time, the position of the exploited classes is usually "justified" on the plea that the working people lack highly developed A. The harmonious development of versatile A. to give every man access to a variety of professions and forms of activity is one of the principal tasks in the building of communism.

Absolute, The, a term used in idealist philosophy to denote the eternal, infinite, unconditional, perfect and unchanging subject that is "complete in itself", has no dependence on anything else, contains within itself everything that exists, and creates everything that exists. In religion the A. is God; in Fichte's (q.v.) philosophy it is the ego, in Hegel's (q.v.) it is the universal principle (the absolute spirit), in Schopenhauer's (q.v.) it is will, in Bergson's (q.v.) it is intuition. Dialectical materialism rejects the concept of the A. as unscientific.

The Absolute and the Relative, as a philosophical category the A. is unconditional, independent, irrelative, complete in itself, unconditioned and immutable; the R. describes a phenomenon in its relations and connections with other phenomena and its dependence on them. On the whole, matter in motion is not conditioned and not limited by anything, it is eternal and

inexhaustible, i.e., it is absolute. The infinite number of kinds of matter, the concrete forms of its motion that are constantly replacing each other, are temporary, finite, transitory, relative. Every thing is relative but it is a part of a whole and in that sense contains within itself an element of the absolute; that which is relative in one connection is absolute in another, etc. From this it follows that the difference between the relative and the absolute is also relative.

Absolute Idealism, see Idealism, Objective.

The Abstract and the Concrete Before Hegel (q.v.) the C. was understood mainly as the sensually perceived multififormity of individual objects and phenomena and the A. as the product of the mind alone (see Abstraction). Hegel was the first to make use of the categories of A. & C. in that specific philosophical meaning which was later to be developed in Marxist philosophy—the C. is a synonym of dialectic interrelations, of dismembered wholeness; the A. is not counterposed to the C. but is a stage in the development of C. itself; it is the unrevealed, undeveloped C. (Hegel compares the relation between the A. and the C. to the bud and the fruit, the acorn and the oak tree). According to Hegel, however, C. describes only the "spirit", the thought, the "absolute idea". Nature and the social relations of people are an illusory "other-being", an abstract revelation of individual aspects or moments in the life of the absolute spirit. In Marxist philosophy the subject or vehicle of C. is material reality, the universe of sensually perceived finite things and phenomena. The C. of an object is the objective interrelations of its aspects, determined by the essential, law-governed relations that underlie them; the C. of cognition is the reflection of those real interrelations in a system of concepts that structurally and genetically reproduce the objective content of the object being cognised. A. in real life is the expression of the non-whole, of the not fully unfolded, not fully developed and limited nature of any of the frag-

ments of the whole, since the fragment is taken in isolation (particularised), divorced from its intermediary connections and from its former and subsequent history. Abstract knowledge, therefore, is counterposed to concrete knowledge because it is one-sided, expresses only one particular aspect of an object isolated from its connection with other aspects, isolated from that which determines the specific nature of the whole. The purpose of theoretical knowledge, therefore, cannot and must not be merely the reproduction of the sensual multififormity; nor can that purpose be served by the isolation of certain "absolute" logical connections. As soon as such connections are isolated, they lose their concreteness and their truthfulness. Really scientific theoretical cognition consists of a thought process that proceeds from the sensual multififormity of the C. and achieves the reproduction of the object in all its essentiality and complexity. The method for the reproduction of a whole in the consciousness is the ascent from the A. to the C.; this is the universal form in which scientific knowledge unfolds; the systematic reflection of the object in concepts. The ascent from the A. to the C., being a means of linking up concepts, is an integral system which reflects the objective dismemberment of the aspects of the object of study and the unity of all its aspects, presupposes an original movement from the C. (perceived by contemplation) to the A. During this latter process, concepts are formed which reflect individual aspects and properties of the object that can themselves be understood only insofar as they are regarded as parts of the whole, determined by its specific content. It is, therefore, essential to distinguish the C. which is the object of study, the starting point of the investigation (the sensual C.) from the C. which is the end-product, the result of the investigation, the scientific concept of the object (the thought C.).

Abstract Art, a formalist trend in modern art that does not depict real objects. The theoreticians of A., such

as Michel Souphor, call a work of art abstract if it does not contain anything reminiscent of or in any way reflecting reality as observed. A.A. is the logical culmination of cubism (q.v.), futurism (q.v.) and other formalist trends. One of the earliest abstract pictures was that of the Russian artist V. Kandinsky (1866-1944), painted in 1910. Another Russian abstractionist, K. Malevich (1878-1935) called his art "suprematism". A.A. soon emerged in France (Robert Delaunay) and Holland (the Stijl group, 1917; P. Mondrian; T. van Doesburg, and others). Since the Second World War A.A. has flourished in many capitalist countries, especially in the US (Jackson Pollock, Mark Rothko, and others). Its epistemological basis is subjectivism and idealism, in which art is divorced from life and the rational and the emotional (intuitive) aspects of the creative process are in antithesis, as are art forms and their ideological content. A.A. rejects the reproduction in art of the typical images of people, real events and man's environment, thus making it impossible to express the meaning and purpose of life in works of art. A.A. replaces the beauty and drama of reality inherent in all true art by the expression of some mystic "spiritual reality", "intuitive energy", "vibrations of the human subconscious". Typical of A.A. is the complete destruction of the art image by the extreme distortion of real forms, by turning images into a chaos of meaningless patches, lines, dots, planes and three-dimensional figures.

Abstract Identity, see Identity.

Abstraction, that aspect or form of cognition which mentally isolates properties of an object or connections between its properties from the others. Both the process and its result are called A. In the process of A. it is sometimes necessary to disregard certain of man's subjective possibilities. It is impossible, for instance, to "count" the entire series of natural numbers, but if we disregard that possibility we get the abstraction of actual (i.e., "counted", "completed") infinity. The various concepts and categories—mat-

ter, motion, value are the result of A. All cognition is inevitably connected with processes of A. Without them it is impossible to reveal the substance or penetrate into the "depth" of an object. The breaking down of an object, the isolation of its essential aspects and their all-round analysis in their "pure" form, all result from the mental work of abstraction. Lenin said the following about the significance of A. for cognition: "Thought proceeding from the concrete to the abstract—provided it is *correct*...—does not get away from the truth but comes closer to it. The abstraction of *matter*, of a *law* of nature, the abstraction of *value*, etc., in short all scientific (correct, serious, not absurd) abstractions reflect nature more deeply, truly and completely". (Lenin, Vol. 38, p. 171.) The nature of A., and specifically what is to be extracted in each definite case, and which aspects of the object mental abstraction is to proceed from are all determined by the tasks of man's practical and cognitive activity and by the nature of the object being investigated. Practice is the criterion by which the true scientific nature of the Aa. introduced into science is judged. Dialectical materialism provides a scientific explanation of the process of A. and its results. Idealism often speculated on the difficulties connected with the thought processes of abstraction. Lenin warned that the possibility of idealism is inherent even in the most elementary A. The conversion of the products of A. (concepts, ideas) into the substance and the primary principle of the Universe is typical of idealist philosophy. Idealism regards A. as the result of the activity of the mind, in no way connected with the objective world and the practical activities of man. Such a conception of A. is typical of modern positivism (q.v.) and other idealist trends. In dialectical logic (q.v.), the concept A. is also used to mean something one-sided and undeveloped as distinct from concrete (see the Abstract and the Concrete).

Academy of Plato, an ancient idealist philosophical school founded by

Plato (q.v.) in 387 B.C. near Athens which took its name from the grove in which it met. The influence of the Pythagoreans (q.v.) became great in the Older Academy (Speusippus and others, 4th-3rd centuries B.C.), and Plato's views were systematised on the basis of the mystic theory of numbers. The Academy played an important part in the development of mathematics and astronomy. The Middle Academy (Arcesilaus and others, 3rd century B.C.) was influenced by scepticism (q.v.). The New Academy (Carneades and others, 2nd-1st centuries B.C.) developed the scepticism of the Middle Academy and opposed the teachings of the stoics (q.v.) on the criterion of truth. In the later period the A.P. eclectically combined the teachings of the Platonic, stoic, Aristotelian, and other schools. In the 4th and 5th centuries the A. went over completely to the doctrine of Neo-Platonism, q.v. (Plutarch of Athens). A.P. was closed in 529 by the Emperor Justinian. A.P. was founded in Florence at the time of the Renaissance (1459-1521) which combated from the Platonic position a scholasticised Aristotle and translated and commented the writings of Plato (Marsilio Ficino).

Accident, a temporary, transient, non-essential property of a thing as opposed to that which is essential, substantial (see Substance). The term was first used by Aristotle (q.v.) and became widespread in scholasticism (q.v.) and in the philosophy of the 17th and 18th centuries. Not used in Marxist philosophy.

Acosta (da Costa), Uriel (born in Portugal between 1585 and 1590, died 1640), Dutch philosopher, rationalist; received Catholic education. Fleed to Holland in 1614, renounced Christianity for Judaism (q.v.). Soon opposed Jewish religious dogmatism and accused the Pharisees (rabbis) of distorting the Mosaic faith. In 1623 he wrote a treatise on *Sobre a mortalidade da alma do homem* in which he denied the immortality of the soul and life beyond the grave. Was twice excommunicated from the Synagogue for his views (1623 and 1633). Persecuted by

the rabbis and the Dutch authorities, he committed suicide. His *Exemplar humanae vitae* criticises official religion and also the idea of the natural law supposed to be inherent in man; this law joins people together by mutual love and serves as basis for distinguishing good from evil. A.'s ideas had an influence on Spinoza (q.v.).

Action, Immediate and at a Distance, opposite concepts employed to explain the general character of the interaction of physical objects. The concept of I.A. states that an effect on a material object can be transmitted only from a given point in space to the immediately adjacent point and within a finite period of time. A.D. admits of action transmitted from a distance with instantaneous speed, i.e., this conception virtually admits of action outside time and space. After Newton (q.v.), this conception was widely accepted in physics, although Newton himself realised that the forces of A.D. which he had introduced (gravitation, for example) were merely a formal device enabling him to give a limitedly correct description of observed phenomena. Final confirmation of the principle of I.A. came with the evolution of the concept of a physical field, the equations of which describe the condition of a system at a given point and at a given moment as directly depending on the condition at the immediately preceding moment and the immediately adjacent point.

Activity (psychic), a concept connoting the function of the subject in its interaction with the object. A. is a specific relation of a living body to its environment; it mediates, regulates, and controls relations between the organism and the environment, notably metabolism. A. is impelled by need, aimed at the object which can satisfy this need, and effected by a system of actions. It presumes that the body has mental powers, but at once constitutes the basic cause for the origin of this power and the motive force of its development. The elementary form of A. should be distinguished from its highest form. The former is typical of animals and consists in the

instinctive (see Instinct) adaptation of the body to its environment. The latter, which stems from the former and transforms it, is exclusively an attribute of man. The specifically distinctive feature of the highest form of A. is man's deliberate effort to transform his environment. The A. of man has a social complexion and is determined by the social conditions of life. The basic and historically primary form of A. of man is labour, by which man alters the shape of what is given by nature and "also realises a purpose of his own that gives the law to his *modus operandi*, and to which he must subordinate his will". (Marx, *Capital*, Vol. I, p. 178.) A. of man may be internal or external. The former consists of specifically human operations with existing objects effected by the movement of arms, hands, fingers, and legs. The latter proceeds "in the mind" by means of "mental actions", wherein man operates not with existing objects and not through physical movements, but with their images (q.v.). Internal A. plans external A. It arises on the basis of external A. and realises itself through it. Development of labour causes a differentiation between theoretical and practical forms of A. of man. Practical A. is aimed directly at altering some situation. In contrast, the purpose of theoretical A. is to establish the method of this alteration, to discover the laws which govern it. Theoretical A. develops under the influence of practical A. and facilitates fulfilment of the tasks of practical A. According to the range of man's needs, there also arises the range of concrete types of A., each of which usually embraces elements of external and internal, practical and theoretical A.

Actualisation, or changes in being. This concept reveals only one aspect of motion—the transition of existence from a state of potentiality to a state of reality. In scholasticism (q.v.), Aristotle's (q.v.) explanation of A. was bound to lead to the non-dialectical recognition of the stationary source of motion external to real being—the prime mover, or God as a pure act. The idea of the transition from the

potential to the real is most fully expressed in the categories of materialist dialectics (see Possibility and Reality). The concept A. is not used in Marxist philosophy.

Actuality, whatever exists and develops, contains its own essence and laws, and the results of its own action and development. Such A. is objective reality in all its concreteness. In that sense, A. differs not only from all the seeming, fancied and fantastic, but also from all the purely logical (reasoned), albeit entirely correct. It differs also from the merely possible, probable, but as yet inexistent (see Being, Reality, Matter, Essence, Existence).

Adequate, the theory of knowledge regards as A. those images and that knowledge which correspond to the original object and are therefore authentic. The problem of the degree of adequacy, i.e., the exactness, profundity, and fullness of a reflection and the process of obtaining the most adequate knowledge is connected with the problem of the correlation between relative and absolute truth and that of the criterion of true knowledge (see Truth).

Aenesidemus (1st century B.C.), Greek sceptic philosopher, a pupil of Pyrrho (q.v.) and the follower of Plato's Academy, who upheld scepticism (q.v.). According to A., it is impossible to have any authentic knowledge of things, because any assertion can be countered by an opposite assertion. It is best to renounce all assertions, because only in this way is it possible to attain inner satisfaction. One should act as everybody else usually acts, or as prompted by some indispensable need. A.'s philosophy was a product of the disintegration of classical Greek philosophy.

Aesthetic and Ethic, the specific aspects of man's relation to reality. The E. expresses in moral evaluations of the good and the evil, the just and the unjust, duty, honour, etc., the actions of man or groups of men, and their actions. The A. is a sensory embodiment of those aspects of objective social relations (including the assimilation of the forces of nature) which

promote, or do not promote, the harmonious development of the individual, his free creation of the beautiful (q.v.), his realisation of the noble and heroic, his struggle against the ugly (q.v.) and the base. The A. also includes the subjective aspect—man's enjoyment of the free display of his creative abilities and powers, of the beauty of the products of his creative activity in all spheres of social and private life (labour, social relations, everyday life, culture). The arts (q.v.) are the fullest and most generalised expression of the A. They were singled out by the social division of labour from the sphere of practical activity and made a more or less independent specific sphere of artistic creation. The unity of the A. and the E. is an objective law, appearing both in life and the arts. In the words of Belinsky (q.v.), beauty is morality's own sister; if a work of art is truly artistic, it is moral by the same token. The unity of the A. and the E. is a most important principle of socialist realism. The positive artistic images reflecting the life of people, their nobility and beauty command respect, love, and sincere admiration. Types of real heroes in life give the reader and the audience aesthetic enjoyment and delight. Negative images arouse feelings of moral condemnation and disgust, closely connected in character with the feelings of contempt and disgust we experience when we perceive what is ugly and base. Hence, the unity of the A. and the E. is the basis of the educational and ideologically transforming role of the arts in social life.

Aesthetic Feelings, emotional condition arising in the process of aesthetic perception of the phenomena of reality or works of art. Since man's artistic attitude is ideologically emotional, it is neither exhausted by the A.F. nor can it exist without them. A.F. are a product of human historical development, an active assimilation of the aesthetic properties of both reality and the arts. A.F. arise as an apprehension of either the beautiful or the noble, the tragic or the comic, according to

the type of the aesthetic property. Works of art which materialise the A.F. in images are an effective means of either ideological or emotional education. They are meant to be a source of human joy and inspiration.

Aesthetics, the science of the law-governed aesthetical assimilation of the world by man, of the essence and the laws of the development and the socially-transforming role of art (q.v.) as a special form of this assimilation. A. originated about 2,500 years ago, in the period of slave-owning society in Babylon, Egypt, India, and China. It was greatly developed in ancient Greece, in the works of Heraclitus, Democritus, Socrates, Plato, Aristotle, and others; in ancient Rome, in the works of Lucretius, Horace, and others. The thinkers of the Renaissance (F. Petrarch, L. B. Alberti, Leonardo da Vinci, A. Dürer, J. Bruno, M. Montaigne, and others) developed humanistic, realistic trends in the struggle against the mystic medieval doctrines in the West on "divine beauty" (St. Augustine, Thomas of Aquinas). The theoreticians of the Enlightenment (Burke, Hogarth, Diderot, Rousseau, Winckelmann, Lessing, Herder, etc.), and the continuers of their tradition Schiller and Goethe affirmed that the arts are linked with real life; in this way they tried to defeat the reactionary ideas of aristocratic A. In spite of the fact that Kant, Schelling, and Hegel—the classics of German philosophy at the end of the 18th and beginning of the 19th century—succeeded in their attempts to treat a number of aesthetical problems dialectically, their idealistic theories were deeply contradictory. The works of Belinsky, Herzen, Chernyshevsky, and Dobrolyubov overcame the contradictions in a number of questions. The elaboration of revolutionary democratic A. on the laws of realist art, the principles of ideological orientation and kinship with the people, as well as its struggle against the theory of "pure art" served as a theoretical basis of the artistic method of critical realism (q.v.). Thus, the entire history of A. is but a conflict between materialism and idealism,

reflecting the struggle of the progressive and reactionary classes at every historical stage of social development. The idealists regarded aesthetic phenomena as spiritually born, whereas the materialists sought the objective basis of the aesthetical in nature and man's life. Owing to its contemplative character pre-Marxian materialism could not create scientific A. With the birth of Marxism the materialist understanding of the laws of historical development and the dialectical materialist epistemology spread also to aesthetical studies. This was the theoretical basis for the all-round elaboration of the cardinal problems in A. and for the struggle against its distortion. The subject-matter and the tasks of Marxist-Leninist A. are mainly determined by its aim, man's aesthetic assimilation of the world; its specific subject consists of three inseparable aspects: (1) the aesthetic in objective reality; (2) the subjective-aesthetic (aesthetic consciousness); (3) the arts. A. studies the essence, the regularities, and the concrete manifestations of all these aspects in their dialectical unity. Contrary to the idealistic and vulgar materialistic theories, the Marxist-Leninist A. holds that the objective basis of the aesthetical assimilation of the world is man's practical and purposeful creative activity. In this activity man's social essence and creative forces, aimed at transforming nature and society, are harmoniously, comprehensively, and freely developed. The main aesthetic categories: the beautiful (q.v.) and the ugly (q.v.), the noble (q.v.) and the base, the tragic (q.v.) and the comic (q.v.), the heroic and the vulgar, appear as peculiar manifestations of the aesthetic understanding of the world in each field of social being and human life—in man's productive and socio-political activity, in attitude to nature, in culture and everyday life. The subjective aspect of aesthetic assimilation, aesthetic feelings (q.v.), tastes (q.v.), evaluations, experiences, ideas and ideals are regarded by Marxist-Leninist A. as specific forms of the reflection and embodiment of objective aesthetic processes and

relations. A. studies the ways diverse aesthetic feelings arise in men—the aesthetic enjoyment of the fruits of man's creativity, the joy he finds in struggling for noble aims, the freedom and happiness of the people; the repugnance inspired by the ugly and the vulgar aspects of the conditions that enthral him. Marxist-Leninist A. is the theoretical foundation of the aesthetic education of the Soviet people, of the formation of their well-developed aesthetical feelings and tastes. The arts, artistic creativity are part of A. and its most essential aspect. Marxist-Leninist A. regards the arts as a unity of creative work according to the laws of beauty and artistic consciousness and reflection; thus it characterises the arts as a special form of assimilating the world. In analysing the essence of the arts and their laws, A. is intimately connected with all the special, theoretical, and historical sciences of the arts. But A. is a philosophical science. It studies the general principles of the human aesthetic attitude to reality (including the arts), as distinguished from the sciences which study the arts and are concerned only and specially with the arts. A., just like philosophy, is an ideological science and sees its main task in solving the problem of the relation of aesthetic consciousness and the arts to social being, to human life. Marxist-Leninist A. is guided by the materialistic method of solving this problem; it scientifically discloses the different aspects of the nature of the arts as well as the process of artistic creation: the origin of the arts; their essence and relation with the other forms of social consciousness; the partisanship (q.v.) of the arts and their kinship with the people (q.v.); their historical laws; the peculiarities of the artistic image (q.v.); the interrelation of form and content in art (q.v.); artistic method (q.v.) and style (q.v.); the basic principles of socialist realism (q.v.), its socio-transforming role in building communism, etc. The main tasks of Marxist-Leninist A. are a profound scientific analysis and generalisation of the aesthetic processes

of the present times and the active solution of the problem of moulding the comprehensively developed, harmonious individual of communist society.

Aesthetics and Technology, concepts reflecting the closely related aspects of human activity. The aesthetic feelings of man were formed in the course of his labour activity, and the aesthetic aspects of labour were known to man long ago. The aesthetic qualities of the instruments of labour, of the surroundings (the form and colour of machines and instruments, the interior of the place of work, etc.) play an important role in production. The artistic principle should inspire labour and educate a communist attitude to it. Many products of technical creation possess aesthetic qualities, for they may express an ideological-emotional content as well as an aesthetic ideal. The technological and working qualities required of industrial products must be combined with aesthetic demands, and purposefulness with beauty. The arts, too, cannot dispense with technology. The development of technology makes possible the appearance of new forms of art (cinema) and influences the most "ancient" of its forms (building machines in architecture, new materials and new methods of treating them in sculpture, new musical instruments, stage equipment, etc.). Technology plays also a great role in the dissemination of the arts (radio, television, polygraphic industry). Just as capitalist society is faced with the perspective of the aesthetic pauperisation of humanity, which gave rise to the pessimistic theory of "the death of art", its incompatibility with scientific and technical progress, in the same way the society which is advancing towards communism is distinguished by ever deeper penetration of aesthetics into the realm of technology, and of the latter into the arts.

Affection, an experience that is powerful and tempestuous in its action but differs from mood or passion (senses, q.v.) in being relatively brief—rage, horror, etc. A. is accompanied by jerky, expressive movements (specific

mime and gesticulation) and vocal reactions (crying, shouting). Sometimes, on the contrary, numbness sets in. The outward expression of A. and its profundity depend to a great extent on individual peculiarities, in particular on the training of will and the typological features of higher nervous activity (q.v.). A person in a state of A. is in the power of whatever caused it ("narrowed consciousness"); hence it interrupts the course of intellectual processes and disrupts control over behaviour. A. can be overcome only by considerable will-power, and more easily in the early stages.

Affectivity, a term used by Kant (q.v.) to mean the property possessed by things to affect the sense-organs. The concept A. expresses the materialist aspect of Kantianism; sense experience is acquired only as the result of the action of "things-in-themselves" on the senses. This concept is counterposed in the Kantian system to the concept of transcendental apperception (q.v.). Nevertheless, Kant still insisted that things are unknowable. The concept was criticised by the Neo-Kantians and all those who turned Kantianism into consistent idealism.

Agnosticism, a doctrine that completely or partially denies the possibility of knowing the Universe. The term was first used by the British scientist Thomas Huxley (q.v.). Lenin laid bare the epistemological roots of A. and said that the agnostic separates substance from its appearance, that he does not go farther than sensations, remains aloof from phenomena and refuses to recognise anything apart from sensations as authentic. The attitude of compromise adopted by A. leads its supporters into idealism. A. emerged in the form of scepticism (q.v.) in Greek philosophy (see Pyrrho) and was given its classic form in the philosophy of Hume (q.v.) and Kant (q.v.). A variety of A. is the theory of hieroglyphs (q.v.). A. is widespread in contemporary idealist philosophy. The champions of pragmatism (q.v.) and positivism (q.v.) have rid Kantian philosophy of the "thing-in-itself" (q.v.) and attempt to prove the im-

possibility of knowing the world as it exists in itself. A. proceeds from an attempt to limit science, reject logical thought, and distract attention from cognition of the objective laws of nature and, especially, of society. Practice (experience), scientific experimentation and material production are the best refutation of A. If people cognise certain phenomena and then deliberately reproduce them, no place is left for the "unknowable thing-in-itself".

Agrippa, Roman sceptic philosopher (1st-2nd centuries) to whom are ascribed five arguments (tropes, q.v.) on the unknowability of the Universe. A.'s tropes touch on problems of rational knowledge and contain elements of dialectics, which Lenin mentioned. (Vol. 38, p. 301.)

Ajivika, a trend in ancient Indian philosophy denying the existence of the soul. A. was originally connected with Buddhism (q.v.) of which it was probably a variant, since it is first mentioned in early Buddhist canonical texts. The doctrine was fathered, according to tradition, by the wise man Markali Deva, believed to have lived in the 6th-5th centuries B.C. A. is based on the atomistic theory which determines the other ideas and conceptions of the theory. According to A. there are four varieties of atom, which make up the four elements of nature—earth, water, fire, and air; all atoms can combine. "Life" is not something atomic but is that which perceives and cognises combinations of atoms. The varieties of atoms and life constitute the five essences of which everything in existence is composed. Atoms are eternal, indivisible, were not created and cannot be destroyed. One variety of atom cannot be transformed into another variety. Atoms can move in any direction. The properties of a body depend on the kind of atoms it is composed of, the number of them in a unit of volume, and the way in which they are combined. A. was a realist, and, in general, a materialist theory that opposed the ancient Indian religions and Buddhist philosophy.

Akhundov, Mirza Fatali (1812-78), Azerbaijanian writer, enlightener, and public figure. A.'s world outlook was formed under the influence of progressive Russian social thought. A. was a materialist who recognised the existence of only one material substance, which is its own cause and the basis of all processes and phenomena in the world. A.'s theory of knowledge proceeded from a recognition of the knowability of the world; he also defended the position of the sensualists. A.'s materialism was combined with atheism; he criticised Islam, stressed the incompatibility of faith and knowledge and the reactionary role of religion in the history of society. A. was the founder of Azerbaijanian literature, dramaturgy, and theatre. He was a true patriot, a champion of the friendship of the peoples, and advocated the establishment of fraternal, international relations between the peoples of the Transcaucasus and the Russian people. A.'s main philosophical work was *Three Letters of the Indian Prince Kamal-ud-Daula to the Persian Prince Jamal-ud-Daula and the Latter's Answers to Them*.

Al Kindi (c. 800-79), Arab philosopher, astrologer, mathematician, and physician, founder of Arabic Aristotelian philosophy, honoured with the title of "The Philosopher of the Arabs". A. K. wrote commentaries to Aristotle's works (*Organon*, et al.) and a number of papers on metaphysics. A. K.'s world outlook was based on the idea of the universal causal connection due to which everything, if completely understood, reflects the entire Universe as in a mirror. Orthodox believers in the Koran regarded A. K. as a heretic. Only fragments of A. K.'s numerous writings have been preserved.

Alberdi, Juan Bautista (1810-84), Argentine statesman, writer, philosopher, and sociologist. His *Bases para la Organización Política de la Confederación Argentina* (1852) greatly influenced the state structure of the Argentine and formed the basis of the country's Constitution. His famous book *El crimen de la guerra* was written under the impression of the horrors

of the Paraguayan war (1864-70) and gave him a place in history as an impassioned champion of peace and fraternity on earth. He declared that aggressive wars were crimes. His understanding of war was influenced by the ideas of Grotius (q.v.). A.'s weakness was his approach to the problem of war from the standpoint of law and Christian morality.

Albert the Great (b. 1193-1207; d. 1280), German philosopher, naturalist, and theologian. He and his disciple, Thomas Aquinas (q.v.), revolted against the interpretation of Aristotle's philosophy in the spirit of Averroism (q.v.) and against the progressive scholastic schools; he used Aristotelian ideas to elaborate a single philosophical-theological system. Apart from his purely philosophical writings (*Summa Theologiae*, etc.), A.G. wrote a number of treatises on natural history in which, side by side with biblical myths and fantastic legends, there are also direct observations of nature.

Alembert, d', Jean Le Rond (1717-83), French 18th century Enlightener, philosopher and mathematician, associate of Diderot (q.v.), editor of the mathematics section of the Encyclopaedia (see Encyclopaedists). Attempted to expound the origin and development of human cognition and to classify the sciences mainly on the basis of Francis Bacon's (q.v.) principles. Philosophically, A. was an exponent of sensualism (q.v.) and opposed Descartes' theory of innate ideas (q.v.). However, his sensualism was not consistently materialistic. A. denied that thought is a property of matter and believed that the soul exists independently of matter. His views were thus dualistic. He also denied that things were cognisable. In contrast to other French Enlighteners, he maintained that morals do not depend on the social environment. He pronounced God to be the creative substance. Diderot criticised A.'s inconsistent sensualism in his works, including *Le Réve de d'Alembert. Essai sur les éléments de philosophie* (1759) was A.'s main philosophical work.

Alexander, Samuel (1858-1938), Brit-

ish neo-realist philosopher, author of the idealist theory of emergent evolution (q.v.). He regarded space-time as being the primary matter of the Universe and identified it with motion. A series of unforeseeable qualitative leaps cause the consecutive emergence of matter, life, the psyche, "tertiary values", "angels", God from this space-time. Emergent evolution is guided by an ideal impulse which is perceived as a striving towards the new. A.'s views contradict modern science. His chief works are *Space, Time, and Deity* (1920), *Art and the Material* (1925) and *Beauty and Other Forms of Value* (1933).

Alexandrian School of Philosophy (1st century B.C. to 6th century A.D.), took its name from the city of Alexandria, founded by Alexander the Great; the term occurs in literature in two different meanings. First, it is used to mean the Judaic philosophy of Philo of Alexandria who lived there in the 1st century B.C. and used the methods of stoic Platonism to interpret the Bible. This trend assumed Plato's ideas to be the basis of existence but understood them to be a creative fire that poured over the entire Universe, creating all living and inanimate things in it. All early Christian theology was strongly influenced by this stoic Platonism and was at first unable to apply purely monotheistic methods. Origenes and Clément, both with Alexandrian connections, were important proponents of this school of thought. Secondly, there has always been a wider conception of the Alexandrian School in literature; it was made to include pagan Neo-Pythagoreanism and the eclectic schools of the first centuries and also the whole of Neo-Platonism (q.v.), although that trend was current in Rome, Syria, and Pergamum as well as in Alexandria itself and had pagan as well as Christian forms. It is more correct to use the term A.S. for the school of Philo and the Alexandrian Christian thinkers of the 2nd and 3rd centuries.

Algebra of Logic, a division of mathematical logic based on the use of algebraic methods for the study of

logical objects—classes and propositions. The proposition expresses, on the one hand, a thought (judgement) and, on the other, a truth or a falsity (T. or F.). Thus the propositions, "The Volga falls into the Caspian" and " $2 \times 2 = 4$ " express different thoughts, but both express a truth (i.e., they have truth-value T.). A.L. examines propositions exclusively from the standpoint of their truth-value and regards statements as equal if they have the same truth-value. A.L. uses symbols (see Logical Symbols). In addition to the symbols used for the propositions themselves there are symbols for operations—conjunction (q.v.), disjunction (q.v.), implication (q.v.) and negation (q.v.) with the aid of which some expression in A.L. is transformed into others. An expression is complex if it is formed from others by an algebraic operation and simple if the contrary is true. Two expressions are equal by interpretation ($=int$) if they have the same meaning irrespective of the combinations of the simple statements contained in them. Thus $A \rightarrow B = int \bar{A} \vee B$ because all four possible combinations of T. and F. as applied to A and B (T.T., T.F., F.T., F.F.) give $A \rightarrow B$ the same meaning as $\bar{A} \vee B$. A number of problems emerge from concepts introduced by A.L., and its theory is devoted to the solution of them. Historically, A.L. came into being as the algebra of classes (see Boole) and was only later interpreted as the algebra of propositions (q.v.). The work done by V. Shestakov and C. Shannon has given A.L. extensive application in the theory of electric and contact-relay systems.

Algorithm (or Algorithm), a basic concept in logic and mathematics. The term A. derives from the Latin transcription of al-Khwarizmi, the surname of Muhammad ibn Musa, the 9th century Central Asian mathematician. A. is a set of instructions for the execution of a system of operations in a certain sequence which will give the solution of all problems of a similar type. The simplest examples of A. are the arithmetic rules of addition, subtraction,

multiplication, and division, the extraction of square roots, the finding of the greatest common measure for any two natural numbers, etc. We are actually making use of A. whenever we master a means of solving a problem of a general type, i.e., one which can be used for a whole class with varying conditions. Since A., as a system of instructions, is formal in character, a programme for a computer can always be evolved on the basis of it, and the problem solved mechanically. The solutions of a large group of problems by A. and the elaboration of the theory of A. are urgently required in connection with the development of computer techniques and cybernetics (q.v.).

Alienation, a concept describing both the process and the results of converting, in definite historical conditions, of the products of human and social activity (products of labour, money, social relations, etc.) and also man's properties and capabilities into something independent of them and dominating over them; also the transformation of some phenomena and relations into something different from what they are in themselves, the distortion in people's minds of their actual relations in life. The sources of the A. idea can be traced to French (see Rousseau) and German (see Goethe, Schiller) enlighteners. Objectively, this idea expressed protest against the inhumane character of private property relations. This aspect of the problem was reflected in German classical philosophy, although here stress was laid on other aspects. In the works of Fichte (q.v.) A. of the subject is the creation of the world by the abstract Ego (q.v.). Hegel developed most fully the idealistic interpretation of A. The objective world appears as the "alienated spirit". The purpose of development, according to Hegel, is to overcome this A. in the process of cognition. At the same time, Hegel's understanding of A. contained rational surmises about some distinctive features of labour in an antagonistic society. Feuerbach regarded religion as A. of the human essence and idealism as A. of reason. By reducing A.

merely to consciousness, he found, however, no real way for its abolition, since he saw it only in theoretical criticism. Marx devoted much attention to analysing A. in his early works, especially in *Economic and Philosophical Manuscripts* (1844). He proceeded from the principle that A. characterises contradictions at a definite stage in society's development. He associated the appearance of A. with private property and an antagonistic division of labour. Thus understood, A. embraces all human activities, because each kind becomes the monopoly of an isolated group of people whose activity is alien to all other members of society. Marx focussed attention on the A. of labour, with the help of which he characterised the system of capitalist relations and the position of the proletariat (the relation of the worker to the non-worker and their relation to labour and its products, the material character of social relations, the domination in society of "inhuman forces", the moral and physical degradation of the worker, etc.). Moreover, he disclosed the real ways for the eliminating A. (abolition of capitalist property). Recognition of A. of labour as the basis of all other forms of A., including ideological, made it possible to understand that distorted, false consciousness is a result of the contradictions in real social life. The dependence of theory on practice was thus established and, on this basis, philosophy was reconstructed. In his classical works of the 1850s and 1860s Marx replaces the category of A. used in his early works by a whole system of concepts among which A. also appears as a concrete characteristic of capitalism's relations of production (see Fetishism of Commodities).

All-Round Development of the Individual, an essential condition for the building of communist society. A.D.I. implies harmonious development of spiritual qualities, moral purity and physical perfection in the individual. The harmoniously developed individual has a scientific world outlook and profound knowledge. He is free from survivals of the past, treats labour as

a prime and vital necessity, voluntarily observes the moral code of the builder of communism (see Moral Code, etc.), and is highly developed physically. Creation of the material and technical basis of communism (q.v.) and the development of socialist social relations into communist relations are the main premises for A.D.I. The Programme of the CPSU and other Party documents stress that A.D.I. is an objective and natural process in socialist society. It is dictated above all by the needs of material production, inasmuch as modern technology requires versatile operators. The conditions for A.D.I. are created by the achievements of socialism and the gradual transition to communism. All working people will have equal opportunities for creative labour and a free and equal choice of occupation, taking into account the interests of society. Increased leisure offers wide opportunities for developing the individual's gifts and talents. A.D.I. is intimately connected with cultural and technical progress, elimination of the essential distinctions between town and country, between mental and physical labour. Lenin said it is essential "to educate school people, give them *all-round development and an all-round training*, so that they *know how to do everything*". (Lenin, Vol. 3, p. 400.) Ability to perform many different types of work in communist society does not, however, rule out division of labour and specialisation.

Allogism, the rejection of logical thinking as a means of arriving at the truth; A. is the substitution of intuition, faith and revelation for logic. It is used by reactionary philosophers to justify irrationalism, mysticism, and fideism. A. is refuted by man's entire social experience and by the history of science.

Altruism, selfless service rendered to other people, readiness to sacrifice one's own interests for the sake of others. The term was introduced into philosophy by Comte (q.v.). A. is the opposite of egoism (q.v.). In bourgeois ethics the concept of A. merges with the religious moral teaching of love for

one's neighbour, forgiveness, etc; it ignores the social, class basis of morality. Only communist morality (q.v.), which rejects violence and exploitation, can reveal the real nature of altruism as the harmonious unity of personal and social interests (see Morality).

Amphiboly, a logical error resulting from the unclarity or ambiguity of a grammatical construction, particularly the use of one grammatical proposition or turn of speech with different meanings in the same passage. A. is to be distinguished from homonymy (q.v.), or mistakes arising out of the ambiguity of individual words.

Analogue, a term used in the theory of knowledge to mean the ideal object (concept, theory, research method, etc.) that adequately reflects some material thing, process, or law. In modern philosophical literature A. is also used to mean a material object (including the various forms of human material experience) which is a real basis for any theory, any law in the theory of knowledge or any rule of logic. For instance, the commonest, most usual relations between things constitute the objective basis for judgements, speculations, and other forms of thought. By finding A., the genesis of some ideal phenomena is established, which is very important in the struggle against the various forms of idealism. The explanation of the specific nature of a methodological law, rule of logic, etc., presumes the all-round analysis of their functions in a definite system of knowledge (see Analogue Simulation).

Analogue Simulation, the reproduction of the properties of an object under study by its analogue, specially constructed according to set rules. This analogue is called a model. If it has the same physical nature as the object, the model is constructed according to the principle of the physical A.S.; and if it has a different nature, then it is constructed according to the principle of the mathematical A.S. In any case its functioning is described by a system of equations similar to that system which describes the aspects

studied in the original. For the construction of a model some analogy between the aspects and processes of the object and of the model is required. In cases where it is expensive, difficult or impossible to study real objects, the A.S. facilitates the analysis of the processes in the original. The advantages of a model are that it is easy to produce it and that it is possible arbitrarily and quickly to change the model's working regime and characteristics, to effect the necessary measurements in laboratory conditions, etc. Electronic simulation devices are now in particularly wide use. In this case the model is an electronic scheme of the equation describing the real process. The methods of constructing such models are worked out in the theory of similarity and the theory of A.S. The principle of A.S. is one of the foundations of cybernetics (q.v.) and is widely employed in calculating the trajectories of ballistic missiles, in the study of the working regime of machines and enterprises, in the building of "teaching" automatic machines, in the study of the behaviour of biological objects and even of man's mental activity. However, in analysing the possibilities of these systems one must not forget the limits of the analogy between model and object. To ignore these limits would mean to fall into gross technical and philosophical errors.

Analogy, the establishment of similarity in certain aspects, properties and relations between dissimilar objects; conclusions by A. are made on the basis of such similarities. The usual scheme of conclusion by analogy is the following. Object B possesses the properties *a, b, c, d, e*; object C possesses the properties *b, c, d, e*; it is, therefore, possible that object C also possesses the property *a*. A. is of great value in research work. At the early stages of the development of society A. takes the place of observation and experiment and conclusions are drawn from external and secondary aspects. Most of the natural philosophical constructions of the ancients were formed in this way. In its further

development, A. lost its significance as a means of explanation. It still retains, however, its role as a guide to the solution of problems. Christian Huygens, when he discovered an A. in the behaviour of light and sound, got the idea of the wave theory of light; James Maxwell extended the idea to the characteristics of the magnetic field. Viewed in isolation, A. is not proof, because the conclusions are mere probability. It has to be used jointly with other forms of cognition. To increase the probability of a conclusion by A. the following are required: (1) A. must be based on essential features and on the greatest possible number of common properties in the objects being compared; (2) there must be the greatest possible connection between the property on which a conclusion is being formed and the properties common to the objects; (3) A. must be used to establish the similarity of the objects in a definite connection and not in all respects; (4) since the immediate purpose of A. is to establish the similarity of objects, it only points to differences, and must be supplemented by their investigation. In modern science A. is widely applied in the theory of similarity and is also used in analogue simulation (q.v.).

Analogy of Being, the central methodological concept of Catholic philosophy (see Neo-Thomism, scholasticism, Thomism, Thomas Aquinas). A.B. says that everything having existence (material object, event or idea) is similar to something else and at the same time unlike it. Catholic philosophy uses this principle to erect the hierarchic ladder of nature. According to scholastic metaphysics, insofar as similarity, uniformity, is primary and determining in A.B., only the outer, supernatural force, God, in whom all differences coincide, can be the cause, the primary source of the qualitative multiformity of being (Thomas Aquinas and the modern scholastics Erich Przywara and others). In the concept A.B., therefore, identity and similarity of objects and phenomena are made absolute and their qualitative differ-

ences are reduced to quantitative differences. This concept was introduced into medieval scholasticism. Modern scholastics declare the A.B. to be the antipode of the dialectical unity of opposites (see Unity and Conflict of Opposites, Law of).

Analysis and Synthesis, in the most general meaning, the processes of mental or factual breaking-down of a whole into its component parts and the re-constitution of the whole from the parts. A. & S. play an important role in the process of cognition and take place at every stage. The centre of analytical and synthetical activity is the cortex of the cerebral hemispheres; such activity, however, arises and is carried out only during, and on the basis of, social production experience. In mental processes A. & S. occur as logical methods of thought that use abstract concepts and are closely connected with other mental operations—abstraction, generalisation, etc. Logically, A. consists in mentally dividing the object being studied into its component parts and is a method of obtaining fresh knowledge. A. takes on different forms according to the nature of the object of study. A multiplicity of Aa. is a condition for the all-round cognition of an object. The breaking-down of the object into its component parts reveals its structure; the division of a complicated phenomenon into simpler elements enables the investigator to separate the essential from the non-essential and to reduce the complex to the simple; one form of A. is the classification of objects and phenomena. The A. of a developing process reveals its various stages, contradictory tendencies, etc. In the course of analytical activity, the mind advances from the complex to the simple, from the fortuitous to the inevitable, from multiformity to identity and unity. The purpose of A. is the cognition of the parts as elements of a complex whole, the establishment of the connections between them and the laws governing the developing whole. A., however, leads to the isolation of properties not yet connected with the concrete forms of their mani-

festation; a unity that remains abstract is not revealed as unity in variety. S., that is, the uniting in a single whole of parts, properties, and relations isolated by means of analysis, going from the identical, the essential, to the different and varied, combines the common and the individual, unity and variety, into a living, concrete whole. S. complements A. and is in indissoluble unity with it. The dialectical-materialist concept of A. & S. is the opposite of the idealist concept of them as mere thought methods unconnected with the objective world and with man's experience; metaphysicians isolate A. from S., counterpose them and make absolute either of these two indissolubly connected processes. In the history of philosophy the opposition of A. to S. goes back to the emergence of the analytical method in natural science and classical bourgeois political economy in the 17th and 18th centuries. By substituting the study of empirical reality for speculative constructions, this method then played a progressive role. When it was developed into an absolute philosophical method leading to the study of things outside their connections and development, the analytical method of investigation was turned into a metaphysical method of thought. The development of science showed that the analytical method was the historical forerunner of the synthetic method which is closely connected with it. From the point of view of their theoretical significance, once freed from their one-sidedness, both these methods become mutually conditioned logical processes satisfying the general requirements of the dialectical method.

Anarchism, a petty-bourgeois socio-political trend that is hostile to all authority, including the dictatorship of the proletariat, and counterposes the interests of petty private ownership to the progress of society based on large-scale production. A. has its philosophical foundations in individualism, subjectivism, and voluntarism (q.v.). The emergence of anarchism is connected with the names of Schmidt (Stirner, q.v.), Proudhon, and Bakunin

(qq.v.), whose utopian theories were criticised in the writings of Marx and Engels. A. was widespread in France, Italy, and Spain in the 19th century. A. does not go further than general phrases against exploitation and lacks an understanding of the causes of exploitation and of the class struggle. The anarchists' denial of the political struggle objectively serves to subordinate the working class to bourgeois politics. In the struggle against A. the most important issue is the attitude of the revolutionaries to the state and the role of the state in general. The anarchists demand the immediate abolition of the state and do not admit the possibility of using the bourgeois state to prepare the proletariat for the revolution. Today A. has a certain influence in Spain, Italy, and Latin America.

Anaxagoras of Clazomenae (in Asia Minor), c. 500-428 B.C., Greek philosopher, inconsistent materialist, ideologist of the slave-owning democracy. He was accused of atheism and sentenced to death but left Athens to save his life. He recognised the infinite qualitative variety of the primary elements of matter (seeds of things) later known as homoeomeries (q.v.), various combinations of which make up all existing things. The motive force that conditions the union and division of elementary particles was the nous (q.v.), which he understood to be matter of the lightest and finest variety. A.'s cosmogony asserts that systems of celestial bodies emerge from the primary chaotic mixture of substances as a result of their vortical rotation.

Anaximander of Miletus (c. 610-546 B.C.), Greek materialist philosopher, spontaneous dialectician, pupil of Thales (q.v.); author of the first philosophical work in Greece, *On Nature*, which has not been preserved. A. introduced the concept of *arché*, the "primary principle", or beginning of all things, which he considered to be the *apeuron*. A.'s cosmological theory placed the Earth, which had the shape of a flattened cylinder, in the centre of the Universe. Three celestial rings, solar, lunar, and astral, surround-

ed the Earth. A. was historically the first to propound the idea of evolution; man, like all other animals, evolved from the fish.

Anaximenes of Miletus (c. 588-525 B.C.), Greek materialist philosopher, spontaneous dialectician, pupil of Anaximander (q.v.). According to his theory, all things evolve from the primary matter, air, and return to it. Air is infinite, eternal, and mobile. When it concentrates it first forms a cloud, then water, and lastly earth and rock; when it rarefies it turns into fire. Here A. gives expression to the idea of the transition from quantity to quality. The air embraces everything—it is the soul and it is the common medium of the endless worlds of the Universe. A. taught that the stars are fire but we do not feel their warmth because they are too far away (Anaximander placed the stars nearer than the planets). A.'s explanation of eclipses of the Sun and Moon was close to the truth.

Anichkov, Dmitry Sergeevich (1733-88), Russian educationalist, philosopher; teacher of mathematics, logic, and philosophy at Moscow University; author of *Rassuzhdeniya iz naturalnoi bogoslovii o nachale i proisshestvii naturalnogo bogopochitaniya* (*A Discourse from Natural Theology on the Beginning and Origin of the Natural Worship of God*), 1769, in which he raised the question of the "natural" origin of religious beliefs. Like the 18th century French Enlighteners, A. showed that religious beliefs arose when people were at the "barbaric" stage of development as a result of three causes: ignorance, fear, and imagination, when people were unable to explain the nature of the phenomena that surrounded them and ascribed everything incomprehensible to supernatural forces. A. appraised the biblical legends and for this was persecuted by reactionary professors and by the church. A. was the author of a number of papers on philosophy: *Slovo o svoistvakh poznaniya chelovecheskogo...* (*An Essay on the Properties of Human Knowledge...*), 1770; *Slovo o raznykh prichinakh...* (*An Essay on Various Causes...*), 1774,

and others. In these papers A. developed ideas of materialist sensualism in the theory of knowledge and criticised the theory of innate ideas (q.v.) supported by the followers of Descartes, Leibniz, and Wolff. A.'s materialism, however, was not consistent, it was wrapped up in a mantle of deism (q.v.); A. criticised the pre-established harmony (q.v.) theory of the Wolfians, but himself made concessions to religion, admitting the possible immortality of the soul.

Animism, belief in the soul and in spirits that affect the lives of people and animals, and exert an influence over the objects and phenomena of the surrounding world. Animist concepts emerged in primitive society. Primitive man imagined that things, plants, and animals possessed souls. The chief reason for the emergence of A. was the extremely low level of development of the productive forces, the consequent small store of knowledge and man's inability to oppose the elemental forces of nature, which seemed alien and mysterious to him. At a certain level of social development, the personification of natural forces was a form in which they were mastered. Animist conceptions formed the basis of later religions; in principle, A. is part of all religions.

Annihilation, destruction, the reduction to nothing; in physics it is the process by which particles and anti-particles are converted into other particles. The first A. to be observed (in 1930) was that of an electron and a positron, which emitted photons when they collided. The reverse process also exists. Other known particles are the nucleons (proton, neutron) and the anti-nucleons (anti-proton, anti-neutron), hyperon and anti-hyperon. The term A. is not an exact one because the collision of the particles and anti-particles does not reduce them to nothing, but merely converts one form of matter into another; the total mass is retained, as are the energy, impulse, charge, and momentum of the system of particles. The discovery of A. is of great philosophical importance; it confirms the infinite variety of the forms of

matter and motion, and refutes the idealist theory of the "disappearance of matter" and "the materialisation of energy"; it also disproves the metaphysical view that primary forms of matter are eternal and immutable.

Anselm of Canterbury (1033-1109), theologian and philosopher, early scholastic. A. maintained that faith must precede knowledge—one must believe in order to understand; faith, however, can be based on reason. In the dispute over the universals (q.v.) A. professed extreme realism (see Realism, Medieval). He developed the "ontological" argument as proof of the existence of God (see Proof, etc.). As Archbishop of Canterbury his persistent aim was the exaltation of the Catholic Church.

Antagonistic and Non-Antagonistic Contradictions, the basic contradictions typical of the development of society under various historical conditions. A.C. are proper to all social relations in an exploiting society and are due to the irreconcilable interests of the hostile classes, social groups and forces. Contradictions of this type are resolved by the revolutionary class struggle and social revolution which changes the social system concerned. It is typical of A.C. that they become more acute and profound as they develop and the struggle between them becomes a sharp conflict. The forms in which this conflict is resolved are determined by the specific historical conditions of the struggle. A clear example of A.C. is the contradiction between the bourgeoisie and the proletariat in capitalist society, and also the contradiction between the imperialist states arising out of the competition between capitalist countries and their struggle for markets and spheres of influence. This is not a class contradiction, but it leads to violent struggles between the imperialists of different countries. These contradictions are causes of imperialist wars, wars for the redivision of the world, for markets, etc. N.C. are those which exist not between hostile classes, but between classes and social groups which, side by side with contradictions, have basic interests in

common. It is typical of these contradictions that their development does not necessarily lead to hostility, and the struggle between them does not produce a conflict. An example of this type of contradiction is that which existed in the Soviet Union before the construction of socialism between the working class, the vehicle of socialism, and the peasantry as a class of small proprietors. N.C. are not resolved by a fierce class war, but by the planned gradual transformation of the economic and other conditions that give rise to the contradictions. N.C., like all others, are also overcome by the struggle of the new against the old, of the progressive against the backward, of the revolutionary against the conservative. Changes in the nature and content of contradictions lead to changes only in the form of their resolution, but contradiction as a law of development does not disappear under socialism. "Antagonism and contradiction are not the same thing. The former disappears and the latter remains under socialism." (Lenin.)

Antecedent and Consequent, see Implication.

Anthropocentrism, a religious, idealist conception which places man in the centre of the Universe and makes him the ultimate purpose of all creation; A. is closely connected with teleology (q.v.). The theories of Copernicus, q.v. (see Heliocentrism and Geocentrism), Darwin (q.v.), and other scientific discoveries helped to overcome A.

Anthropogenesis, the origination of man. Darwin, Huxley, Haeckel (qq.v.) showed that man evolved from fossil apes. The motive force in A., as Engels showed, was the social labour of primitive man. This refutes the religious, idealist myths of the divine origin of man. Modern science confirms the social-labour theory of A. The emergence and development of man is divided into a number of stages—(1) *Australopithecus*; bipedal locomotion, hunting, regular use of natural implements, and, later, the improvement and making of the implements; (2) the primitive horde, *Pithecanthropus*,

Sinanthropus, Neanderthaler; the regular making of artificial tools. The emergence of social production conditioned the development of consciousness and speech and shaped the body of man. The making of man lasted hundreds of thousands of years (in South-East and Southern Asia, Anterior Asia and Africa); (3) the transformation of the primitive horde into primitive society and Neanderthal man into modern man.

Anthropologism, a typical feature of pre-Marxian materialism which regarded man as the highest product of nature and explained all the specific features and qualities of man by their natural origin. The unity of man and nature was stressed in opposition to the idealist conception of man and against the dualist separation of body and soul. In the materialism of the 17th and 18th centuries, A. was one of the arguments in favour of the bourgeois revolution showing the incompatibility of the feudal social system and religion with the real nature of man. On the whole A. is merely an inaccurate description of materialism. It possesses the faults inherent in all pre-Marxian materialism, the chief of which is the failure to understand the social nature of man and his consciousness. A. regarded all truly human traits and qualities as "abstract, inherent ... in the individual" (Marx), i.e., apart from society and social experience. A. put the philosophical study of the "abstract man" in the foreground rather than the totality of social relations, the objective laws of social development, which actually create the human individual; this, in essence, is a biological approach to the study of man. Such an approach inevitably leads to idealism in the conception of history, since social phenomena are made to depend exclusively on the natural qualities of man. A. is most fully developed in the works of Feuerbach (q.v.) and Chernyshevsky (q.v.); some features of A. were overcome by the latter owing to his active, revolutionary attitude to life. In modern bourgeois philosophy A. provides a basis for various forms of idealism which regard the objective world

as something deriving from the nature of man. A. is an integral part of many trends in philosophy (existentialism, pragmatism, philosophy of life, qq.v.), in sociology (anthroposociology, Social-Darwinism, qq.v.), and also in psychology (see Freudism).

Anthropomorphism, the transfer of human shape and characteristics to the external forces of nature and attributing them to mythical beings (gods, spirits). Xenophanes (q.v.) realised that A. was a peculiarity of religion; the significance of A. in religion was revealed fully and with great profundity by Feuerbach (q.v.). A. is connected with animism (q.v.) and totemism (q.v.) and occurs in most modern religions; in Islam and Judaism it occurs in a hidden form. In recent times attempts have been made to purge religion of naive anthropomorphic conceptions (see Deism, Theism).

Anthroposociology, a reactionary racialist theory; it falsifies anthropological facts and establishes a direct connection between the social position of individuals and groups of individuals and the anatomical and physiological properties of man (size and shape of skull, height, colour of hair, etc.), and examines social phenomena from this point of view. It was founded by J. V. Lapouge (1854-1936) who accepted and developed the pseudo-scientific theory of J. Gobineau (1816-82) to the effect that the Aryans are the higher, aristocratic race, and that the nobility and the bourgeoisie belong to this race. A. depicts the class struggle as a struggle between races, and the growth of the workers' liberation movement as retrogression brought about by a reduction of the Aryan element; Lapouge showed that eugenic (q.v.) measures, capable of moderating the "restless masses", were essential. A. was one of the ideological weapons of the German nazis and is preached by present-day racialists.

Anthroposophy, a mystical, decadent theory, a variation of theosophy (q.v.). A. is based on a conglomeration of religious and philosophical ideas borrowed from Pythagorean and Neo-

Platonic mysticism, gnosticism, cabalism, free-masonry, and German natural philosophy. Its central feature is the deification of man's nature, supposed to be revealed only to the initiated. A. was founded on the eve of the First World War by the German occultist Rudolph Steiner (1861-1925), (*Secret Science*, 1910, *Anthroposophic Theses*, 1925). A. is still current in the Federal Republic of Germany and also in Britain and the US.

Anti-Communism, the chief ideological and political weapon of present-day imperialist reactionaries. Its main content is slander of the socialist system, the falsification of the policy and aims of the Communist Parties and of the doctrine of Marxism-Leninism. In the economic sphere, A. is manifested primarily by a denial of the socialist nature of the economic system of the USSR and the People's Democracies and an attempt to classify the economy of the socialist countries as state capitalism; in the political sphere, A. consists of slanderous inventions about Soviet "totalitarianism", and about the aggressive nature of world communism; in the ideological sphere, it is the repetition of the clumsy invention of the "standardisation of thought" under socialism. These distortions of facts are crowned by the conception that social relations are "dehumanised" under socialism, that man is turned into an instrument for the achievement of certain aims of the "leadership", and that the programme of scientific communism is utopian. "Anti-communism is a reflection of the extreme decadence of bourgeois ideology," says the Programme of the CPSU. Bourgeois ideologists are unable to propose any sort of positive programme that meets the interests of the masses. Hatred of communism is born of the fear of it, fear of social progress. The purpose of the mass propaganda of anti-communism is to paralyse the revolutionary movement of the working people, sow distrust in the slogans and ideals of communism, and discredit and suppress all the genuinely democratic movements of the day. A. is not merely a totality of ideas. It is

the actual political line of the most reactionary circles in the imperialist states, those circles that are trying to crown their anti-communist struggle with a nuclear war against the socialist countries. The growing successes of the world socialist system, the mounting struggle for peace, and the struggle against A. in the capitalist countries themselves serve to show that A. is fruitless and without prospects.

"Anti-Dühring", the name under which Engels' *Herr Eugen Dühring's Revolution in Science* has gone down in history; it contains an exhaustive exposé of the three component parts of Marxism—(1) Dialectical and Historical Materialism, (2) Political Economy, and (3) the Theory of Scientific Communism. *A.D.*, wrote Lenin, analyses "highly important problems in the domain of philosophy, natural science and the social sciences.... It is a wonderfully rich and instructive book." (Vol. 2, p. 25.) Engels wrote the book to defend Marxist theory from the attacks of Dühring (q.v.), a petty-bourgeois theoretician whose views were supported by some members of the young German Social-Democratic Party. At the request of Wilhelm Liebknecht, Engels began work in May 1876 on a series of articles against the new trend; the articles were published in *Vorwärts*, organ of the Social-Democratic Party, although Dühring's supporters tried to prevent this. Marx read *A.D.* in manuscript and wrote the chapter on the history of political economy (Chapter X of Part II). The articles were published in book form in 1878 and were prohibited in that same year. *A.D.* consists of three parts: Philosophy, Political Economy, and Socialism. In Introduction, Engels describes the development of philosophy and demonstrates the inevitability of the emergence of scientific communism. Part I outlines dialectical and historical materialism; it provides a materialist answer to the fundamental issue of philosophy (q.v.), postulates the material nature of the world, the fundamental laws of the cognition (q.v.) of the world, time and space (q.v.) as forms of all being and the unity of

matter and motion. *A.D.* deals with the forms of the motion of matter and with the classification of the sciences (q.v.). Engels devotes considerable space to a description of dialectics, its basic laws, and the relation existing between dialectics and formal logic. *A.D.* examines important problems in natural history from the standpoint of dialectical materialism—Darwin's (q.v.) theory, the role of the organic cell (q.v.) and the nature of life, the cosmogonic hypothesis of Kant (q.v.). Engels also studies morality (q.v.), equality (q.v.), freedom and necessity (q.v.), etc., from the point of view of materialist dialectics. In Part II Engels criticised Dühring's views on political economy, defined the subject-matter and method of political economy, outlined Marx's theory of the commodity and value, surplus value and capital, ground rent, etc. He criticised the idealist force theory (q.v.) and showed the decisive importance of the economy in the development of society, explained the origin of private property and classes (q.v.) and showed the progressive role of force in a revolutionary epoch. Part III is a brilliant essay on the theory and history of scientific communism (q.v.), explains Engels' attitude to utopian socialism (q.v.), provides a profound substantiation of the tasks and ways of the communist transformation of society, and outlines the Marxist theory on a number of basic questions of socialism and communism—on production and distribution of material values under socialism and communism, on the state (q.v.), the family (q.v.), the school, the elimination of the antithesis of town and country (q.v.), between mental and manual labour (q.v.), etc. Engels' *A.D.* is a model of the consistent defence of the world outlook and interests of the revolutionary proletariat, a model of Marxist implacability towards distortions in science and opportunism in politics. Engels' book is valuable as a textbook from which to study the world outlook of dialectical and historical materialism and as the ideological weapon of the working people.

Antilogism, a formula in logic that expresses the incompatibility of the premisses of a categorical syllogism with the negation of its conclusion. The theory of A. is one of the variants of syllogistic (q.v.).

Antinomies, **Semantic**, antinomies (q.v.) which arise in propositions whose object is expressions of a certain language. Representative of one of the main types of S.A. is the liar antinomy which is credited to Eubulides of Milet (4th century B.C.). It can be formulated as follows: [The sentence in square brackets on this page is false.] If this proposition is true, then from its content it follows that it is false. But if it is false then again it follows from its content that it is true. Thus, in violation of the logical law of contradiction, this proposition proves to be both true and false. Another example of the S.A. is the antinomy of Grelling based on the concept of the “heterological predicate”. A predicate, i.e., a word expressing a certain property, is called heterological, if it does not possess this property (for example, the word “tetrasyllabic” is not tetrasyllabic). An antinomy arises when applying this definition to the predicate “heterological”: if it is heterological, according to the definition it does not possess the property it expresses, i.e., it is not heterological; if it is not heterological, then again, according to the definition it must possess the property it expresses, i.e., is heterological. Antinomies of this kind arise in cases when the language in which the antinomy is constructed contains names for its own expressions and also predicates “true”, “false”, “heterological”, etc. There are different methods for excluding S.A.: one of them is to differentiate between a metalanguage (q.v.) and an object-language (q.v.) and in the strict definition of corresponding predicates in a metalanguage (see Truth in Formalised Languages).

Antinomy, the appearance, in the course of reasoning, of two contradictory but equally well-founded inferences. The concept of A. was known in times of antiquity (Plato, Aristotle); Greek philosophers frequently

used the term "aporia" (q.v.) in the meaning of A. (e.g., Zeno of Elea uses aporia to express the contradiction of judgements on motion and plurality); some Aa. then current are now regarded as semantic. Scholastic logicians devoted considerable attention to the formulation and analysis of A. Kant used A. in an attempt to justify the basic thesis of his philosophy, according to which the intellect cannot go beyond the bounds of sensory experience and cannot cognise the thing-in-itself (*res per se*). Kant said that such attempts lead the intellect into contradictions, since they make it possible to prove both the assertion (thesis) and its negation (antithesis) in each of the following "antinomies of pure reason": (1) the Universe is finite—the Universe is infinite; (2) every complex substance consists of simple parts—there is nothing simple in existence; (3) freedom exists in the world—there is no freedom in the world, only causality; (4) the primary cause of the Universe (God) exists—there is no primary cause of the Universe. Kant's Aa. are not the Aa. of modern formal logic, because the proof of the thesis and antithesis in them cannot be represented in the form of logically correct reasoning. Since the end of the 19th century investigations into the logical foundations of mathematics have led to the discovery of a number of real Aa. (including some that were formerly known). Today they are usually subdivided into the Aa. in logic and the set theory, and semantic Aa. (see Antinomies, Semantic; Paradoxes in Logic and the Set Theory). A. is not the result of an individual's subjective error; it is due to the dialectical nature of the process of cognition, and in particular to the contradiction between form and content. Any A. occurs within the framework of a certain formalisation of the process of reasoning (perhaps not clearly perceived but always to be assumed in fact); it is evidence of the limitation of that formalisation and shows the need for its rearrangement. The solution of A. means the introduction of a new and fuller formalisation, one

that is more in accordance with the content being reflected. A. cannot be excluded from cognition once and for all; nevertheless each individual A. can be excluded by relevant changes in that method of formalisation within which it appeared. Today various ways of excluding A. have been evolved that permit a more profound description of the dialectics of cognition and the role of logical formalisation (q.v.) in it.

Anti-Particles, material particles whose existence was forecast in 1928 by the relativist quantum theory (see Dirac) and later discovered in cosmic rays (anti-electron, i.e., positron, 1932) and then obtained in accelerators (anti-proton and anti-neutron, 1955). It has been established that, with few exceptions, every ordinary "elementary" particle has an A. opposed to it, distinguishable by an opposite charge and other properties. This is a manifestation of the dialectically contradictory nature of the structure of matter. These pairs of particle and anti-particle have the specific capacity of annihilating each other, i.e., of being transformed into other qualitatively different forms of matter. The preponderance of ordinary particles in the Universe about us has not yet been satisfactorily explained.

Antisthenes of Athens (435-370 B.C.), a pupil of Socrates (q.v.), founder of the school of cynics that developed the Socratic teachings and regarded as real only the knowledge of the individual things. He criticised Plato's (q.v.) theory of ideas (as independently existing general conceptions) and asserted that only individual things exist. Of greater importance was his criticism of civilisation with all its achievements, his appeal to limit oneself to the most essential things, contempt for social-estate and class differences, and resultant unity with the democratic elements of the society of that time (see Cynics).

Antithesis of Mental and Physical Labour, the historically formed relations between people, in which mental labour is separated from physical labour, and the manual workers, i.e.,

producers, become the object of exploitation on the part of the ruling classes. This antithesis arises in the initial stage of the slave-owning society. The division of labour (q.v.) itself, and in particular the separation of mental from physical labour, was at the time a progressive phenomenon, insofar as some of the people were freed from arduous physical labour and thus allowed to engage in the development of science, culture, etc. In the antagonistic socio-economic formations, this separation takes the form of social, class antagonism: engagement in mental labour becomes the privilege of the dominant classes, while physical labour falls to the lot of the exploited classes. Under socialism, the liquidation of exploitation of man by man, the sharing in government and culture by the masses, the increasing transformation of labour into creative labour in which physical and mental activities are drawn closer to each other, etc., help overcome the antithesis between physical and mental labour. The enmity between the manual workers and the intelligentsia also disappears; the intelligentsia themselves developing from among the working people change their social character. However, even under socialism there still remains an essential distinction between physical and mental labour. It lies in the distinct gap between the cultural and technical level of the intelligentsia, on the one hand, and of the working class and the peasantry, on the other, in the difference in the nature of their work. This difference precludes antagonism of interests and has an altogether different social content. The distinction between mental and physical labour gradually becomes obliterated in the process of communist construction. The decisive condition for this obliteration is the creation of the material and technical basis of communism (see Material, etc.), the transformation of the very nature of labour, in which arduous physical work is to be replaced by machines; production will demand workers of engineer-technician standard, with a high cultural and technical level. The shortening of the work-

ing day frees time for man's all-round physical and spiritual development. The old division of labour, which nailed a man to a particular speciality, will disappear; possessing a high degree of training, each will be able to choose his profession and pass from one profession to another. All this will mean the complete merging of physical and mental labour.

Antithesis of Town and Country, the historically formed relations expressing the extreme backwardness of the country in relation to the town in economy and culture, the antithetical contradiction between the basic interests of the working people of the countryside and those of the ruling exploiting classes. The antithesis between town and country is the upshot of the social division of labour (q.v.). The economic basis of this opposition is the exploitation of the peasantry, leading to its ruin. In socialist society, as a result of the liquidation of all kinds of exploitation and the transformation of agriculture on socialist lines, the antithesis between town and country disappears. The town with its working class acts as the friend and ally of the labouring peasantry, as its leader, helping to overcome its former backwardness. The character of agricultural labour changes, coming closer and closer to industrial labour. The culture of the countryside grows on an unprecedented scale. At the same time the presence of two forms of socialist ownership (public and collective-farm and co-operative) leads to the preservation of a substantial difference between town and country. The elimination of this difference and the consequent removal of the distinctions between the working class and the collective-farm peasantry, is part and parcel of the building of communism. The concrete way of eliminating these distinctions is outlined in the Programme of the Communist Party of the Soviet Union. The main task is the creation of the material and technical basis of communism (see Material, etc.) which promotes the raising of collective-farm and co-operative property to the level of public property, the conversion of

agricultural labour to a variety of industrial labour, the raising of the social and economic conditions and the standard of life of the countryside to the level of the town. However, even under communism some non-essential distinctions between industrial and agricultural labour will remain owing to their specific peculiarities.

Antonovich, Maxim Alexeyevich (1835-1918); Russian materialist philosopher, publicist, and democrat; associated with Chernyshevsky (q.v.) and Dobrolyubov (q.v.). Graduated from St. Petersburg Theological Academy. He renounced a church career and from 1859 became a contributor to the journal *Sovremennik* (*The Contemporary*). His articles—"Contemporary Philosophy" (1861), "Two Types of Contemporary Philosophers" (1861), "The Philosophy of Hegel" (1861), "The Unity of Nature's Forces" (1865), et al.—gave expression to the materialist views upheld by the editors of *Sovremennik*. A. criticised Kant's (q.v.) apriorism and agnosticism, the Hegelians (Strakhov and Chicherin, q.v.), Grigoryev's Schellingism, the religious, idealist views of Yurkevich (q.v.), Gogotsky (q.v.), Karpov, and others, the Slavophil theories and the eclectics of Lavrov (q.v.) and Mikhailovsky (q.v.). He fully realised the connection between the philosophical and political struggles. On the basis of the anthropological principle propounded by Feuerbach (q.v.) and Chernyshevsky, A. demanded an improvement in the living conditions of the working people, the spread of literacy, and the granting of political liberties; in the struggle against liberalism he showed the need for radical changes in the social system of Russia. He championed the aesthetic theory of Chernyshevsky and criticised the "art for art's sake" theory. After the suppression of *Sovremennik* (1866) A. continued his propaganda of materialism and natural science in the periodical press, using for this purpose the achievements of science contemporary to him (the work of Sechenov, q.v., Darwin, q.v., and others). In 1896, he wrote the book *Charlz Darvin i yego teoriya* (*Charles*

Darwin and His Theory). In 1909, A. opposed the *Vekhi* group of writers and called for a resurrection of the traditions of the literary criticism of the 60s (of Chernyshevsky and others). Although A. propagandised materialist ideas in natural science and upheld democracy, he at times simplified and vulgarised the ideas of his teachers, and his views were not as consistent as those of the revolutionary democrats. His materialism contained certain elements of dialectics but remained, in the main, speculative and metaphysical.

Apagogic Proof (or proof by opposites), a form of indirect proof, also known as *reductio ad impossibile*. The following is a typical A.P. Let B be the thesis to be proved and $A_1, A_2 \dots A_n$ the true facts by means of which the thesis is proved. It is agreed to consider that non-B, the logical opposite of B, is true and it is included in the facts of the proof. From the series of facts thus obtained— $A_1, A_2 \dots A_n$, and non-B—conclusions are formed until a situation is arrived at, which logically contradicts one of the facts of the evidence. This contradiction of the original facts, provided the conclusion is correct, is possible only if the facts of the proof are false. Since $A_1, A_2 \dots A_n$ are undoubtedly true, the assumption of the truth of non-B was false; hence B is true.

Apathy, a state of indifference, limited activity, absence of any inducement to act (frequently the result of disorders of higher nervous activity). In the ethical theories of the stoics (q.v.) A. is understood as impassivity, spiritual imperturbability, a state in which sensations do not interfere with the activity of the mind. According to the stoics, A. is the ideal state for contemplation. It seems that Eastern religious and philosophical views, in particular the Buddhist (q.v.) and Jainist (q.v.), on nirvana, or absolute tranquillity as the highest state of the human soul, exercised an influence over the stoics.

Apeiron, a concept introduced by Anaximander (q.v.) to denote boundless, indefinite, qualityless matter in a state of constant motion. All the infi-

nite multiplicity of objects, all worlds, came into being by the isolation from A. of opposites (hot and cold, wet and dry) and their struggle. The concept of A. was a step forward in the development of ancient Greek materialism, since it identified matter with concrete substances (water, air). According to the Pythagoreans, A. is the amorphous, boundless principle, which, together with its opposite (the limited), is the basis of everything which exists.

Apodeictic, that which is proved beyond all dispute, a term used to mean absolute truth which Aristotle (q.v.) used to denote a strictly essential, deductively evolved proof from absolutely true premisses. He regarded the syllogism as an instrument of apodeictic knowledge. The term "apodeictic" is used to differentiate a judgement of necessity from a judgement of possibility (problematic) and a judgement of reality (assertoria).

Apologetics, a branch of theology (q.v.) which defends and justifies a dogma by means of arguments addressed to reason. A. is included in the Catholic and Orthodox systems of theology, but Protestantism rejects it and proceeds from the primacy of faith over reason. A. includes proof of the existence of God (see Proof, etc.), the immortality of the soul, the teaching of the signs of divine revelation (including miracles and prophecies), an analysis of the objections to religion and its various dogmas, and a theological analysis of alien faiths. A. possesses the internal defect of appealing to reason and at the same time asserting that the basic religious dogmas cannot be grasped by reason, i.e., A. is rational in form but irrational in content. Typical of A. are its refined sophistry, its extreme bias and dogmatism, obscurantism and unscientific nature.

Apophansis (not to be confused with "apophasis", which means negation), a proposition which Aristotle (q.v.) defines in this way: "Every sentence has meaning.... Yet every sentence is not a proposition; only such are propositions as have in them either truth or falsity." In classical logic A.

means no more than the affirmation or negation of something about something. When A. is used in conjunction with other statements for the purpose of drawing an inference, Aristotle uses the term "protasis" (premisses).

Aporia, in ancient Greek philosophy, a problem which is difficult to solve, owing to some contradiction in the object itself or in the conception of it. The arguments of Zeno of Elea (q.v.) on the impossibility of motion are called A. (he did not use this term himself). In the A. "Dichotomy" it is stated that before moving any distance it is necessary to cover half that distance, and before covering the half, a half of the half, and so on, to infinity. From this premise the conclusion is drawn that motion is impossible. In the A. "Achilles and the Tortoise" it is said that the swift Achilles can never catch up with the tortoise because by the time the runner reaches the place where the tortoise was at the start, the tortoise has moved forward, etc. Zeno correctly noted the contradictory nature of motion but did not understand the unity of its contradictory moments and came to the conclusion that all motion is impossible. The term A. first acquired a philosophical meaning in the works of Plato and Aristotle (qq.v.); the latter defined the term as "equality between contrary reasonings". Kant's antinomies (q.v.) are close to A.

A posteriori, the opposite of a priori (q.v.); it is used to qualify knowledge obtained by experience.

Appearance, see Essence and Appearance.

Apperception, the dependence of every new perception on the previous experience of a man and on his psychic condition at the moment of perception. The term was introduced by Leibniz (q.v.) to mean "consciousness of consciousness"—self-consciousness as opposed to perception (see also Transcendental Apperception).

Approbative Ethics, an idealist theory of morality in which good is defined as that which someone has approved. According to who does the approving (God, man's moral sense, society un-

derstood as the totality of individuals), A.E. is subdivided into theological, psychological, and social approbative theories. Examples of the first are the theories of Karl Barth, Emil Brunner (Switzerland), Paul Tillich, Reinhold and Richard Niebuhr (USA). The theory of man's moral sense developed as far back as the 17th and 18th centuries in England (Anthony Shaftesbury, Adam Smith, Hume), and was taken up in the 20th century by Edward Westermarck (Finland), Arthur Rogers (USA), and others. In its third form the theory was elaborated by Emile Durkheim and Lucien Levy-Brühl (q.v.), France. None of these theories has a scientific basis—they are voluntarist and subjectivist and deny objective criteria for morals.

A priori In idealist philosophy, A. is used to qualify knowledge obtained prior to and independent of experience, knowledge which is inherent in consciousness from the beginning as opposed to a posteriori (q.v.) knowledge, which results from experience. This contraposing of the two terms is particularly typical of Kant's (q.v.) philosophy; Kant stated that knowledge obtained by means of sensory perception is untrue and contraposed to it as authentic knowledge the a priori forms of sensation (space and time) and reason (cause, necessity, etc.). Dialectical materialism does not accept any form of a priori knowledge.

Aquinas, Thomas (1225-74), Italian Catholic theologian, Dominican monk and disciple of St. Albert the Great (q.v.); was canonised in 1323. His objective idealist philosophy arose as a result of falsifying Aristotelianism and adapting it to the Christian religion. T. A. emasculated the materialist ideas of Aristotelian philosophy and accentuated its idealist elements (doctrine of the immobile world prime mover and others). The doctrines of Neo-Platonism (q.v.) also considerably influenced Thomism. In the dispute about universals (q.v.) he held a position of "moderate realism" (see Realism, Medieval) acknowledging universals of three types: before individual things (in divine reason), in things

themselves (as universal in particular) and after things (in the human mind cognising them). The main principle of Thomism is the harmony of faith and reason; T.A. held that reason is capable of rationally proving the existence of God and rejecting objections to the truths of religion. Everything existing is fitted by T.A. in the hierarchic order created by God. This doctrine of the hierarchy of being reflected the organisations of the church in the feudal epoch. In 1879, the scholastic system of T.A. was officially proclaimed the "only true philosophy of Catholicism". It is utilised by the ideologists of anti-communism to combat the Marxist scientific world outlook (see Neo-Thomism). Main works: *Summa contra Gentiles*, 1261-64; *Summa theologiae*, 1265-73.

Arcesilaus (315-241 B.C.), Greek philosopher, one of the founders of the Middle Academy (q.v.). This was the second Academy, a feature of which was a transition from Plato's ideas towards scepticism (q.v.). All that remained of Plato was a strong tendency towards various types of logical conceptions, which in this case boiled down to a destruction of dogmatic philosophy and the assertion only of concepts of probability. In ethics also, A. is distinguished by the weakening of Plato's enthusiast theory which he reduced to imperturbability of the spiritual condition.

Areopagitics, a collection of four treatises ("On Divine Names", "On the Heavenly Hierarchy", "On the Ecclesiastical Hierarchy", and "On Mystical Theology") and ten epistles which for a long time were ascribed to Dionysius the Areopagite (hence the name), a 1st century bishop of Athens, but later found by scholars to be a falsification. In the A. there is a strong Neo-Platonic (q.v.) influence, although this trend did not exist in the 1st century. It also contains a developed church doctrine which, again, could not have existed in the 1st century. There are no references to this work in early Christian literature up to the 5th century. These arguments and others compelled scholars to date the

appearance of the A. to the 5th century and to conclude that Dionysius the Areopagite was recognised as the author on account of his great authority in the early Christian Church. Some scholars attribute the authorship of the A. to Peter the Iberian, a Georgian bishop who was active in the East. A. is a systematic, planned medieval Christian doctrine; the centre of all being is the uncognisable godhead from whom gradually diminishing light emanations radiate in all directions, through the world of angels and through the domain of the church right down to ordinary people and things. The strong pantheistic elements in the teachings were progressive in comparison with the church doctrine. For the whole thousand years preceding the Renaissance, A. was the most popular work of religious philosophy, and was one of the ideological sources of all medieval philosophy.

Argument 1. In logic—the proposition (or system of propositions) put forward in confirmation of the truth of some other proposition (or system of propositions); the premiss of the proof, also known as the basis of the proof; sometimes the proof as a whole is called the A. 2. In mathematics and mathematical logic, A. is the independent variable on the value of which the value of a function (q.v.) or predicate (q.v.) depends.

Aristarchus of Samos (c. 320-250 B.C.), astronomer, Pythagorean, pupil of Strato, whose geometrical measurements of the distances from the Earth to the Sun and the Moon showed him the falsity of Aristotle's geocentric system and led him to construct a heliocentric system (see Heliocentrism and Geocentrism). A.'s system was not accepted in times of antiquity and remained forgotten until the days of Copernicus (q.v.).

Aristippus (435-355 B.C.), philosopher, disciple of Socrates (q.v.) and founder of the Cyrenaic (hedonist) school (see Cyrenaics). His writings have been lost. A. combined sensationalism (q.v.) in the theory of knowledge with hedonism (q.v.) in ethics. He regarded pleasure as the highest purpose of life

but held that man should not be subordinated to pleasure, he should strive for the intellectual enjoyment which is his greatest blessing.

Aristotle (384-322 B.C.), philosopher and encyclopaedic scientist, founder of the science of logic and a number of other branches of special knowledge. Marx called him the "greatest thinker of antiquity". He was born at Stagira in Thrace and was educated in Athens at the school of Plato (q.v.). He criticised Plato's theory of disembodied forms ("ideas") but was unable to overcome Plato's idealism completely, wavering "between idealism and materialism". (Lenin, Vol. 38, p. 286.) He founded his own school in Athens (see Lyceum) in 335 B.C. In philosophy A. distinguished (1) the theoretical aspect—dealing with being, its components, causes, and origins, (2) the practical—dealing with human activity, and (3) the poetic—dealing with creativity. The object of science is the general, that which can be attained by the mind. The general, however, exists only in the sensually perceived individual and is cognised through it; the condition for the cognition of the general is inductive generalisation, which is impossible without sensual perception. Aristotle recognised four prime causes: (1) matter, or the passive possibility of becoming; (2) form (essence, the essence of being), the reality of that which in matter is only a possibility, (3) the beginning of motion, and (4) aim. A. regards all nature as successive transitions from "matter" to "form" and back. In matter, however, A. saw only the passive principle and attributed all activity to form, to which he reduced the beginning of motion and its aim. The ultimate source of all motion is God, the "Unmoved Prime Mover". Nevertheless, A.'s objective idealist theory of "form" is, in many respects, "more objective and further removed, more general than the idealism of Plato, hence in the philosophy of nature more frequently = materialism". (Lenin, Vol. 38, p. 282.) "Aristotle comes very close to materialism". (Ibid, p. 287.) A.'s formal logic is closely connected with the theory

of being, the theory of knowledge, and the theory of truth, because in logical forms A. saw at the same time forms of being. In the theory of knowledge A. differentiated between the clearly established (see Apodeictic) and the probable, which belongs to the sphere of "opinion", q.v., (see Dialectics). Nevertheless he connects these two forms of knowledge by language. Experiment, according to A., is not the last stage in the verification of "opinion", and the higher postulates of science are ascertained directly for their truth by the mind and not by the senses. However, the speculatively accessible higher axioms of knowledge are not inherent in our minds and presume activity—the collecting of facts, the direction of thought towards facts, etc. The ultimate purpose of science is to define the subject, and the condition for it is the combining of deduction (q.v.) and induction (q.v.). Since there is no concept that can predicate all other concepts and, consequently, different concepts cannot be generalised in a single common family, A. showed the categories, i.e., the higher families, to which all other families of truly existing things belong. In cosmology (q.v.) A. rejected the theory of the Pythagoreans (q.v.) and developed a geocentric system that gripped all minds until the days of Copernicus (q.v.), the creator of the heliocentric system. In ethics, A. regarded contemplation the highest form of mental activity. This was due to the separation of the physical labour of the slaves from mental leisure, the privilege of the free, that was typical of the slave-owning state of Greece. According to A., the model of morality was God, the most perfect of philosophers, "thought thinking itself". In his theory of society A. showed that slavery had its roots in nature. The highest forms of state authority were those that precluded the selfish use of power and those under which the authorities served the whole of society. A.'s waverings in philosophy account for the duality of his later influence; the materialist tendencies played an important part in the development of progressive ideas

in the philosophy of feudal society, and the idealist elements were expanded by medieval churchmen, who made A.'s theories "a dead scholasticism by rejecting all the searchings, waverings and modes of framing questions". (Lenin, Vol. 38, pp. 368-69.) Lenin studied A.'s *Metaphysics* (his basic work) and greatly appreciated "the living germs of dialectics and inquiries about it...", naive faith "in the power of reason, in the force, power, objective truth of cognition". (Ibid.)

Art, a specific form of social consciousness and human activity which reflects reality in artistic images and is one of the most important means of aesthetical comprehension and portrayal of the world. Marxism rejects the idealist interpretations of A. as a product and expression of the "absolute spirit", "universal will", "divine revelation" or subconscious conceptions and emotions of the artist. Labour is the source of artistic creation and also of the earlier process of shaping man's aesthetic sentiments and requirements. The first traces of primitive A. date back to the late paleolithic epoch, approximately from 40,000 to 20,000 B.C. Among the primitive peoples A. bore an immediate relation to labour, but subsequently this relation became more intricate and mediated. Changes in the socio-economic structure of society underlie the subsequent development of A. The people have always played a great part in the development of A. Its diverse bonds with the people have been consolidated in one of its specific features, namely, national character (q.v.). A form of reflection of social being, A. has much in common with other manifestations of society's spiritual life: science, technology (see Aesthetics and Technology), political ideology (see Partisanship in Art) and morals (see Aesthetic and Ethic). At the same time A. has a number of specific features which distinguish it from all other forms of social consciousness. Man's aesthetical relation to reality is the specific subject-matter of A. and its task is the artistic portrayal of the world. It is for this reason that man as the vehicle of

aesthetical relations is always in the centre of any work of art. The subject-matter of art (life in all its multiformity) mastered and presented by the artist in a specific form of reflection—in artistic images which represent the interpenetrating unity of the sensory and logical, concrete and abstract, individual and universal, appearance and essence, and so on. Artistic images are created by the artist on the basis of his knowledge of life and his skill. The object and form of reflection of reality in A. determine its specific function—to satisfy the aesthetic requirements of people through the creation of beautiful works which can bring man happiness and pleasure, enrich him spiritually and at the same time develop, awaken in him the artist, capable in the concrete sphere of his endeavour to create according to the laws of beauty and to introduce beauty in life. It is through this aesthetical function that A. displays its cognitive significance and exercises its powerful ideological and educative influence. Marxism-Leninism has demonstrated the objective nature of artistic development, in the course of which the main types of A.—literature, painting, sculpture, music, theatre, cinema, etc.—have taken shape. The history of A. is the history of ever deeper artistic reflection of reality, extension and enrichment of the aesthetical cognition and transformation of the world by man. The development of A. is inseparably bound up with the development of society, with changes in its class structure. Although the general line of A. is the improving of methods for more profound artistic reflection of reality, this development is uneven. Thus, even in antiquity A. attained a high level and in a certain sense acquired significance of a standard. At the same time the capitalist mode of production, immeasurably higher than that of slave society, is hostile, to use Marx's expression, to A. and poetry, because it abhors lofty social and spiritual ideals. In capitalist society progressive A. is associated either with the period of emergence of capitalism, when the bourgeoisie was still a progressive class, or with the

activity of artists who are critical of this system (see Critical Realism). Ideological and artistic decline (see Formalism, Abstract Art) are features of contemporary reactionary A. The highest aesthetical ideal is embodied in the world outlook and practical activity of the working class and in the struggle for the communist remaking of the world. It is this ideal that underlies the A. of socialist realism (q.v.). Soviet A. is discharging its mission proclaimed by the 22nd Congress of the CPSU—to promote the moulding of the harmonious personality of the member of communist society, the architect and builder of the new world.

Art, Content and Form of, two sides of art or an artistic work that determine each other, of which C. plays the leading part. The C. of art is diverse reality in its aesthetic specifics, chiefly man, human relations, social life in all its concrete manifestations. F. is the internal organisation and definite composition of an artistic work created with the help of artistic media of expression for the purpose of bringing out and portraying C. The main elements of C. in a work of art are its subject and idea. The subject is brought out by a range of life's phenomena which are reflected in the given work. The idea expresses the essence of the portrayed phenomena and the contradictions of reality, their artistic and emotional appraisal from the positions of an aesthetic ideal, leading man to definite aesthetic, moral, and political conclusions. The F. of works of art is multifaceted. Its basic elements include: plot, artistic language, composition, the artistic media of expression (word, rhyme, rhythm, sound intonation, harmony, colour, line, drawing, light and shadow, volume, tectonics, *mis-en-scène*, etc.). In contrast to formalism which divorces F. from C. and naturalism which identifies the two, Marxist aesthetics regards the inseparable unity, the balance of C. and perfect F. as an important criterion of artistry.

Art for Art's Sake ("Pure Art"), principle of idealist aesthetics, put

forward in contrast to the realistic demand for high idea-content and partisanship in art (q.v.). Its theoretical sources date back to the thesis of Kant (q.v.) that aesthetic judgement is of no practical interest. This principle spread in the 19th and 20th centuries; when in the struggle against realism its proponents advocated the internal "self-aim" and "absolute nature" of art, which supposedly aims only at purely aesthetic pleasure. Denial of the cognitive, ideological, and educative significance of art and of its dependence on the practical requirements of the age inevitably lead to the claim that the artist is "free" of society and bears no responsibilities to the people, i.e., to extreme individualism (q.v.).

Artistic Method, a historically determined, specific way of reflecting being and reality and expressing man's aesthetic attitude to the world; a method of understanding and portraying reality in artistic images. A.M. is a means of embodying and asserting a definite aesthetic ideal (q.v.). Every A.M. involves selection, generalisation, and assessment of life's facts and phenomena. The nature and trend of one A.M. or another, the degree of its capability to understand and mirror in artistic images the life of the people, the relationship between the individual and society, etc., depend on the socio-political and spiritual conditions of mankind's development at each given historical moment, on the objective role of one class or another in the life of society and the attitude of society to art. Every A.M. is closely connected with a world outlook which, being progressive or backward, exerts a positive or adverse influence on the work of the artist. But this is an intricate, dialectically contradictory relationship in which, as Engels demonstrated in the case of Balzac, the artist, owing to the power of his realistic method, may overcome some of the limitations of his subjective views. Socialist realism (q.v.) is a qualitatively new A. M. brought into being by the epoch of the struggle for socialism and communism. It differs from

preceding methods in art (classicism, romanticism, critical realism, and others) by portraying life in the light of the struggle for the triumph of the communist ideal.

Asceticism, a way of life, the basic features of which are extreme abstinence and the greatest possible rejection of comforts for the achievement of a lofty moral or religious ideal. In ancient Greece the term asceticism was first applied to exercises in the virtues. It is also an important element of Brahmanism and Buddhism. In the first centuries of Christianity, ascetic was the name given to those who spent their lives in solitude and self-mortification, in fasting, and praying. The early Christian and medieval ideal of asceticism underwent a change at the time of the Reformation. Protestantism demanded "wordly asceticism". Early peasant and proletarian movements also called for asceticism as a form of protest against the luxury and idleness of the ruling classes. Marxist ethics regards asceticism as an irrational and unjustifiable extreme, as the result of incorrect conceptions of the ways leading to a moral ideal. The Programme of the CPSU is based on the principle "Everything for the sake of man, for the benefit of man". Marxism, however, condemns the other extreme, lack of restraint in satisfying one's needs, unnecessary luxury, and the reduction of life to the pursuit of enjoyment (see Hedonism).

Association, the nexus between elements of the psyche, which causes the appearance of any one of them to call forth, under certain circumstances, other connected elements. An example of A. in its simplest form is the repetition of the letters of the alphabet in proper sequence. A. emerges in the course of the interaction of subject and object as one of the elementary products of that interaction and reflects real connections between things and phenomena. It is a necessary condition for mental activity. The physiological basis for the existence of A. was discovered by Ivan Pavlov (q.v.); it is the mechanism of the formation of temporary neural nexus, i.e., the

formation of a nerve path between different areas of the cerebral cortex (in man and the higher animals) and the short-circuiting of the excitations of those areas. A. is the basis of all the more intricate formations of man's psyche.

Associationist Psychology, various trends in psychology that use association (q.v.) as their main principle. The pre-history of the subject goes back to Hobbes, Locke and Spinoza (qq.v.); as a rule each of the trends is divided into materialist and idealist branches. Hartley and later Priestley (qq.v.), following Hobbes, developed the materialist tradition; they explained psychological activity by the general laws of association and maintained that such activity is conditioned by cerebral oscillations. The idealist aspect of A.P. reduces psychological activity to the association of subjective conceptions and is based on Hume's (q.v.) phenomenalism (Hume spoke of "clusters of impressions") and on Herbart (q.v.). A.P. took final shape, mainly in Britain, in the 19th century (J.S. Mill, James Mill, q.v., Alfred Benn) and combines the materialist and idealist wings through mechanism (psychological atomism, mental chemistry, etc.). In the 20th century A.P. is continued in behaviourism (q.v.), which greatly exaggerates the mechanistic tendencies inherent in it.

Astronomy, the science of the position, motion, structure and development of celestial bodies and their systems, and other forms of cosmic matter. A. is divided into a number of disciplines, each of which is again subdivided. Astrometry, for instance, includes spherical, geodesic, navigational, and other branches of practical A. and deals with the problems of measuring the positions and sizes of celestial bodies. Astral A. studies the laws of the spatial distribution and motion of stars and their systems. Radio astronomy, which has developed since the Second World War, studies various cosmic objects by observing the radio waves they emanate. Astrophysics studies, among other things, the physical properties of cosmic mat-

ter (bodies, dust, gas) and fields; cosmogony (q.v.) studies problems connected with their origin and development and cosmology (q.v.) studies the general laws of the structure of the Universe as a single connected whole, as an all-embracing system of cosmic systems. A. extends to a tremendous degree in time and space the experimental field in natural science and human knowledge in general. Thanks to A. the human mind is able to penetrate milliards of light years into outer space and hundreds and thousands of millions of years in time into the past and the future. A.'s objects are gigantic natural physical laboratories where the most varied processes are under way, processes that cannot yet be reproduced under terrestrial conditions, or, if they can, only on a tiny scale. Thermonuclear reactions, for instance, were first discovered in the stars and later reproduced on Earth (so far only as uncontrolled explosions); particles in cosmic rays have energies that are not yet attainable in the most powerful accelerators; in space, too, we can observe matter in a state of superdensity or extreme rarefaction, gravitational and electromagnetic fields of enormous extent and power, explosions and blasts on a terrific scale, etc. A. extends the experimental field of physics into boundless space, but itself relies first and foremost on physical science and its means and methods. Until quite recently astronomers were almost completely confined to observation and could not mount experiments. Since 1957, however, when the USSR launched the first artificial Earth satellite and paved the way for space exploration, the situation has changed. Extra-terrestrial observation (measurements in interplanetary space, photographing of the reverse side of the Moon, etc.), and even visits to other celestial bodies and the mounting of experiments there have become possible. A. is one of the oldest sciences and more than any other natural science has served to elaborate and spread correct, materialist views of nature. Since it deals with heavenly bodies, A. has not in-

frequently been treated with suspicion by the church and churchmen and has met with their savage counteractions, which went so far as to attempt, by torture and death at the stake, to check the cognition of the Universe. The clericals and their idealist supporters are today forced to take into consideration the great authority of natural science; they still try to distort the data of A. to adapt them to justify religion.

Ataraxia, a state of spiritual tranquility and imperturbability which, according to some Greek philosophers, was attainable by a wise man. The road to A., according to Democritus, Epicurus, and Lucretius (qq.v.), was in the cognition of the Universe, the overcoming of fear and liberation from alarm. The sceptics (Pyrrho and others) taught that A. is achieved by abstinence from making judgements, and indifference to what is going on, to joy and sorrow (see Apathy). Marxist ethics rejects the contemplative attitude to life, and, consequently, rejects A. as an ideal, especially the A. of which the sceptics spoke.

Atheism, a system of views rejecting faith in the supernatural (spirits, gods, life beyond the grave, etc.). A. explains the sources of religion and the reasons for its emergence, criticises religious dogmas from the standpoint of a scientific study of the Universe, exposes the social role of religion and shows how religious prejudices are to be overcome. A. emerged and developed as scientific knowledge increased. At every stage in history, A. reflected the level of knowledge reached and the interests of the classes that used it as an ideological weapon. The philosophical basis of A. is materialism. The positive content and the defects of each form of A. are conditioned by concrete social and economic conditions, the level of development of science and of materialist philosophy. A.'s struggle against religion is closely connected with the class struggle. A. took shape as a system of views in slave-owning society. There were considerable atheistic elements in the works of Thales, Anaximenes, Herac-

litus, Democritus, Epicurus, Xenophanes (qq.v.). They explained all phenomena by natural causes, their approach was naive and speculative and combined rejection of religious faith with recognition of gods. In the Middle Ages, when the church and religion were dominant, A. made little progress. Bourgeois A. was of great significance in undermining the rule of religion—Spinoza (q.v.), the French materialists, Feuerbach (q.v.), and others. The exposure of the reactionary nature of the church by bourgeois atheists played an historical role in the struggle against feudalism and facilitated its abolition. Bourgeois A., however, was inconsistent and limited, was enlightening in character and was not addressed to the people but to a narrow circle. The Russian revolutionary democrats were militant and consistent atheists. A. acquired its most consistent form in Marxism-Leninism. The interests of the proletariat and its position and role in society coincide with the objective trends of social development owing to which Marxist A. is free from the class limitations that were typical of pre-Marxist forms of A. The philosophical basis of Marxist A. is dialectical and historical materialism. Marxist A. is militant in character. For the first time in history it provides an all-round criticism of religion and shows ways and means of completely overcoming it. Marxist A. states that religion can be completely overcome only when all its social roots have been destroyed in the course of communist construction. The experience of the USSR, where A. is practised on a mass scale, proves the correctness of these postulates. In the course of communist construction a new man is educated, a man who is freed from religion and other survivals of the past and equipped with a scientific, atheist world outlook.

Atom and Atomic Nucleus The atom is the smallest particle of a chemical element, a complicated system consisting of a heavy central, positively charged nucleus surrounded by an envelope of light, negatively charged particles moving in orbits about the

nucleus and known as electrons. The atomic nucleus is also intricate in its structure; it consists of neutrons and protons (elementary particles, q.v.) that together are known as nucleons. The atom is something like one hundred millionth of a centimetre in size and its nucleus is ten thousand times smaller. The value of the charges on the nucleus is equal to the number of protons and coincides with the number of electrons in the atom; this is the serial number of the given element in Mendeleev's (q.v.) periodic table. Almost the entire mass of the atom is concentrated in the nucleus. The existence of the atom as an integral formation is subject to the quantum laws, which explain the stability of the atom, the peculiar nature of the motion of the electrons determined by the duality of their corpuscular-wave nature, the spasmodic changes in the energy of the atom during transition from one stable state to another, the laws of the interaction of atoms, etc. Atoms can combine by the interaction of their electronic envelopes; this provides the basis for various manifestations of the chemical form of the motion of matter. Chemical changes do not affect the atomic nucleus. The stability of the nucleus depends on the simultaneous action of opposite forces—on the one hand these are the electrical forces of repulsion of identically charged protons and, on the other, the special forces of attraction that exist between all the particles of the nucleus, the specific nuclear forces which operate only over short distances. The mass of the nucleus is always less than the total mass of the particles of which it is constituted. This is explained by the release of a certain amount of energy when the nucleus is formed whereby the mass is correspondingly reduced (according to the relationship between energy and mass discovered by Einstein, q.v.). Atomic nuclei can split or combine with one another. The transformation of nuclei (conversion of chemical elements, q.v., radioactivity, q.v.) is accompanied by the release of a tremendous amount of energy. The atoms

of different elements are linked by profoundly dialectic mutual bonds. Atoms and atomic nuclei are the "nodes" in the general series of increasingly intricate forms of matter and make their appearance at definite stages in the development of matter. The development of the atomic theory played a considerable role in the development of philosophy, natural science, and technology (see Atomistics). The achievements of modern physics—the discovery of the complex structure of the atom, the conversion of one atom into another (radioactivity), etc.—created a veritable revolution in natural science that led to a review of former conceptions of the structure and properties of matter and to materialism adopting a new form. In particular, the qualitative specifics of the microcosm were discovered as they are manifested in the unity of the opposite corpuscular-wave properties of matter; the infinite number of properties of any, even the "simplest" particle of matter was discovered, etc. All this served as a fresh confirmation of the truth of dialectical materialism. The practical use of atomic energy is not only one of the greatest scientific and technical problems that is being in many respects successfully solved, but is also one of the most acute problems in the life of modern society. The peaceful use of atomic energy opens up before mankind the broadest prospects for the development of the forces of production.

Atomic Fact, one of the basic concepts of logical empiricism (q.v.). The A.F. is not divisible into component parts but consists of a combination of the things and objects of thought. Atomic facts are independent of each other. The existence (or non-existence) of one A.F. is not proof of the existence (or non-existence) of another. Thus, mutual bonds (links) and the unity of the Universe are denied, and the process of cognition is confined in practice to the description of the A.F. This metaphysical concept grew up as a result of the transfer to the external world of certain properties of the "atomic" (elementary) sentences

that play an important part in mathematical logic. In essence the concept of A.F. is related to Mach's (q.v.) "world elements".

Atomistics, the theory of the discrete structure of matter (from atoms and other microparticles). A. was first formulated in the ancient Indian philosophical theories of *nyāyā* and *vaiśeṣhika*, but was formulated more fully and consistently in the philosophy of Leucippus, Democritus, Epicurus, and Lucretius (qq.v.). Atoms were regarded as the ultimate, indivisible, tiniest, in substance infinitely small particles. They differ in weight, velocity, and mutual disposition in bodies, owing to which different properties arise. Between the 17th and 19th centuries, A. was elaborated in the writings of Galileo, Newton, Lomonosov, Dalton, Butlerov, Mendeleev (q.v.), Boyle, Avogadro, and others, and became the physico-chemical theory of the structure of matter. A. has almost always been a basis for materialist conceptions of the world. The old A., however, was to a considerable extent metaphysical, since the idea of discreteness was made absolute and the presence of an ultimate, unchanging state of matter, the "primary bricks" of the world edifice, was recognised. Modern A. recognises a multiplicity of molecules, atoms, "elementary" particles, and other microobjects in the structure of matter, their infinite complexity and their faculty for conversion from one form into another. The existence of various discrete microobjects is regarded by A. as a manifestation of the law of the transition from quantitative to qualitative changes; the reduction of distances in space is due to the transition to qualitatively new forms of matter. Modern A. considers matter to be not only discrete but also continuous. The forces of interaction between microparticles are carried across continuous fields—electromagnetic, nuclear, etc., which are inseparably connected with the "elementary" particles. The spread of interaction in the fields occurs in the form of immediate action (see Action,

Immediate and at a Distance). Modern A. denies the existence of ultimate, unchanging matter and proceeds from the recognition of the quantitative infinity of matter.

Attention, mental state in which a person directs and concentrates his cognitive and practical activity on a definite object or action. Involuntary A. to an object (an orientative reflex in the physiological sense) is evoked by the peculiar features of the object itself, such as newness, mutation, contrast power of effect (e.g., bright light, powerful sounds). Deliberate A. is determined by a conscious aim. Deliberate A., which is peculiar to man, has developed in the course of centuries of labour. Of labour Marx wrote: "Besides the exertion of the bodily organs, the process demands that, during the whole operation, the workman's will be steadily in consonance with his purpose. This means close attention." (Marx, *Capital*, Vol. I, p. 178.)

Attribute, an inalienable quality possessed by a thing without which the thing cannot exist or cannot be conceived. Aristotle (q.v.) distinguished attribute from accident (q.v.). Descartes regarded Aa. as the basic qualities of substance (q.v.). For this reason the A. of a corporeal substance is to him its dimensions, while thought is the A. of a spiritual substance. Spinoza (q.v.) considered dimensions and thought to be the Aa. of a single substance. The 18th century French materialists regarded dimension and motion as the Aa. of matter, and some of them (Diderot, Robinet, qq.v.) added thought. The term is used in modern philosophy.

Augustine, Saint (354-430).- Bishop of Hippo (North Africa), Christian theologian and mystic philosopher, held views close to Neo-Platonism (q.v.), and was a prominent patristic (see Patristics). His world outlook had a well-defined fideist character based on the principle "Where there is no faith there is no knowledge, no truth". His views constituted one of the sources of scholasticism (q.v.). In his *De Civitate Dei* (*The City of*

God) A. developed the Christian conception of world history comprehended fatalistically, as pre-ordained by God. He counterposes his "City of God", the universal rule of the church, to *Civitas terrena*, the City of Earth, the "sinful" secular state. This doctrine played an important part in the struggle of the Papacy against the feudal lords. A. considerably influenced the subsequent development, of Christian theology. Augustinism is still widely used today by both Catholic and Protestant clericals.

Authority, an ethical concept denoting the universally recognised influence of an individual, a system of views or an organisation deriving from certain qualities or services performed. A. may be political, moral, scientific, etc., depending on the sphere of influence. A system of A. is an essential condition for the development of socio-historical practice. A. plays an important part in the conditions of socialist construction, when all the working people are drawn actively into the affairs of society. The abuse of A. may, in the final analysis, lead to a loss of confidence in the A. or to blind worship of it, which develops into the personality cult (q.v.). The 22nd Congress of the CPSU stressed the vast difference between the A. of leaders and the personality cult, and showed that A. must be won by unselfish service to the people and the Party, by persistent labour and a profound knowledge of the task in hand. To retain A. one must listen to public opinion, keep in touch with the masses and rely on their experience. Criticism and self-criticism (q.v.) constitute the condition that prevents A. from developing into the personality cult.

Autogenesis, an idealist trend in biology and medicine that regards philogenesis (q.v.) and ontogenesis (q.v.) as resulting solely from internal, autonomous factors. This school divorces the organism from the environment and considers the mystical "principle of perfection" and other immaterial causes to be the motive force determining the development of organisms. Supporters of autogenetic concepts (the

German botanist Nägeli, the Swiss zoologist Agassiz, the American biologist Cohen, and others) regarded the evolution of living organisms as a pre-determined, teleological process (see Teleology). A. is close to vitalism (q.v.).

Automat, any technical device that performs some process, action or operation (e.g., a mechanical operation, production control, etc.) without the direct participation of man. Very simple Aa. were known in antiquity. Automatic machine tools became widespread in the 19th and 20th centuries. Aa. with feedback (q.v.) and capable of maintaining a process as required under changing conditions have been developed in the last few decades. The development of cybernetics (q.v.) and electronic computing techniques has led to the production of Aa. that maintain a process under optimal conditions. The development of modern Aa. shows that they are not only capable of replacing the muscular power of man but can undertake a number of functions usually carried out by the human brain—they can select the sequence and direction of actions, carry out intricate calculations and draw logical conclusions, "remember" information, gather experience, "learn", and so on. This opens up a wide field for the automation of some aspects and processes of mental labour. The theoretical study of Aa. belongs to the field of cybernetics and modern logic. These sciences regard as Aa. any devices for the processing of information. The theory of "abstract automats" studies idealised devices with several inlets by which the information is fed in and several outlets for the processed information. The processed information depends on that fed into the A. and the state of the A. at the moment the information is received. The states of Aa. depend on information retained from the past—they are its "memory". In a real A. there can be only a finite number of these states, i.e., its "memory" is finite (finite A). An abstraction of the finiteness of the "memory" gives rise to the concept of an A. with a

"memory" of infinite volume; an example of this is the Turing machine (q.v.) abstraction, which plays an important role in the development of modern logic.

Automation, the performance of production, management, and other socially necessary processes without the immediate participation of man. A. is the highest stage in the development of technology and is marked by the appearance of automated lines of machine tools (in the 20s of the 20th cent.); this was followed by automated shops and factories using (from the 50s) modern computing and controlling machines. A. does not eliminate the human element which is necessary to give general guidance and exercise control over the work of the machine (adjustment, programming, feeding raw material, repairs), although as A. develops the machines will more and more perform these functions themselves. A. makes for a considerable increase in the productivity of labour and in the output of goods, reduces costs and improves quality. Control over a number of processes (in atomic power engineering, in space exploration, etc.) can be done only automatically. Extensive A. in industry has important economic, political, and cultural consequences. These differ radically under capitalism and socialism. Under capitalism A. leads to mass unemployment, the transfer of workers to jobs that require lower skills and are lower paid; it increases economic depressions and crises and greatly aggravates the contradictions of bourgeois society. The introduction of A. by capitalists serves the purpose of obtaining superprofits and is extremely uneven. Under socialism and communism A. serves to lighten the labour of man and create abundance, and leads to a constant improvement in living standards and culture and to the conversion of labour into a primary necessity for man. The Programme of the CPSU envisages a constantly growing A. of production processes as an essential condition for the creation of the material and technical basis of communism. A. improves

labour conditions, helps remove the distinctions between mental and physical labour and raise the cultural and technical level of the working people. By considerably reducing the length of the working day it gives people in a communist society an opportunity to apply their efforts to science, art, sport, etc.

Avenarius, Richard (1843-96), Swiss philosopher of the subjective idealist school, one of the first exponents of empirio-criticism (q.v.), professor of Zürich University. The central feature of his philosophy is the concept of experience which is supposed to reconcile the opposites—consciousness and matter, the psychic and the physical. A. criticised the materialist theory of knowledge which he described as introjection (q.v.), i.e., incorporating the external world into the psyche. He also supported the theory of principal co-ordination (q.v.) of subject and object, i.e., the dependence of the latter on the former. That A.'s views were groundless and incompatible with the facts of natural science was shown by Lenin in his *Materialism and Empirio-Criticism* (vol. 14). A.'s major work is *Kritik der reinen Erfahrung* (1888-90).

Averroës, see Ibn Roshd.

Averroism, the teachings of Averroës (see Ibn Roshd) and his followers, a trend in medieval philosophy; its supporters held that the world is eternal and the soul mortal and upheld the theory of twofold truth (q.v.). A. was brutally persecuted by the church. A. acquired considerable influence in France (Siger de Brabant) in the 13th century as a progressive philosophical trend opposed to the ruling dogmatism of the church; it was also influential in Italy (the Padua school) from the 14th to 16th century.

Avicenna, see Ibn Sina.

Axiology, the branch of philosophy dealing with values (q.v.). The Marxist theory of values is fundamentally opposed to bourgeois A. which took shape at the beginning of the 20th century (Rickert, q.v., M. Scheler, and others) and, as a rule, ignores the

social nature of values. Non-Marxist theoreticians, therefore, reach subjectivist or objective-idealist conclusions in A. The neo-positivists, for instance, deny altogether the real existence of property values in the object, asserting that the good and the beautiful are merely the expression of our subjective attitude to the object being appraised. Objective idealists consider value to be some sort of supernatural entity belonging to an extra-spatial, extra-sensory world. The Marxist approach to the theory of values is based, first, on the recognition of the objective character of social, scientific, moral, aesthetic, and other values; secondly, on the denial of the extra-historical nature of values and an understanding of their dependence on historical conditions, class relations, etc; thirdly, on the consideration of the dialectical relations between the relative and the absolute in the development of values. From the Marxist point of view, man and human happiness, and freedom achieved in struggle against all forms of oppression and in building communist society, constitute the supreme values.

Axiom, a proposition in any scientific theory that is so constructed that it is taken as the starting point and does not have to be proved for that theory and from which (or from the totality of which) the remaining propositions of the theory are deduced in accordance with set rules. From times of antiquity to the mid-19th century an A. was regarded as intuitively obvious or a priori true. This conception lost sight of the conventional nature of Aa. deriving from many centuries of human practical cognitive activity. Lenin wrote that man's practical activity required the repetition of logical figures myriads of times in the human mind, in order that these figures could become axioms. The present-day understanding of the axiomatic method (q.v.) does not require A. to be obvious a priori. Aa. must satisfy one condition—all other propositions of the given theory are derived from them and from them alone. The truth of Aa. selected is

determined when interpretations (see Interpretation and Model) of the given system are found; if such interpretations exist or, at least, may be assumed in principle, Aa. must be accepted as true (see Postulate).

Axiom of the Syllogism, the basic principle of the syllogism which Aristotle formulated as "all that is predicated of the predicate will be predicated also of the subject". Aristotle often used the term "belongs to" instead of the term "is predicated of", and considered the expression "A is predicated of B" to be identical with "B is included in A". Thus A.S. may be interpreted as content (intensively) and as volume (extensively). In traditional logic, the significance of A.S. is revealed in the reduction of all syllogisms to the first syllogistic figure (see Syllogistic). In modern formal logic, the problem of A.S. is handled in the context of a broader axiomatisation of syllogistic.

Axiomatic Method, a deductive method of building up a scientific theory in which (1) for a given theory a number of propositions acceptable without proof are selected (axioms, q.v.); (2) the concepts they contain obviously cannot be defined within the framework of the given theory; (3) rules are elaborated for the deduction and definition of the given theory, which permit the necessary transition from some propositions to others and introduce new terms (concepts) into the theory; (4) all the remaining propositions of the given theory are deduced from (1) on the basis of (3). The first ideas of the method appeared in Greece (Aristotle, Euclid). Later attempts were made to analyse various branches of science and philosophy axiomatically (Newton, Spinoza, and others). These analyses were an intensive (substantial) construction of a given theory (and of no other); attention was paid mainly to the intuitive definition and selection of obvious axioms. Beginning with the second half of the 19th century, when there was an intensive elaboration of the problems involved in establishing the bases of mathematics and mathematical logic, the axiom

theory came to be regarded as a sort of formal system establishing the relation between its elements (symbols) and describing any number of objects that satisfied the axiom. The main attention was focussed on the non-contradiction (q.v.) of the system, its completeness and the independence of axioms (q.v.), etc. Since symbolic systems may be studied independently of any content they may have or in connection with it, a distinction is made between syntactical and semantic axiomatic systems. This distinction made it necessary to formulate two types of basic requirements for them—syntactical and semantic (syntactical and semantic non-contradiction, completeness, independence of the axioms, etc.). An analysis of the formalised axiomatic systems led to the conclusion that it is impossible to construct a general axiomatic system (Gödel, q.v.). Axiomatisation is only one of the methods of the organisation of scientific knowledge. It is usually carried out after the theory has been built up with sufficient content and its aim is greater precision in expounding the theory, particularly in deducing all the consequences from the assertions that have been accepted. During the last 30 or 40 years great attention has been paid to the axiomatisation, not only of mathematical subjects, but also of certain branches of physics, biology, linguistics, etc. In studying natural sciences (in general, any non-mathematical science) A.M. takes the form of the hypothetico-deductive method (q.v.) (see also Formalisation).

Axiomatic System, Independence of, a characteristic of axiomatics (see Axiomatic Method). If not a single axiom underlying a deductive system can be inferred by the rules of deduction of this system, such a system of axioms is called independent. Otherwise the system of axioms is dependent. A study of any axiomatic system from this point of view is important not only for simplifying axiomatics. It may be important in principle. Thus, establishment of the independence of Euclid's (q.v.) fifth pos-

tulate (q.v.) in the system of axioms of geometry facilitated the development of non-Euclidean geometries (q.v.).

Axiomatic Theory, Completeness of, requirement that in all axiomatically constructed theories the truth of each proposition should be proved (i.e., deduced from axioms) for the given system. Because of the distinction between syntactic and semantic axiomatic theories (see Axiomatic Method) requirements for completeness differentiate: there are requirements for syntactical completeness in a strong sense (all propositions, belonging to a system, are deducible or disprovable in it), and in a weak sense (after adding to the axioms a proposition, not deducible in this system, it becomes a contradictory one), requirements for semantic completeness in respect to certain models (each proposition corresponding to a true statement in a given model is deducible for the system), etc. In the process of investigating sufficiently rich axiomatic theories (arithmetic, for example) proof was found (K. Gödel, q.v., in 1931, and the subsequent results), that they were incomplete in principle, i.e., they contain propositions which are not capable of proof or disproof in their framework. By virtue of this, completeness is not an absolutely indispensable condition for successful axiomatisation: theories which are to a certain degree incomplete possess practical value.

Axiomatic Theory, Non-Contradiction of, a condition which must be fulfilled by any axiomatic theory and according to which a proposition P and its negation \bar{P} cannot be simultaneously deduced within the framework of the given theory. In view of the difference between the syntactic and semantic aspects of axiomatic theories (see Axiomatic Method), non-contradictoriness is formulated in two ways: a theory is syntactically non-contradictory if a proposition and its negation are not simultaneously deduced in it; a theory is semantically non-contradictory if it has at least one model, i.e., a certain sphere of objects, satis-

ying the given theory. Of all the conditions for axiomatic constructions (see Axiomatic Theory, Completeness of; Axiomatic System, Independence of) non-contradiction is the leading one: its violation makes the theory invalid, because it becomes possible to prove any proposition in it.

Ayer, Alfred (1910-), neo-positivist, professor of metaphysics at Oxford University (since 1959). Acquired recognition for his book *Language, Truth and Logic* (1936) in which he propagandises the ideas of the Vienna Circle (q.v.). In his later writings (*The*

Foundations of Empirical Knowledge, 1940; *Thinking and Meaning*, 1947; *The Problem of Knowledge*, 1956, and others) he deviates somewhat from the orthodox form of logical positivism (q.v.) and comes strongly under the influence of linguistic philosophy (q.v.). In these books he attempts to investigate philosophical problems (the authenticity of knowledge, the relation between material objects and "sensory data", etc.) from the positivist position by analysing the relevant concepts, translating them into "logically clear" terminology.

B

Babouism, the 18th century French revolutionary movement for "a republic of equals"—a single national commune governed from a single centre. The movement took its name from its leader and most consistent theoretician, Gracchus Babeuf (1760-97). In 1796, Babeuf, and his companions (Buonarrotti, Maréchal, Antonelle, Darthé, Germain, Debon, Lepelletier, and others) organised the "Conspiracy of Equals", which was the culminating point of the movement. The conspiracy was uncovered and many of the participants were arrested and put on trial. Babeuf and Darthé were guillotined in 1797. B. signified the break-down of the alliance of exploited plebeians and the bourgeoisie that had taken shape during preparations for, and in the course of, the French Revolution. The instability of this alliance was obvious, for a bourgeois revolution could not give anything substantial to the most exploited section of the population. This was particularly clear at the time of the Thermidor reaction. B. was the political and ideological reflection of the early separation of the pre-proletariat from the general plebeian mass that had participated in the French Revolution. The Babouvists were the ideological heirs of French 18th century materialism (q.v.), of the ideas of Mellier (q.v.) on the popular revolution, of the "rationalist" communism of Morelly (q.v.) and of the organisational and ideological experience of the most radical trends in the French Revolution. B. was a step forward in the development of socialist thinking, since it came into being at a new stage in the socio-economic development of France, the stage at

which capitalist relations were being consolidated. The Babouvists were the first to attempt to convert socialism from a theory into the practice of the revolutionary movement. In addition to their general statute of the future "Republic of Equals", the Babouvists elaborated a whole system of measures to improve the condition of the poor and overcome the resistance of counter-revolutionary forces. They put forward the idea of retaining the dictatorship of the working people after the victory of the revolution; they tried to define the main stages of the revolutionary transformation of society; they put forward the proposition that history is a struggle between the rich and the poor, patricians and plebeians, between masters and servants, between the sated and the hungry. Although it possessed features of historical realism, B. did not go beyond conspiracies in its tactics; for this reason the movement is regarded as utopian, although ideologically and organisationally Babeuf and his companions contributed to the development of socialism from a utopia into a science.

Bachofen, Johann Jakob (1815-87), Swiss historian of law and religion. His *Das Mutterrecht* (1861) was a pioneer work in the study of the history of the family, particularly the matriarchy, but his idealist outlook prevented him from discovering the real nature of family and marital relations and their development. He considered the evolution of religious ideas to be the driving force of history. His philosophy was comprehensively examined by Engels in *The Origin of the Family, Private Property and the State* (q.v.).

Bacon, Francis (1561-1626), English philosopher, founder of the new materialism and experimental science. Under James I, attained the high position of Lord Chancellor. In 1620, published the famous treatise, *Novum Organum* (the title was a reference to Aristotle's *Organon*), in which he evolved a new conception of the tasks of science and the foundations of scientific induction (q.v.). Declaring that the purpose of learning was to increase man's power over nature, B. maintained that this aim could be achieved only by learning which revealed the true causes of things. He, therefore, opposed scholasticism. The early learning had suffered either from "dogmatism", in the sense that the scholar starting from concepts of his own invention, wove his system of propositions in the same way as the spider weaves its web, or else it suffered from "empiricism", i.e., mere enumeration of unrelated facts. On these grounds B. called for scepticism with regard to all previous learning. While admitting the possibility of acquiring true knowledge, he held that the method of doing so must be reformed. The first step towards this reform should be to cleanse the mind of the preconceptions and prejudices (Idols) by which it was constantly threatened. Some of these illusions were due to habits of mind characteristic of the whole human race, others to mental habits characteristic of the particular investigator or investigators, yet others stemmed from the imperfection and inaccuracy of language, and others, finally, were due to the uncritical acceptance of opinions. Having rid oneself of these bad habits of mind one could then adopt the true method of the new learning. This learning, according to B., should be a rational elaboration of the facts of experience. The premisses for the conclusions of the new learning (*media axiomata*) would be propositions based on concepts arrived at through methodical generalisation or induction. Induction was based on analytical comprehension of experiment. According to Engels, the one-sided development of Bacon's theory enabled him, and

after him, Locke, to shift the metaphysical approach, which had taken shape in the 15th and 16th centuries, from natural science to philosophy. In his theory of induction B. was the first to point to the importance of what were called "negative instances", i.e., cases contradicting the generalisation and calling for its revision. His contribution to the development of philosophy may be defined as follows. First, he restored the materialist tradition and reassessed the philosophical doctrines of the past from this standpoint; he praised early Greek materialism and revealed the errors of idealism. Secondly, he evolved his own materialist conception of nature, which he based on the idea that matter was a combination of particles, and nature a combination of bodies endowed with manifold properties. An essential quality of matter was motion, which B. did not confine merely to mechanical movement (he defined 19 types of motion). Bacon's views reflected the new demands made upon learning in England in the age of primitive capital accumulation. But B. was not a consistent materialist. His teaching, as Marx notes, is full of "theological inconsistency". His political beliefs were reflected in the *New Atlantis*, a utopia in which an ideal society flourishes economically on the basis of science and an ingenious technology, while the antithesis between ruling and oppressed classes remains.

Bacon, Roger (c. 1214-92), English thinker of the Middle Ages, precursor of modern experimental science, ideologist of the town craftsmen. He exposed feudal customs, ideology, and politics. In 1277, B. was dismissed from teaching at Oxford University because of his heretical views and was confined to a monastery by order of the church authorities. His world outlook was materialist but not consistently so. Condemning scholastic dogmatism and veneration of authority, he advocated the experimental study of nature and a new and independent approach to learning. He upheld experiment and mathematics as a means of obtaining knowledge, the aim of

all learning being to increase man's power over nature. In spite of the traces of alchemist, astrological, and magical superstition that are to be found in his works, B. put forward a number of bold scientific and technical conjectures.

Baden School, one of the most influential Neo-Kantian (q.v.) schools in the early 20th century. The name derives from Heidelberg and Freiburg universities, both in the Land of Baden, at which Professors Windelband and Rickert taught the theory of the B.S. Basically it amounted to counterposing the historic method to the natural scientific method; history, they said, is the science of individual facts of development which have cultural value; natural science is the study of the laws of natural phenomena which repeat themselves and are general. In neither case are concepts the reflection of reality. They merely convert reality into thought that is subordinated to a priori principles; natural science is the cognition of the general, history, the cognition of the individual. The B.S., following Kant (q.v.), counterposes being to necessity. The denial of the laws of history, typical of the school, is associated with the theory of values. These theories were developed by H. Münsterberg (1863-1916) and E. Lask (1875-1915) and were applied to aesthetics by J. Cohn (1869-1947) and B. Christiansen, and to sociology by Weber (q.v.). In modern German sociology the ideas of the B.S. are being developed in a spirit of out-and-out subjectivism and voluntarism (q.v.), which is opposed to Marxism. This school of sociology in West Germany is headed by W. Theimer and G. Ritter.

Bakunin, Mikhail Alexandrovich (1814-76), Russian petty-bourgeois revolutionary, an aristocrat by birth, ideologist of anarchism (q.v.); in philosophy he was an eclecticist. From 1836 to 1840, Bakunin lived in Moscow, where he studied Fichte and Hegel (qq.v.), interpreting the philosophy of the latter in a conservative spirit in his *Gimnazicheskiye rechi Gegelya*. (*Predisloviye perevodchika*) (*Hegel's*

Gymnasium Speeches. [*Translator's Preface*]), 1838. In 1840, B. emigrated and joined the Young Hegelians, q.v. (*Reaktsiya v Germanii* [*Reaction in Germany*]), 1842), taking part in the revolution of 1848-50 in Prague and Dresden. Returning to Russia, he was imprisoned in 1851 and in 1857 exiled to Siberia. In 1861, he escaped and spent the sixties and seventies in Western Europe, where he collaborated with Herzen and Ogaryov. He took an active part in organising the anarchist movement and fought against Marxism in the First International, from which he was expelled in 1872. Four years later he died in Berne. B.'s theory took final shape at the end of the sixties (*Gosudarstvennost i anarkhiya* [*Statehood and Anarchy*], 1873, et al.). B.'s basic concept is that the chief oppressor of man is the state, which relies on the fiction of God. Religion is "collective madness", the ugly product of the consciousness of the oppressed masses, and the church is a "celestial tavern", in which the oppressed seek to forget their daily misfortunes. To lead mankind to the "kingdom of freedom" it is first necessary to "blow up" the state and exclude the principle of authority from the people's life. B. believed implicitly in the socialist instincts and inexhaustible spontaneous revolutionary spirit of the masses, mainly the peasantry and lumpenproletariat; he denied the need to prepare for revolution and plunged headlong into revolutionary adventures. Unable to grasp the significance of the application of scientific method to the theory of society, he opposed the Marxist teaching on the class struggle and the dictatorship of the proletariat. In the seventies B.'s anarchist ideas were widespread among the revolutionary Narodniks of Russia and also in other economically poorly developed countries (Italy, Spain, and others). B.'s anarchist theories were criticised by Marx, Engels, and Lenin.

Basis and Superstructure, concepts of historical materialism that reveal the connection between economic social relations and all other relations

within a given society. The B. is the totality of production relations (q.v.) that make up the economic structure of society. The concepts "B." and "production relations" are synonymous but not identical. The concept "production relations" is correlated with the concept "productive forces" (q.v.), while the concept "B." is correlated with the concept "S.". The S. includes ideas, organisations and institutions. Superstructural ideas include political, legal, moral, aesthetic, religious, and philosophical views, which are also termed forms of social consciousness (see Forms, etc.). All forms of social consciousness reflect economic relations in one way or another; some of them, e.g., political and legal forms of consciousness, reflect economic relations directly; others are indirect reflections—e.g., art, philosophy. These latter are connected with the economic B. through such links as politics. Superstructural relations include ideological relations (see Ideology). Unlike production relations, which take shape independently of human consciousness, ideological relations do not take shape until they have entered the consciousness. Although superstructural phenomena are determined by the B., they are relatively independent in their development. Certain organisations and institutions are connected with each form of social consciousness—political parties are connected with political ideas, state institutions, with political and legal ideas, the church and church organisations, with religion, etc. Each socio-economic formation (q.v.) has a definite B. and a corresponding S. Marxist historians make a distinction between B. & S. of the slave-owning, feudal, capitalist, and communist societies. Changes in the B. & S. result from the change of one socio-economic formation into another. S. undergoes a certain evolution within a single formation; e.g., during the transition to imperialism S. shows signs of increased reaction; under socialist conditions the political S. develops increasingly democratic forms of organisation. An example of this is the transformation of the state of the

dictatorship of the proletariat into a state governed by the whole people during the period of the full-scale construction of communism. S., which is brought into being by the economic B. and is its reflection, is not passive. It plays an active role in the historical process and affects it in all its aspects, including the economic, to which it owes its existence. In a society based on private property, B. & S. have an antagonistic structure. In capitalist society, for instance, there is a fierce ideological struggle between the bourgeoisie and the proletariat and between the political, moral, philosophical and other views of these classes. The antagonistic nature of S. in a society split into classes determines the opposite roles of the ideology of the classes in respect of the economic B. In capitalist society the bourgeois political S. with bourgeois ideas about liberty, equality, etc., actively serves the economic B. of capitalism, while proletarian ideology and proletarian organisations are directed towards the abolition of the economic foundations of capitalism. It is only in socialist society, where production relations are free of antagonisms, that S. becomes more homogeneous in the social sense and serves a common cause—the consistent improvement and development of the economic B. of socialism.

Baturin, Painuly Sergeyevich (c. 1740-1803), Russian enlightener, deist; author of *Issledovaniya knigi o zabluzhdeniyakh i istine* (*A Study of the Book of Errors and Truth*), 1790, *Kratkoye povestvovaniye o aravlyanakh* (*A Short Account of the Arabs*), 1787, et al. The *Study* is a philosophical polemic which analyses the ideas of the mystic Saint-Martin contained in *Des erreurs et de la vérité ou des hommes rappelés au principe universel de la science*. B.'s book was almost the only work which criticised the religious mysticism of the masons, whose ideological equipment included the above book by Saint-Martin. On the basis of natural science as known in his day, B. gave a materialist explanation of natural phenomena, defended the

idea of heliocentrism in cosmogony, and the law of the conservation of matter and motion, and defended the materialist theory of knowledge, giving a prominent place to observation and experimental data. B. rejected the teaching of the mystics on non-corporeal substance. B.'s materialism was metaphysical in character and deist in form. B. championed education and the development of the natural sciences and was in favour of "good" legislation and humanism.

Baumgarten, Alexander Gottlieb (1714-62), German philosopher, disciple of Leibniz and Wolff (q.v.). In *Meditationes philosophicae de non-nullis ad poema pertinentibus* (1735) he introduced the term "aesthetics" to describe the study of man's sensory knowledge of the beautiful and its expression in artistic forms, as opposed to logic, which is concerned with knowledge acquired through reason. His unfinished *Aesthetica* (Vol. 1, 1750, Vol. 2, 1758) treats of the problems of knowledge acquired through the senses. Though B. cannot be regarded as the founder of aesthetics as a science, his introduction of the concept was prompted by the thought of the day in this field and was widely adopted.

Bayle, Pierre (1647-1706), publicist, philosopher of scepticism, representative of the French Enlightenment. Professor of philosophy at Sedan Academy and Rotterdam University. He carried on a polemic with Catholicism and eventually turned away from religion and advocated religious toleration. Although he was never an atheist, the character of his indifference to religion was aptly described by Voltaire, who remarked that though B. might not be an unbeliever himself, he made unbelievers of others. B. launched the critical study of Christian doctrine as a variety of mythology. His arguments were based on the scepticism (q.v.) which had originated from the Cartesian principle of doubt and which, according to Marx, undermined all faith in metaphysics (q.v.) and theology. B. suggested that ethical problems, instead of being determined by

religion, should be examined from the standpoint of natural reason. He argued that it was possible for a society to be composed entirely of atheists. His writings, particularly his major work, the *Dictionnaire historique et critique*, paved the way for the French materialism of the 18th century.

Beautiful, The, an aesthetical category reflecting and assessing phenomena of reality and works of art affording man the feeling of aesthetical enjoyment, embodying in an object-sensory form the freedom and fulness of creative and cognitive forces and the capabilities of man in all fields of social life: labour, socio-political, and spiritual. Idealism (Plato, Kant, Hegel) regarded the B. as a property of the spirit, of consciousness (objective or subjective). Pre-Marxist materialism upheld the objectivity of the B., but not infrequently, owing to its contemplativeness, reduced the B. to a pure natural quality (symmetry, harmony of the parts and the whole, man as a natural creature, etc.). Chernyshevsky (q.v.) put forward an original and revolutionary definition of the B. as life, as the complete manifestation of life. The concept B. bears an historical character and has a different content for different classes. Dialectical and materialist aesthetics proceeds from the fact that B. is a product of social and historical practice. It comes into being and develops when man as a social being (according to the measure the objective laws are cognised) realises more completely and freely in the given historical conditions his creative talents and capabilities, when he is the master of the objects of the sensory world, enjoys labour as the play of his physical and intellectual forces. The B. finds a synthesised and complete expression in works of art and artistic images. The B. in life and art, providing spiritual joy and pleasure, acquires a great cognitive and educational role in society. A beautiful work of art is one which, from the point of view of a progressive aesthetical ideal, truly reproduces reality. In contemporary conditions the truly B. arises only in the course of the

struggle for the revolutionary reconstruction of society. Favourable socio-economic conditions for the working people to create works of beauty and to acquire a fuller ability to appreciate the B. can only be established by communism.

Bebel, August (1840-1913), one of the founders of the German Social-Democratic Party, outstanding propagandist and theoretician of Marxism, an exponent of historical materialism. His study of the problem of woman's place in society is of particular value. In *Die Frau und der Sozialismus* (1879) he showed that family relations change as the mode of production changes, and that women's social inequality is due to the domination of private property. The emergence of private property led to the "belittling and even contempt of women". Their emancipation is, therefore, an aspect of the general problem of abolishing exploitation and social oppression. A militant atheist, B. analysed religious teaching and showed that religion promised only an ephemeral happiness, that it created an illusion that was useful to the ruling classes as a "means of domination". He was an active opponent of bourgeois ideology and exposed Malthusianism (q.v.), philosophical idealism, and revisionism (q.v.). He was one of the first to realise that the views of Bernstein (q.v.) were fundamentally hostile to the proletariat. Although he committed certain tactical mistakes and was wrong in some of his propositions, both his theoretical and practical work contributed enormously to the workers' struggle against social oppression.

Behaviourism, a trend in modern psychology, based philosophically on pragmatism (q.v.). B. was originated in 1913 by J. B. Watson (1878-1958) of Chicago University, the experimental material being provided by the research into the behaviour of animals carried out by E. L. Thorndike (1874-1949). Watson's theory was shared by K. S. Lashley (1890-1958), A. P. Weiss (1879-1931), and others. B. continues the mechanistic trend in psychology,

reducing psychological phenomena to the reactions of the organism. It identifies consciousness with behaviour, regarding the relation between stimulus and reaction as its basic unit. Knowledge, according to B., is entirely a matter of the conditioned reactions of organisms (including man). In the thirties Watson's theory was superseded by a number of neo-behaviourist theories known broadly as "conditioning". Their leading exponents were Clark Hull (1884-1952), Edward Tolman (b. 1886), and Edwin Guthrie (1886-1959). These theories developed under the influence of Pavlovian teaching. Having borrowed I. Pavlov's (q.v.) terminology and classification of forms of behaviour, the neo-behaviourists substituted operationalism and logical positivism (qq.v.) for the materialist foundations of his doctrine. While concentrating on conditioned reflexes, they ignore the role of the cerebral cortex in behaviour. Contemporary B. has modified the stimulus-reaction formula by inserting what are called "intermediate variables" (skill, stimulation and inhibition potential, need, etc.). This does not, however, change the mechanistic and idealist nature of B.

Being 1. A philosophical concept denoting the objective world, matter (q.v.), which exists independently of consciousness. Regarding the materiality of the world and its B. as identical, dialectical materialism rejects the idealist conception of B. as something that exists before matter or independently of it, as well as idealist attempts to make B. a product of the act of consciousness. On the other hand, it is not enough to stress only the objectivity of B., because in that case the problem of the material or ideal character of B. remains unsolved. While recognising B. as primary and consciousness as secondary, dialectical materialism nevertheless interprets consciousness as something more than a passive reflection of being, and regards it as an active force which influences B. 2. The most abstract concept denoting existence in general. In this sense B. must be distinguished from reality,

existence, actuality (qq.v.), etc., which are more concrete and more profound definitions of objective processes and phenomena.

Being, Social, a philosophical category denoting the material life of society. It is primary in relation to social consciousness and exists outside and independently of social consciousness. The material life of society comprises the production of material goods and the material relations which take shape between people in the process of production and the concrete practical life of society. (See Being, Social Being, Social Consciousness.)

Belinsky, Vissarion Grigoryevich (1811-48), Russian revolutionary democrat, literary critic, founder of Russian realist aesthetics. His appearance heralded the complete supersession of the nobility by the *raznochintsy* (middle-class and professional people) in the Russian liberation movement. Born in Sveaborg in the family of a doctor, he read literature at Moscow University from 1829 to 1832. In 1833 he joined the magazine *Teleskop*, which published in its supplement (*Molva*) his first important article, "Literary Aspirations" (1834). From 1838 to 1839 he edited the magazine *Moskovsky Nablyudatel*; he moved to St. Petersburg at the end of 1839, where he took over the department of literary criticism in the magazine *Otechestvenniye zapiski*. In 1846, he became chief critic for the *Sovremennik* but for medical reasons was obliged to go abroad in 1847. He died of tuberculosis in St. Petersburg the following year. Ideologically, his work belongs to the period when Russian social thinkers were only just beginning to seek new ways of fighting the autocracy and serfdom, and to evolve a scientific theory of social development. Hence the extreme complexity and intensity of his ideological evolution. By the 40s he had arrived at a revolutionary democratic outlook that reflected the mood of the peasantry, and had become deeply interested in socialism, atheism, and materialism. This led him to formulate his attitude to the philosophical and socio-political doctrines of

the 19th century (Fichte, Schelling, Hegel, Feuerbach, the Young Hegelians, qq.v., the French utopian socialists, and the early Marx). B. wrote no philosophical treatises, but all his major essays deal with philosophical problems. An ardent supporter of Hegel between 1837 and 1839, he interpreted his dictum "*was wirklich ist, das ist vernünftig*" (what is real is reasonable) in a spirit of political conservatism, of reconciliation with the Russian autocracy. But even in this period, which ended when B. proposed the idea of negation, the principle of struggle against all that is obsolescent and unreasonable, his thinking was directed mainly towards understanding the laws that control the life of man and of society as a whole. In the early 40s B. took up a materialist stand. Discussing the problem of the unity of the material and the ideal, he argued that the "spiritual" is "nothing but the activity of the physical". At the same time he stressed the active role played by consciousness in the process of interaction between man and his environment. Rejecting the conservatism of the Hegelian system, B. perceived in dialectics the basis of a method of scientific research and revolutionary action, the seed of a genuine "philosophy of history". Objective law, which he defined as the necessity of social progress operating through the sum total of human activity and expressing itself in the actions of great men, occupies a central place in his thinking. It was at the bottom of his approach to the problems of Russian history (role of Peter I, etc.), and its relation to the processes of world history. It was the core of his interpretation of the correlation between ideal and reality. Welcoming the socialist conception of a just society where "there will be no rich and no poor, no tsars and no subjects, but where there will be brothers, human beings", B. was nevertheless sceptical about the reformist projects of some West European socialists. He maintained that it was unlikely that the new society could be established "by time alone, without violent

upheavals, without bloodshed". However, he himself did not achieve a scientific perception of the inevitability of socialism. Hence his appeal to the ideas of primitive Christianity as the basis for the morality of the future. He acknowledged the progressive nature of the bourgeois system compared with feudalism, and considered that the immediate social tasks facing Russia were the destruction of the patriarchal, serf-owning forms of life (above all, serfdom itself) and the enactment of a number of bourgeois democratic reforms. With this as his point of departure B. waged a ruthless campaign against the retrograde ideas of "official reflection of the people's feelings" and ridiculed the Slavophile idealisation of Russia's patriarchal past. His revolutionary democracy found its most consistent expression in his "Letter to Gogol" (July 1847), one of the finest works of the uncensored Russian democratic press of the 19th century. In this letter B. severely criticised the autocracy and the Orthodox Church, calling for the immediate abolition of serfdom, and attacking monarchist, religious ideology. Historicity is characteristic of his aesthetic judgements. Regarding it as the essence and specifics of art to reproduce the typical features of reality through imagery, B. inveighed against reactionary romanticism and didactic fiction and advocated the principles of realism underlying the work of Pushkin and the "natural school" led by Gogol. Pointing to the connection between the concepts of kinship with the people and realism in art, he advanced important propositions on the social significance of literature being dependent on its ability to bridge the gap between educated "society" and the mass of the people, and on "sympathy with contemporaneity", i.e., with progress, as a quality essential to the true artist. B.'s views on art form an important contribution to the development of aesthetics.

Bellers, John (1654-1725), English petty-bourgeois utopian, economist, and philanthropist. His work anticipated the labour theory of value. Unlike

the mercantilists, he stressed the need to increase the productivity of labour and change the existing mode of production. He was one of the first to propose the idea of agricultural co-operation. In *Proposals for Raising a College of Industry of All Useful Trades and Husbandry* (1695) he evolved a plan for producer co-operation based on collective ownership of the means of production and rational organisation of labour on the principle "he who does not work, neither shall he eat". He advocated social insurance and vocational education.

Bentham, Jeremy (1748-1832), English moralist and writer on law. In his theory of ethics B. reduced all the motives of human conduct to either pleasure or pain, identifying morality with the utility of an action (see Utilitarianism). Morality could thus be calculated mathematically by balancing the pleasure against the pain that would accrue as the result of any particular action. This metaphysical and mechanistic approach to morality (the hedonic calculus) led him to defend capitalist society, since he declared the satisfaction of one's private interests (the principle of egoism) to be the means of providing "the greatest happiness of the greatest number" (principle of altruism). He criticised the theory of natural law (q.v.). While rejecting "natural religion" with its concept of God based on an analogy with earthly rulers, he defended "revealed religion". As regards epistemology, he was a nominalist. On the basis of one of B.'s MSS, Boole (q.v.) formulated the theory of the quantification of the predicate (q.v.). His main work was *Deontology or the Science of Morality* (1834).

Berdyayev, Nikolai Alexandrovich (1874-1948), Russian bourgeois mystical philosopher, existentialist, founder of the so-called "new Christianity", ideologist of Vekhism (q.v.). He began as an exponent of "legal Marxism" (q.v.), but by 1905 his "critical appraisal" of Marxism had developed into direct opposition to revolution, while his Neo-Kantian enthusiasms had led him to God-seeking and mys-

ticism. To the class struggle for the liberation of the workers B. counterposes an "inner", "spiritual" liberation of the personality by way of religion (*Filosofiya Svobody* [*Philosophy of Freedom*], 1911; *Smysl Tvorchestva* [*The Meaning of Creativity*], 1916, etc.). After the October Revolution of 1917, B. (now an émigré) set out to perfect a theory that would bring wavering intellectuals into the fold of mysticism. Capitalism was declared an "inhuman system", the old Christianity a "weapon of exploitation", and even the "truth of communism" was recognised to the extent that it rested on socialisation of production. At the same time B. claimed that Marxism could not solve the problem of the activity and freedom of the personality because it obscured the individual under the concept of class. This problem, according to B., is solved by Christian existentialism or personalism (qq.v.). He maintains that the "existence" of the subject, whose creativity is based on "absolute freedom" derived from the "abyss" (a borrowing from Böhme, q.v.), is the only reality; the substance of this creativity is the so-called "dialectics of theo-humanity", the mystery of the "birth of God in man and man in God" (borrowed from Dostoyevsky, q.v.). B. places the realisation of this "theo-human creativity" in the so-called "new Middle Ages", the after-life in the "fourth dimension", all earthly creative work being regarded as futile — *Ya i mir obyektov* (*I and the World of Objects*), 1934; *Opyt eskhatologicheskoi metafiziki, Tvorchestvo i obyektivatsiya* (*Experience of Eschatological Metaphysics. Creation and Objectivation*), 1947, etc. The reactionary nature of B.'s philosophy shows up most of all in his main work *Filosofiya neravenstva* (*Philosophy of Inequality*), 1918, published in 1923, in which social inequality is declared beneficial and right, and war the basis of the creative movement of humanity.

Bergson, Henri (1859-1941), French idealist philosopher, representative of intuitionism (q.v.). In 1900, he became a professor of the Collège de France,

and in 1914, was elected to the Academy. The central concept of Bergson's idealism is "pure", i.e., non-material, "duration", the basis and origin of all things. Matter, time, and motion are the various forms in which we conceive "duration". Knowledge of duration can be obtained only by intuition, understood as mystical "perception" or "knowing", in which "the act of knowing coincides with the act that creates reality". To dialectics B. counterposes his doctrine of "creative evolution", based on the universalisation of concepts borrowed from biological idealism (see Vitalism). In his views on society B. justified the oppression of one class by another as a "natural" condition, and war as an inevitable "law of nature". His philosophy is a vivid expression of irrationalism (q.v.). Main works: *Essai sur les données immédiates de la conscience* (1889), *Matière et Mémoire* (1896), *L'évolution créatrice* (1907), *La pensée et le mouvant* (1934), etc.

Berkeley, George (1685-1753), English philosopher, subjective idealist. In 1734, he became Bishop of Cloyne (Ireland). His main work was *A Treatise Concerning the Principles of Human Knowledge* (1710). Proceeding from the premise that man perceives nothing directly except his "ideas" (sensations), B. concluded that things exist only insofar as they can be perceived (*esse est percipi*). According to B., ideas are passive. They are perceived by an incorporeal substance, the soul, which is active and can also produce ideas. In an effort to avoid solipsism (q.v.), B. recognises a multiplicity of spiritual substances, and also the existence of the "cosmic mind", God. Ideas, he says, exist potentially in the mind of God, but actually exist only in the human mind. Later B. took up objective idealist positions close to Neoplatonism (q.v.) and acknowledged the eternal existence of ideas in the mind of God. In an attempt to disprove atheism and materialism, B. attacked the concept of matter as ridden with internal contradictions and useless in the quest for knowledge. The basis of his criticism of matter was

idealist nominalism (q.v.). He rejected Locke's theory of primary and secondary qualities, q.v. (see also Locke) and declared all qualities to be subjective. Denying the ability of science to conceive of the world as a whole, B. considered the task of the scientist to be the "searching after and endeavouring to understand this language ... of the Author of nature and not the pretending to explain things by corporeal causes". On these grounds he repudiated Newton's theory of absolute space and attacked his theory of gravitation as a doctrine on the natural cause of the motion of material bodies, whereas, according to B.'s own philosophy, only spiritual substance could be active. He disapproved of Leibniz and Newton's infinitesimal calculus, since to recognise the infinite divisibility of "real space" would contradict the basic postulate of his philosophy. Since the middle of the 19th century, attempts have been made to revive B.'s philosophy and he has been borrowed from by many idealist schools; the immanence school, empirio-criticism, pragmatism (qq.v.), and so on. The philosophy of B. and his 20th century followers was criticised by Lenin in *Materialism and Empirio-Criticism* (q.v.).

Bernal, John Desmond (1901-), British physicist, public figure. Member of the Royal Society (since 1937), and the Academies of several countries, including the Academy of Sciences of the USSR (since 1958), Lenin International Peace Prize winner (1953). Besides his research in physics, biochemistry, and crystallography, B. has written various works (*The Social Function of Science*, 1939; *Science and Society*, 1953; *Science in the History of Society*, 1954), in which he gives a general summing up of the achievements of science as a whole, revealing its philosophical significance and role in human history, the contradictions of its development in a society based on exploitation and its steady progress under socialism. His analysis of the history of science is based on dialectical materialism. In his book *World Without War* (1958), he discusses the prospects

of the peaceful use of scientific discoveries for the benefit of humanity.

Bernstein, Eduard (1850-1932), German Social-Democrat, founder of revisionism (q.v.) as a systematic theory and initiator of reformism (q.v.) in the working-class movement. In a series of articles entitled *Problems of Socialism and the Tasks of Social-Democracy* (1897-98) he revised the basic postulates of Marxism in philosophy, political economy, and the theory of scientific socialism. Proclaiming the slogan "Back to Kant", B. repudiated any consistent materialist solution of the fundamental problem of philosophy, treating Marxist and Hegelian dialectics as identical. He denied the very possibility of scientific socialism, and regarded socialism as a mere moral and ethical ideal. Rejecting the idea of the dictatorship of the proletariat, he advocated the theory of the dying away of the class struggle and refused to recognise any goal for the working class except the winning of minor reforms within the framework of capitalism. Hence his well-known dictum: "The end ... is nothing, movement is everything." Plekhanov (q.v.) did much to disprove B.'s revisionist ideas. B.'s followers in Russia, the Economists and Mensheviks, and also the revisionists in the international movement, were exposed by Lenin.

Bhutavada (elementalism), a trend in ancient Indian materialism. Probably arose about the 1st century A.D. In some sources it is regarded as a variety of the Lokāyata (q.v.). According to the doctrine of B., all qualitative differences between objects result from the different combination of the material elements of which they are formed. Consciousness is the result of a peculiar combination of material elements which, once it has occurred, can reproduce combinations similar to itself, but these other combinations can never cause consciousness. Like the advocates of the Lokāyata, the followers of B. were sensualists in epistemology and hedonists in ethics.

Biogenetic Law, a biological law which states that each organism in the process of its individual development

(ontogenesis) repeats certain features and peculiarities through which its ancestors passed in the process of evolution (philogenesis). The term was introduced by Haeckel (q.v.) in 1866, although the fact had been remarked on earlier (by the German natural philosopher Oken, the Russian biologist K. Rulye, and others). It was Darwin (q.v.), however, who made a fundamental investigation of the relationship between ontogenesis and philogenesis. The methodological significance of the B.L. is that it "has given the theory of evolution its most secure basis". (Engels.) The B.L. was a confirmation by natural science of the qualitative development from the simple to the complex, a confirmation of the theory of evolution. Attempts to apply B.L. to the mental development of the individual (Baldwin, Stanley, Hall, Freud, and others) arise from the unsound, mechanical interpretation of social phenomena through biological laws.

Biological School in Sociology, a sociological trend, popular in the second half of the 19th and the early years of the 20th centuries. Its basic postulates rest on the mechanical application of the laws of biology (survival of the fittest, natural selection, cell structure of the organism, etc.) to the life of human society; the B.S.S. also made use of the ideas of Malthusianism (q.v.), eugenics (q.v.), and racialism (q.v.). The attempt to explain social phenomena in terms of biology is unscientific. As Lenin wrote, "... the transfer of biological concepts *in general* to the sphere of the social sciences is *phrase-mongering*". (Vol. 14, p. 329.) The class essence of this doctrine lies in the desire to overshadow the real laws of social life by treating man as a purely biological creature, supposedly endowed with "inalterable instincts" of private ownership, individualism, and so on (see also Anthroposociology, Social-Darwinism; Society, Organic Theory of).

Biology, the study of life (q.v.). B. deals with life as a special form of the motion of matter, the laws of the development of living nature, and

also with the manifold forms of living organisms, their structure, function, evolution, individual development, and interrelation with the environment. B. includes the individual sciences of zoology, botany, physiology, embryology, paleontology, microbiology, genetics, etc. As a harmonious system of knowledge, B. was known to the ancient Greeks, but it acquired a scientific basis only in modern times. The first relatively complete systematisation of living and extinct organisms was made by John Ray (17th century) and Linnaeus (q.v.). In the 17th, 18th, and the first half of the 19th centuries B. was mainly descriptive. Engels called this period metaphysical, its theoretical basis being the idea of the permanence of species, a belief that the purposefulness of organisms is due to supernatural causes. Ignorance of the material causes of biological phenomena and failure to perceive their specific features gave rise to idealist and metaphysical conceptions (vitalism, q.v., preformationism, q.v., mechanism, etc.). The discovery of the cellular structure of living creatures played an important part in establishing B. as a science. It was revolutionised by Darwin's theory of evolution, which revealed the basic factors and motive forces of evolution and proposed and substantiated the materialist view of the relative expediency of living organisms, thus undermining the former domination of teleology (q.v.) in biological theories. Important successes were achieved in the biological sciences at the end of the 19th and the beginning of the 20th centuries. But B. has made particularly rapid progress since the appearance of such branches as physiology, genetics, cytology, biochemistry, and biophysics, which are concerned with the laws of the basic vital processes—nutrition, reproduction, metabolism, transmission of inherited characteristics, etc. At the points where B. links up with other sciences (physics, chemistry, mathematics, etc.) there are possibilities of a break-through in a number of important biological fields. The central problem of B. today is to discover the

essence of the vital processes, to investigate the biological laws of the development of the organic world, to study the physics and chemistry of living things, to evolve various ways of controlling the vital processes, particularly metabolism, heredity, and the mutation of organisms. Physical, chemical, and mathematical methods of research have achieved fundamental results in various fields, primarily in genetics, where the material vehicles of heredity, genes, have been discovered, their structure and functions deciphered, and a general picture obtained of the mechanics of the transmission of inherited characteristics. Over the past twenty years various methods of investigating the structure of proteins have been devised, and the simplest proteins have been synthesised. Biologists working in co-operation with chemists and physicists have made considerable progress in deciphering the mechanics of the biosynthesis of proteins. The explanation of many biological phenomena, particularly those of heredity, has been discovered in the chemical processes of the living cell. This has led to what is called molecular biology, which has stimulated the development of a number of other biological sciences. The progress in B. has brought further clarity to Darwin's theory of evolution. Darwin's conception of the causes of the variation of species has been made more precise by the elucidation of the nature of mutations on a molecular level. From the standpoint of modern B. mutations caused by the environment are the main factor in organic evolution, the principle motive force being natural selection. Progress in B. may be equalled to the utilisation of nuclear energy: it is making a key contribution to economic advance. Considerable successes in plant physiology (see Timiryazev), animal physiology (see I. Pavlov), and selection and seed breeding (see Michurin), achieved by biologists of the materialist school, have contributed much to the theory and practice of agriculture.

Biosphere, that part of the Earth in which life exists and which is thus

endowed with a special geological and physico-chemical organisation. The concept was introduced by Eduard Suess and developed by Vernadsky (q.v.). Vernadsky visualised the origin of life on Earth and the formation of the B. not as the appearance of separate embryos at separate, isolated points, but as a powerful and unified process forming the "monolith" of life and encompassing every part of the planet where the right conditions obtain. With the appearance of human society and the development of science and technology the B. evolves into the noosphere (q.v.).

Blanqui, Louis-Auguste (1805-81), French utopian communist. Took part in the revolutions of 1830 and 1848, was twice sentenced to death, and spent nearly half his life in prison. Blanqui's world outlook was formed under the influence of the mechanistic materialism, atheism, and rationalism of the 18th century, and also of utopian socialism (q.v.), particularly Babouvism (q.v.). Though a materialist in his general philosophical outlook, B. gave an idealist explanation of historical progress as the dissemination of enlightenment. He believed that history was essentially a progress from the absolute individualism of savages through various phases towards communism, a "future society", which would be the "crown of civilisation". At the same time B. was aware of the struggle between social forces in history and sharply criticised the contradictions of capitalist society. His conspiratorial tactics were erroneous and led to the failure of the actions undertaken by his supporters. B. failed to realise that a revolution could be successful only if it was carried out by the mass of the working people led by a revolutionary party. Blanquism influenced the revolutionary movement in other countries, particularly in Russia (see Narodism). B. is praised for his revolutionary services by the founders of Marxism-Leninism, but his tactics are criticised. His main work was *Critique sociale* (1885).

Bochénski, Joseph (b. in Poland, 1902), Neo-Thomist and Dominican,

became professor of philosophy at Freiburg University, Switzerland, in 1945. As a historian and theorist of logic, B. specialises in distorting Marxism and Soviet philosophy.

Boëthius, Anicius Manlius Severinus (480-524), late Roman philosopher. Though formally representative of Neoplatonism (q.v.), his philosophy is remarkable for its eclecticism and a leaning towards the exact sciences; in its moral aspects it is close to stoicism. B. translated and interpreted Aristotle's (q.v.) works on logic and also Porphyry's *Introduction to and Commentary on the Categories*. B. also translated Euclid (q.v.) and gave an interpretation of the *Introductio Arithmetica* by Nicomachus. He also wrote a treatise containing a carefully elaborated theory on the music of ancient Greece. The stoical *De Consolatione Philosophiae* is considered his main philosophical work. Some of his translations of Aristotle are now regarded as spurious.

Bogdanov (pseudonym of Malinovsky), **Alexander Alexandrovich** (1873-1928), Russian philosopher and economist, publicist, Social-Democrat. A doctor by training, he joined the Bolsheviks in 1903. During the years of reaction following the defeat of the Russian Revolution of 1905-07, he became one of the leaders of the otzovists, who were against the Party's making use of illegal forms of struggle. He helped to organise an anti-Party school on the Island of Capri and in 1909 was expelled from the Bolshevik Party. In 1926, he became director of the Institute of Blood Transfusion and died while carrying out an experiment on himself. Describing B.'s philosophical views in 1908, Lenin noted four stages in his "philosophical wanderings". To start with, B. was a "natural-historical" materialist (*Osnovniye elementy istoricheskogo vzglyada na prirodu* [*Fundamental Elements of the Historical Outlook on Nature*], 1899). Shortly before the turn of the century he took up a doctrine known as energism, q.v. (see his book *Poznaniye s istoricheskoi tochki zreniya* [*Knowledge from the Historical Point of View*],

1901). Then he supported the philosophy of Mach (q.v.). Finally, his efforts to overcome the contradictions of Machism and create a "kind of objective idealism" brought him to empirio-monism, q.v. (*Empirio-Monism*, 1904-06). Later he attempted to formulate what he called a "tectology", a universal organisational science, the aim of which was to unite all the sciences and describe the forms and types of any organisation, since he considered that the whole world consisted of various forms of organisation of experience. The idealist foundation of "tectology", its abstract and unhistorical approach, made it completely useless for analysing reality. B. opposed to Marxist dialectics the theory of equilibrium (q.v.). Criticisms of his views are to be found in Lenin's *Materialism and Empirio-Criticism* and also in the works of Plekhanov. Main works: *Kratky kurs ekonomicheskoi nauki* (*A Short Course of Economic Science*), 1897; *Filosofiya zhivogo opyta* (*The Philosophy of Living Experience*), 1913; *Vseobshchaya organizatsionnaya nauka (tektologiya)* (*The Universal Organisational Science* [*Tectology*]), 1913-17; *O proletarskoi kulture, 1904-24* (*On Proletarian Culture, 1904-24*), 1924, etc.

Böhme, Jakob (1575-1624), German pantheist philosopher, whose work retained many elements of theology. A self-educated thinker, he created no consistent and uniform system, expressing his dialectical surmises on the contradictory nature of things and the world as a whole in a language of poetic images and symbols borrowed from Christianity, astrology, alchemy, and cabala. In his works we find both simple paraphrases of Biblical myths inspired by the power of his religious imagination and some profound philosophic observations. God and nature, according to B., are one; nothing exists outside nature. Everything contains contradictions, both good and evil being present even in God. B. saw this dualism as the source of development of the world. His main work *Aurora oder die Morgenröte in Aufgange* (1612) was condemned as heresy. His ideas influenced the subsequent develop-

ment of German philosophy (Hamann, Hegel, Schelling, etc.).

Bohr, Niels (1885-1962), Danish physicist, one of the authors of the quantum theory, Nobel Prize winner. Elected member of the Academy of Sciences of the USSR in 1929. After graduating at Copenhagen University, he worked in Rutherford's laboratory in Manchester. B.'s model of the hydrogen atom and his formulation of the correspondence principle (q.v.) date from 1913. He strove to provide an epistemological substantiation of the specific problems of physics. In order to interpret quantum mechanics he put forward and developed the positivist principle of complementarity (q.v.), which he regarded as applicable to various fields of knowledge. Overcoming neopositivism (q.v.) in his later years, B. tended towards a materialist interpretation of a number of problems of quantum mechanics and the theory of knowledge. Emphasising the growing role of measuring devices as instruments of research, and of mathematical formalism as a means of adequately describing microprocesses, B. noted that "... a widening of the conceptual framework affords the appropriate means of ... enlarging the scope of objective description." (*Atomic Physics and Human Knowledge*, 1958, p. 70.) The objective content of his researches confirms that nature develops dialectically, and that it is of great importance to the scientist to have a conscious grasp of the method of materialist dialectics.

Boltzmann, Ludwig (1844-1906), Austrian physicist, member of the Academy of Sciences in Vienna. His main works deal with the theory of radiation, the kinetic theory of gases, and the statistical interpretation of the second principle of thermodynamics (q.v.). His famous H theorem (1872) explained, on the basis of molecular-kinetic theory, the fundamental law of irreversible processes, the law of the increase of entropy (q.v.). His formula established a relation between the probability of the thermodynamic state and its entropy. In opposition to the idealist concept of the "thermal death" of

the Universe (see "Thermal Death", etc.), B. advanced his hypothesis of fluctuation, according to which the general balanced state of the Universe as a whole is constantly and inevitably upset in certain spheres by gigantic fluctuations, which cause the uneven development of separate worlds. B. was a convinced materialist and criticised energism and Machism (qq.v.).

Bonaventure, Giovanni di Fidenza (1221-74), scholastic philosopher, general of the Franciscan Order. Opposed the progressive ideas of his time and persecuted Roger Bacon (q.v.). The predominant tendencies in B.'s scholasticism are the ideas of St. Augustine's (q.v.) Neo-Platonism (q.v.) and mysticism. B. accepted the ontological proof of the existence of God (see Proof, etc.) and considered the highest stage of cognition to be a supernatural state of ecstatic contemplation in which man is united with God. In the controversy over universals (q.v.) B. maintained a position of realism (see Realism, Medieval). He was canonised in 1482, and in 1587 proclaimed a Doctor of the Church.

Boole, George (1815-64), English logician and mathematician. From 1849 to the end of his life, professor of mathematics at Queen's College, Cork. He evolved the first system of mathematical logic known to history, which afterwards became known as the algebra of logic (q.v.). The idea of the analogy between algebra and logic determined the direction of all his researches in logic, which are contained in his two main works: *Mathematical Analysis of Logic* (1847) and *An Investigation of the Laws of Thought* (1854). He also investigated the theory of probability and mathematical analysis and was interested in the philosophy of Aristotle and Spinoza. His ideas on the algebra of logic were developed and systematised in the works of Peirce (q.v.), Schröder, and Poretsky (q.v.).

Border-Line Situation, a category of the ethical teaching of Jaspers (q.v.). According to Jaspers, B.L.Ss. (fear, suffering, guilt, struggle, dissatisfaction, death, and others) form the "limits" of human spiritual life and practical

activity, beyond which "non-being" is to be found. Inasmuch as a B.L.S. is fatal and universal, man cannot escape it, and the overcoming of it means the loss of "existence". According to Jaspers, man may make a truly moral decision only when he has realised the fatal nature of a B.L.S.

Born, Max (1882-), German theoretical physicist. Became a professor at Göttingen University in 1921. Emigrated to Britain during the period of nazi rule. At present lives in the Federal Republic of Germany. Member of many academies, including the Academy of Sciences of the USSR (since 1934). Author of a number of important works on the theory of the atom and crystals, he is best known for his important contribution to quantum mechanics, 1925-26. When it was shown that the movement of elementary particles was due to a wave process and could be calculated by means of wave equation, B. suggested that wave equation determined only the probability of the position of particles at a given moment. Idealist philosophers seized upon this conception of the laws of the motion of elementary particles as a "proof" provided by quantum mechanics of the indeterminism of processes taking place in the microworld. B. himself adhered to this idealist theory but subsequently approached a more general understanding of determinism, which incorporated statistical laws determining the behaviour of elementary particles. He also criticised neo-positivism (q.v.).

Botev, Khristo (1849-76), Bulgarian poet and materialist philosopher. His world outlook embraced both revolutionary democracy and utopian socialism. He was considerably influenced by Herzen and Chernyshevsky (qq.v.), whose ideas he advocated in Bulgaria. Leader of the peasant revolution in Bulgaria and an ardent patriot, B. thought it would be possible to set up a socialist system in his country as soon as it was liberated from the Turkish feudal lords and the exploiters among his own countrymen. He held that the peasant commune possessed "socialist principles". Under the in-

fluence of the first volume of Marx's *Capital* (q.v.) and the working-class movement in the West, B. came to the conclusion towards the end of his life that the proletariat would be the builder of socialism, but he was mistaken in regarding the poor in general as the proletariat. Philosophically, B. was a materialist and he developed certain elements of dialectics; he was also an atheist. His understanding of social phenomena, however, was idealist and he regarded the historical process as a result of the perfection of reason in the people's struggle for liberation. Aesthetically, he followed Chernyshevsky, and in his poetry, which played an important part in the revolutionary movement, realism and revolutionary romanticism are organically merged.

Brain, the central part of the nervous system. The uppermost sections of the cerebrum are directly connected with the psychic life of animals and man. The large hemispheres of man's B. are the organ of speech and abstract vocal thought. The B. came into being at such a level of animal life when additional adaptive reactions became indispensable for the search of conditions of existence in the complicated changing medium. The central nervous system and its uppermost sections—the B.—are the organ of control, i.e., the system which co-ordinates the activity of the various organs and regulates the relationships of the organism with the outside environment through psychical reflection. Throughout the history of philosophy and the sciences about man there was a struggle between the materialist and idealist trends over the problem of the nature of man's psyche, consciousness. However, the progress of biological studies of the structure and the activity of the central nervous system, and the B. in particular, paved the way for the triumph of materialism in the solution of this problem. The ideas and works of Sechenov and I. Pavlov (qq.v.), which proved the reflectory, i.e., determinative nature of the psychical activity of animals and man, played a tremendous role. In addition to the first signal system, common to

both animals and man, a second signal system (see Signal Systems)—speech—was formed in man in connection with abstract vocal thought. In the B. there are special centres of perception (auditory and visual) and of speech. The thoroughly social nature of man found its expression in the building of new, compared with animals, morphological structures, which ensure oral intercourse and vocal thought. The specific form of existence and the assimilation of the past experiences of humanity is also associated with the elaboration of new brain mechanisms. While the experience of the species in animals is inherited in the form of instincts, in man, on the other hand, the historically-shaped forms of activity are assimilated in the process of the individual's development. Hence, particular human aptitudes, such as the ear for music and for speech, the capacity for abstract thinking, etc., are functions not of morphological brain structures but of neuro-dynamic structures of relative stability. Man's psychic activity progressed not because of the morphological evolution of the B., as was the case in the history of the animal world, but because of the fact that its functional potentialities improved steadily. This improvement is due to the development of the forms of human experience, of its storage, transmission, and processing as far as and including the creation of automatic mechanisms lightening mental work and enhancing man's creative possibilities. Thanks to the wide use of cybernetics, the study of the activities of the B. by the classical methods of the physiology of the higher nervous activity and electrophysiology has been supplemented by the method of models (see Cybernetics, Analogue Simulation). The simulation of the activity of the B. proceeds along two main directions: (1) the simulation of separate aspects of the activity of the B. and (2) the simulation of the formal structure of the ultimate products of psychic activity.

Bray, John Francis (1809-95), English utopian socialist, economist, active figure in the working-class movement. A self-educated working man, he held that

the motive force of human development lay in man's material needs, and that the root of the working people's troubles was the system of exchange. Value, he taught, could be created only by labour. The productive forces and labour must be socialised. He portrayed the future communist society in a manner close to that of Owen (q.v.). The road to such a society lay through industrial workers' co-operatives, the various branches being co-ordinated by regional and national centres, and through a system of "labour money" and barter markets and banks. These propositions influenced Proudhon (q.v.) and his school. An active figure in the Chartist movement, B. was well aware of the class contradictions in society and of the fact that only the working-class movement could bring communism into being. He held, however, that the road to communism lay through reform. In his books *Labour's Wrongs and Labour's Remedy* (1839) and *A Voyage from Utopia* (1841) he produced a devastating criticism of capitalism, taking Britain and the United States as examples.

Brentano, Franz (1838-1917), Austrian idealist philosopher. Lectured on philosophy at Würzburg and Vienna. An opponent of Kant's criticism (q.v.). B. produced his own philosophical system of metaphysics permeated with the spirit of theism and Catholic scholasticism. His main interest was in psychology. Taking empirical psychology as his basis, he created an idealist doctrine of the "intentionality" of mental phenomena. According to this doctrine the object exists only in the intention of the subject, i.e., in his emotions. B.'s views had a great influence on Husserl (q.v.) and other bourgeois philosophers. He is considered one of the founders of the idealist theory of values in Austrian philosophy. Main works: *Psychologie vom empirischen Standpunkt* (1874), *Vom Ursprung sittlicher Erkenntnis* (1889), and *Die vier Phasen der Philosophie* (1895).

Bridgman, Percy Williams (1882-1961), American physicist and philosopher. Graduated at Harvard, where he was professor of mathematics and nat-

ural philosophy until 1954. Won Nobel Prize for work on the physics of high pressures (1946). In philosophy B. was the founder and leader of a subjective-idealist trend known as operationism (q.v.). His philosophical views are expounded in his books *The Logic of Modern Physics* (1927), *The Nature of Physical Theory* (1936), and other works.

Broglie, Louis Victor de (1892-), French physicist, professor of Paris University, foreign member of the Academy of Sciences of the USSR. One of the founders of the modern theory of the motion of microobjects (see Quantum Mechanics). His theoretical research, which established the extremely important law of nature that all microscopic material objects possess both corpuscular and wave properties, constitutes the basis of quantum mechanics. This law of mathematics is expressed in the form of the Broglie equation, which shows the relation of the corpuscular characteristics of microobjects (energy E , impulse p) to their wave characteristics (particle v ,

wave length λ): $E = h\nu = \frac{h}{\lambda}v$, where h is the quantum of action (q.v.). According to B., every microparticle has its particular wave, the characteristics of which can be defined by the above equations. The Broglie waves are, in fact, the *psi*-functions, which it is the basic aim of quantum mechanics to define. B. made a substantial contribution to various branches of modern physics. He studied relativist quantum mechanics, the theory of electrons, the problems of the structure of the nucleus, the theory of the distribution of electromagnetic waves in wave-conductors, etc. He is opposed to positivism and maintains materialist positions in his interpretation of the phenomena of the microcosm.

Bruno, Giordano (1548-1600), Italian philosopher, opponent of scholasticism and the Roman Catholic Church, fervent advocate of the materialist world outlook, which he conceived in the form of pantheism (q.v.). After eight years' imprisonment he was burned

at the stake by the Inquisition in Rome. His main works were the philosophical dialogues *De la causa, principio et uno* and *De l'infinito, universo et mondi*. His world outlook was formed under the influence of ancient classical philosophy (Neo-Platonism and Pythagoreanism, followed by the materialists Empedocles, Anaxagoras, Epicurus, and Lucretius, qq.v.), the Italian materialist free-thinkers of the Renaissance, and the science of his day, particularly the heliocentric theory of Copernicus (q.v.). Consistently identifying an infinite deity with nature, B. was even more persistent than Nicholas of Cusa, by whom he had been influenced, in maintaining the infinity of nature itself. Using the discovery of Copernicus, B. strove to give concrete shape to the physical and astronomical implications of this philosophical principle and in so doing liberated the Copernican theory from its major defects: the traditional conception of a finite Universe, a closed sphere of motionless stars, and the idea that the Sun was stationary and constituted the absolute centre of the Universe. In the process B. deduced that the number of worlds in the Universe is infinite, and that some of them might be inhabited. He refuted the natural philosophical dualism of scholasticism, asserting the homogeneity of the earth and the celestial regions, all of which, he maintained, consist of earth, water, air, fire, and ether. Under the influence of Neo-Platonism he admitted the existence of a universal soul, which he understood as the principle of life, as a spiritual substance permeating all things and constituting their motive principle. In this B., like most of the ancient materialists, took up the position of hylozoism (q.v.) and held that matter was an active self-moving substance, and man and his consciousness part of nature, which was a single whole. B. also developed a number of dialectical propositions: on unity, interdependence, and universal motion in nature, and on the coincidence of contraries both in the infinitely great and the infinitely small.

Buckle, Henry Thomas (1821-62), English historian and positivist sociologist, author of the *History of Civilisation in England* (1857-61). Criticising the theological interpretation of history, B. set out to discover the laws of the historical process and show how they had worked in the various countries he took as examples. Following Comte (q.v.), he considered intellectual progress to be the main factor in historical development and denied the existence of moral progress. As a representative of geographical determinism (see Geographical Environment, Geographical Determinism), B. attributed the peculiarities of the historical development of various peoples to the influence of natural factors (landscape, soil, climate, and also the type of food they ate).

Buddhism, a world religion (see Christianity and Islam), which preaches relief from suffering through the abnegation of desire and the achievement of the supreme enlightenment known as nirvana. B. originated in India in the 6th century B.C. In modern times it is widespread in Japan, China, Nepal, Burma, and other countries, where it has about 500 million adherents. In the period when the primitive-communal system was collapsing and class states were making their appearance, Siddhartha, the founder of B. called the Buddha (Enlightened One), expressed the protest of the common people against the Brahman religion with its sacred caste distinctions, intricate rites of worship to the gods and sacrifice. He sought liberation from suffering not in social change or in fighting the forces of nature but in moral perfection, which could be obtained by withdrawing from life (beautiful enfranchisement) and submerging oneself in nirvana. Buddha denied the existence of God the Creator, and also the religion of the Vedas (q.v.) but he accepted their teaching on the cycle of births and deaths (*sansāra*), and on retribution (*karma*), merely indicating that reincarnations depended not on the caste to which a man belonged nor on sacrifices he performed, but on his good or bad actions. At first (3rd

to 1st centuries B.C.) the Buddha's idea of salvation was founded on the philosophical doctrine that the world and the human personality constitute a stream of elements of matter and consciousness—the *dharmas*—continually replacing one another. According to this doctrine, the road to salvation lay in suppressing any "agitation" of the *dharmas*. In the early centuries A.D., the Buddhist religion assumed a completely different character. Simple reverence for the memory of the teacher was replaced by deification of Buddha, and man's salvation was made dependent on the favour of the deity, which could be sought through repetition of the holy *sūtras*, or scriptures. This new religion became known as Mahāyāna, as distinct from the traditional trend of Hināyāna stemming from Buddha himself. The philosophy of B. also changed. Unlike the Hināyāna philosophers, who had regarded material and psychical *dharmas* as real, the Mahāyāna philosophers argued that the *dharmas* were unreal and the whole world was unreal. The doctrine of the unreality of the *dharmas*, or of *Sūnyatā* (void), was put on a logical basis by Nāgārjuna (2nd century A.D.). The treatises of Nāgārjuna are remarkable among all the Mahāyāna *sūtras* for their logic and consistency. His rationalism became the point of departure for Buddhist logic, which was represented by Dignāga and Dharmakīrti (500-700 A.D.). Nāgārjuna's teaching on the unreality of conceptual thought and on absolute intuitive knowledge became the basis of the later idealist schools (Mādhyamaka, Vijñānavāda) of Tantric Buddhism, and Zen Buddhism (q.v.). Currently the advocates of B. stress its "rationalistic" and "atheistic" character. These new epithets are part of an attempt to propagate a modernised form of Buddhist religion. The Buddhists under the leadership of the World Buddhist Fellowship advocate disarmament and peaceful coexistence.

Bulgakov, Sergei Nikolayevich (1871-1944), Russian economist and idealist philosopher, ideologist of Vekkhism (q.v.). Emigrated in 1922. Professor of

theology at Paris University 1925-44. A supporter of "legal Marxism" (q.v.), he began by criticising Narodism, q.v., (*O rynkakh pri kapitalisticheskoy proizvodstve* [*On Markets under Capitalist Production*]), 1897, and later became an avowed defender of capitalism. His revisionist attempts to "test" Marx with Kant led him into conflict with historical materialism and the Marxist theory of progress (*Osnovniye problemy teorii progressa* [*Basic Problems of the Theory of Progress*], 1902). His evolution as a philosopher culminated in his recourse to a philosophy of religious mysticism, in which he attempted to "synthesise" science, philosophy, and religion, making them all ultimately dependent on faith, but avoiding the absurdities of pure religion. Besides the "absolute" (God) and the "cosmos", he introduced the concept of "sofia", a "third being", comprising both God and nature. His completely unscientific "system" is expounded in his works *Svet nevecherny* (*Undying Light*), 1917, *Tikhiye dumy* (*Quiet Thoughts*), 1918, and *O bogochelovechestve* (*On Divine Humanity*), Part One, 1933.

Butlerov, Alexander Mikhailovich (1828-86), Russian chemist. His works provide the foundation on which rests the whole modern science of the chemi-

cal structure of matter and the nature of chemical compounds. The basic idea of his theory of chemical structure (1861) is that the chemical nature of the molecule as a whole is determined by the nature, quantity, and type of connection of the atoms of which it is composed, and their influence and disposition in relation to one another. While emphasising that the atoms in a molecule behave according to a stable pattern, B. regarded the molecule not as something dead and static but as a kind of dynamic system whose parts are in constant motion. He regarded chemical reactions as one of the manifestations of the motion of matter. This theory played an important role in combating the then current idealist and agnostic views on chemistry. B. showed that the internal structure of molecules can be known and may, therefore, be actively used and changed by man. His theory of chemical structure has now been further developed owing to the discovery of the complex structure of the atom, and elucidation of the quantum chemical connection between the atoms in a molecule. In his treatment of the fundamental problems of chemistry B. adhered to spontaneous materialism, but when discussing philosophy he expressed idealist views.

C

Cabanis, Pierre Jean Georges (1757-1808), French materialist philosopher, enlightener, and physician; contemporary of the bourgeois revolution of 1789-94, a Girondist, condemned the Jacobins' terror. C. belonged to the school of materialists who subscribed to the physics of Descartes (q.v.), but was opposed to his metaphysics. Physiology was the main subject of his philosophical studies. He held that consciousness depends primarily on the physiological functions of man and the activity of his internal organs. C. claimed that the brain organically "secretes" thought, just as the liver secretes bile. Inclined towards vulgar materialism (q.v.), C. considered that the natural sciences furnish the basis for the social sciences; that medicine and physiology are destined to change the morals of society, and that knowledge of the structure and activity of the human organism provides the key to understanding social phenomena and their changes. Towards the end of his life C. became a vitalist, recognising the independent existence of the soul (see Vitalism). His main work is *Traité du physique et du moral de l'homme* (1802).

Cabet, Etienne (1788-1856), French utopian socialist, member of the secret Carbonari society, took part in the French Revolution of 1830. In his novel *Voyage en Icarie* (1840) he demonstrated the superiority of socialist society over capitalism. But C. was against the revolutionary struggle of the proletariat and advocated peaceful propaganda of socialism and gradual reforms. He left room for religion in the society of the future. On philosophical questions, especially in his views

of history, C. adhered to idealism, combining the rationalism of the 17th century with Platonism and Neo-Platonism. Marx wrote that C. was a popular, although most superficial, proponent of communism.

Calculus, the system of rules for manipulating symbols, which extends the possibilities of thought in solving problems and proving propositions expressed by means (in the "language") of the given C. A characteristic feature of C. is that the material objects (figures, letters, and symbols) dealt with in it do not practically change when the rules of the C. are applied to them. What makes any C. important is that it can manipulate objects only in accordance with pre-set rules and places them in correspondence with the elements of the content studied. In this sense C. serves as the material shell of the content which is reflected in the process of reasoning. Historically, C. arose and developed in mathematics (for example, differential C., integral C., and others). Later, this method was extended to logic; logical and logico-mathematical C. appeared, as a result of which the science of mathematical, or symbolic logic, came into being. The presentation of certain spheres of knowledge, especially in the deductive sciences, in the form of C., based on methods devised in contemporary logic, is the most consistent method of formalisation (q.v.) of the given sphere of knowledge; the efficiency of such formalisation is confirmed by the practical application of modern computers and the entire development of cybernetics, q.v. (see Logistic Method).

Calvin, Jean (1509-64), one of the leaders of the Reformation (q.v.). Was

born in France, settled in Geneva in 1536 and became the actual dictator of the city (1541), subordinating the secular authorities to the church. Calvinism, the system of Protestantism (q.v.), founded by C., expressed the demands of the "boldest part of the bourgeoisie at that time" (Engels). The basis of Calvinism is the doctrine of the divinely preordained "salvation" of some and "damnation" of others. This divine preordination, however, did not preclude man's activity, for although man does not know his fate, he can prove by his personal life that he is one of "God's elect". Calvinism justified bourgeois enterprise in the epoch of primitive accumulation. This was expressed in declaring modesty and frugality the greatest virtues and in advocating asceticism in life. C. was intolerant of all other religious beliefs. By his order, the scientist Michel Servet was burned at the stake (1553). C.'s main work is *Institution chrétienne* (1536).

Cambridge School 1. A trend in British 17th century philosophy which revived the philosophy of Plato (q.v.). To the empirical materialism of Bacon (q.v.) and Hobbes (q.v.) it counterposed the idealistic teaching of innate ideas interpreted in a spirit of the Platonic doctrine of knowledge and medieval "realism" (q.v.). R. Cudworth (1617-88) held the eternal ideas of truth and good in the divine reason as criteria of man's judgements and his actions. Outside objects are only an occasion for cognition but not its source. Nature is a harmonious system implementing divine aims. An extremely mystic wing of the C.S. was represented by Henry More (1614-87) who went over from Cartesian metaphysics to mysticism. Members of the C.S. fought against atheism and materialism and defended religion. 2. A school of philosophical analysis, a variety of British neo-positivism (q.v.) which considers philosophy as logical analysis (as distinct from logical positivism as a whole) of the living conversational language and not artificial "languages". An "analysis", according to the proponents of the C.S., should

consist in expressing the analysed concept by means of a different concept which has the same content but is expressed in a different form and does not imply the first concept. George Moore was the founder of the C.S., and its main representatives are Gilbert Ryle, Arthur John Wisdom, Max Black, and others. In philosophy they did not go beyond the bounds of neo-positivism. 3. In a broader sense, the name of C.S. denotes a group of philosophers belonging to different trends but grouped around Cambridge University ("Cambridge Philosophy")—C. Broad, K. Popper, A. Ayer, G. Ryle, R. Braithwaite, H. Bondi, etc.

Campanella, Tommaso (1568-1639), Italian philosopher and utopian communist. Joined the Dominican Order at the age of 15. C. shared the views of the natural philosopher Telesio (q.v.) and opposed scholasticism (q.v.), combined the ideas of sensationalism (q.v.) and deism (q.v.), progressive for those days, with religious mystical views and enthusiasm for magic and astrology. Was persecuted by the Inquisition for his free-thinking. C. dreamed of the unity and welfare of mankind, hoping that this could be achieved with the help of the papacy. In 1599, C. tried to raise a rebellion to liberate Italy from Spanish rule. The plot was uncovered and C. after brutal tortures was kept in prison for 27 years. There he wrote in 1602 *Civitas Solis* about ideal communist society (it was published in 1623). Influenced by church ideology, C. depicted his utopia as a theocratic society ruled by wise men and priests. C. based his communist ideal on the dictates of reason and the laws of nature. *Civitas Solis* played a significant part in the development of progressive social ideas and social progress.

Camus, Albert (1913-60), French philosopher and writer, representative of "atheistic" existentialism (q.v.); editor of the newspaper *Combat*; Nobel Prize winner (1957). His main works are *Le Mythe de Sisyphe* (1942), *La Peste* (1947), and *L'Homme Révolté* (1951). His views were shaped under the influence of Schopenhauer, Nietz-

sche (qq.v.) and the German existentialists. According to C., the outside world, the Universe, is the state of the subject; the only philosophical problem is the "problem of suicide". His ethical views are pervaded with extreme pessimism: man is always in an "absurd state", encounters "absurd situations" (jealousy, ambition, selfishness) and is doomed for meaningless and aimless activity. Extreme individualism (q.v.) and irrationalism (q.v.) are clearly expressed in his works.

"Capital," chief work of Marx, revealing the laws of the capitalist mode of production and laying the scientific basis of socialism. Marx called C. his lifework. He started work on C. in the mid-1840s and continued it up to his death. The first volume was published in 1867 and the others after his death, having been prepared for printing by Engels: the second volume, in 1885, and the third, in 1894. The first translation of C. into a foreign language was the Russian one (1872). The first volume analyses the process by which capital is produced; the second volume studies the process of circulation, and the third volume analyses capitalist production as a whole. The fourth volume (*Theories of Surplus Value*) presents a history and critique of economic doctrines. Marx gave an exhaustive analysis of capitalism as a socio-economic formation (q.v.), disclosed the laws of its origin, development, and doom. The greatest economic study, C. is at the same time of tremendous philosophical significance. It represents "a model of scientific, materialist analysis of one—the most complex—formation of society, a model recognised by all and surpassed by none". (Lenin, Vol. 1, p. 143.) In C. materialist dialectics has been splendidly applied and, moreover, elaborated in all main directions: as a method of studying objective reality and a system of logic and a theory of knowledge. Marx showed that capitalism is a developing phenomenon, a historically transient mode of production, whose quantitative changes are preparing the prerequisites for its radical, qualitative change, for a leap to the new, socialist

mode of production. Marx's analysis of capitalism is characterised throughout by its exposition of the contradictions in capitalism's movement and development from beginning to end, from the first signs of commodity production to the culminating point when the moment of "expropriating the expropriators" inevitably arises. Marx traces thoroughly and in detail the stages in the growth of these contradictions, the change in their content and the methods of resolving them, and formulates one of the most important and general laws of development of socio-economic formations: "... The historical development of the antagonisms, immanent in a given form of production, is the only way in which that form of production can be dissolved and a new form established." (*Capital*, Vol. I, p. 488.) C. is also a concrete embodiment of the dialectical materialist analysis of concepts and other forms of thought, with the help of which objective reality is reproduced in all its complexity and multiformity. The economic concepts used by Marx are flexible, mobile, dialectically contradictory and they reflect the changeability and contradictoriness of real social relations. The method of ascending from the abstract to the concrete (see Abstract and Concrete) elaborated and applied by Marx in C. is particularly important. The evolution of concepts, the logic of their development and transitions reflect the history of commodity production, the historical development of the mode of production. Marx, however, showed that the connection between the historical and logical (q.v.) is not simple and is not rectilinear. Since the capitalist mode of production subordinates and modifies economic categories which existed in the past (for example, commercial and money capital, rent, etc.), the logic of analysis requires that we proceed from the main and decisive category, which is industrial capital. This, to use Marx's expression, is the light which illumines everything else, and it is only thanks to it that the existing relations can be understood. That is why Marx in a number of cases delib-

erately takes as initial the categories which historically arose later and examines the preceding categories only after them. (For example, commercial and banking capital and rent are studied after industrial capital.) Strictly scientific methodology enabled him to show how surplus value—the doctrine of surplus value is the keystone of Marx's political economy—is concretely embodied in all the phenomena and processes of capitalist production. C. is a classical example of the historical materialist approach to society and social development. Lenin noted that thanks to C. historical materialism ceased to be a hypothesis and became a scientific theory. All the main propositions and concepts of historical materialism are elaborated in C. Marx studied the evolution of capitalism as a natural historical process on the basis of the development of the productive forces, which ultimately are the source of all social changes. Marx demonstrated the dialectics of the forces and relations of production, their unity and contradictions, the gradual but inevitable conversion of the production relations of bourgeois society into a factor fettering the free development of production and dictating the replacement of bourgeois production relations by socialist. Present-day ideologists of capitalism are trying to prove that C. is already obsolete and its main ideas are inapplicable to 20th century bourgeois society. In reality this work of Marx, which was further developed in Lenin's theory of imperialism, remains to this day a powerful weapon of the working class in its struggle for liberation from the oppression of capital and a monument to the inexhaustible scientific and revolutionary power of Marxism.

Capitalism, the socio-economic formation (q.v.) which replaced feudalism (q.v.). C. is based on private ownership of the means of production and the exploitation of wage labour. The extraction of surplus value is the basic law of capitalist production. Anarchy of production, periodic crises, chronic unemployment, poverty of the masses, and competition and wars are character-

istic features of C. The basic contradiction of C.—between the social nature of labour and the private capitalist form of appropriation—is expressed in the antagonism between the main classes of capitalist society, the proletariat and the bourgeoisie. The class struggle of the proletariat, which pervades the entire history of C., ends in the socialist revolution (q.v.). Political and legal institutions and the system of bourgeois ideology are the main elements of the superstructure rising on the capitalist basis (see Basis and Superstructure). Formal political equality proclaimed by the ideologists of C. is reduced to naught by economic inequality, while the entire state machine is adapted to barring the working people from politics. C. arose in the 16th century and played a progressive role in the development of society, ensuring a much higher labour productivity as compared with feudalism. On the threshold of the 20th century C. entered its highest, last stage—imperialism (q.v.), marked by the domination of the monopolies and the financial oligarchy. At this stage state-monopoly capitalism (q.v.) becomes widespread. The latter combines the strength of the monopolies with the power of the state and increases militarism on an unprecedented scale. The 1st World War and the October Revolution gave rise to the general crisis of capitalism (q.v.). The 2nd World War and socialist revolutions in a number of European and Asian countries ushered in the second stage of this crisis. A new third stage, which is not connected with world war, has now set in in the development of the general crisis of capitalism. The decay of C. is manifested with the greatest force in the United States, the principal country of contemporary imperialism, the country with the most monstrous militarised economy and chronic unemployment. "Contemporary capitalism is inimical to the vital interests and progressive aspirations of all mankind." (Programme of the CPSU.)

Carlyle, Thomas (1795-1881), British philosopher and historian, pantheist (see Pantheism) and agnostic. Advocat-

ed German idealist philosophy and reactionary romanticism (q.v.). Applied to society Fichte's (q.v.) doctrine of man's activity as the creative element of the world. Hence the history of society is reduced to the biographies of great personalities and "hero worship". C. subscribed to the theory of the historical cycle (see Historical Cycle, Theory of). His criticism of capitalism was close to "feudal socialism". After the defeat of the 1848 revolution in Europe and the Chartist movement in Britain C. sided with the big bourgeoisie, supported its dictatorship, and justified repressions against the working class and Britain's colonial policy. Main works: *Sartor Resartus* (1834), *Heroes and Hero Worship, and the Heroic in History* (1840), *Past and Present* (1843), *History of the French Revolution* (3 vols., 1837), and *Latter-Day Pamphlets* (1850).

Carnap, Rudolf (1891-), philosopher and logician, a leader of neopositivism (q.v.), active member of the Vienna circle (q.v.), taught philosophy at Vienna and Prague universities. Since 1936 has lived in the United States, professor of philosophy at the University of California. C. denies the role of philosophy as a universal science and reduces it to a "logical analysis of the language" of science based on mathematical logic. In his understanding, the theoretical cognitive principles underlying this analysis represent a combination of idealist empiricism and conventionalism (q.v.) in the interpretation of logic and mathematics. In C.'s works the philosophical conception of neo-positivism is intertwined with studies of the theory of logic and the logico-methodological analysis of science. C.'s views of the nature of the logical has undergone an evolution in which two stages can be singled out: (1) syntactic, when the logic of science was regarded as the logical syntax of the language of science, and (2) semantic, when not only the formal but also the sense-aspect of the "language" of science becomes the subject-matter of study. In the second stage C. tries, on the basis of the initial concepts of logical semantics, to build

up a single system of formal logic. His main works are *Logische Syntax der Sprache* (1934), *Introduction to Semantics* (1942-47), *Meaning and Necessity* (1947), and *Einführung in die symbolische Logik* (1954).

Carneades of Cyrene (214-129 B.C.), Greek philosopher, head of the so-called New Academy (see Academy of Plato), a sceptic who deepened the sceptic philosophy of his predecessor in the Academy, Arcesilaus (q.v.). C. himself wrote nothing and his lectures have not come down to us. Some meagre sources credit him with advocating sceptical views, typical of the Academy, that true knowledge is impossible and that all knowledge is at most probable assertion. Different degrees of this probability were analysed, but none was regarded as equal to truth. C. also criticised teleological proof of divine being in connection with the doctrine of the imperfection of what exists. In ethics C. advocated the usual sceptic doctrine of nature's blessings and of life conforming to nature without any active influence on it.

Cartesianism (from Cartesius, the Latin transcription of Descartes' name), the doctrine of Descartes (q.v.) and especially of his followers. The Cartesian school became especially widespread among philosophers of France and the Netherlands in the 17th and 18th centuries. It divided into two trends: the progressive, which subscribed to Descartes' mechanistic materialist understanding of nature (Leroy, La Mettrie, and Cabanis, qq.v.) and the reactionary, which supported his idealistic metaphysics (Delaforge, occasionalism, q.v., Malebranche, q.v.).

Cassirer, Ernst (1874-1945), German idealist philosopher, member of the Marburg school (q.v.) of Neo-Kantianism. Professor of philosophy at Berlin and Hamburg; after the establishment of the fascist dictatorship lived in Sweden and the United States (professor at Yale University). Applied the ideas of the Marburg school to the history of epistemology and the history of philosophy. In his *Substanzbegriff und Funktionsbegriff* (1910), denied the view that scientific abstractions are a

reflection of reality, dissolved the material world in categories of pure thought and substituted for its laws an idealistically interpreted functional dependence; subsequently sought to depict scientific cognition as a form of "symbolic" thinking. C. wrote a number of works on the history of philosophy (antiquity, Renaissance, the epoch of Enlightenment) and monographs about Leibniz and Kant (qq.v.). Main works: *Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit* (4 vols., 1906-57), and *Philosophie der symbolischen Formen* (3 vols., 1923-29).

Categorical Imperative, the philosophical term denoting a law in the ethics of Kant (q.v.). He called an "imperative" a maxim having the form of a dictum. According to Kant, an imperative can be either hypothetical or categorical. The former expresses a dictum determined (as a means) by the desired aim; the latter expresses an absolute dictum. Kant drew this distinction between the two types of imperatives in his *Grundlegung zur Metaphysik der Sitten* (1785). C.I. orders everyone to act according to the rule which they would wish to become a universal law of nature. The concept of C.I. is metaphysical because in Kant's doctrine it expresses the absolute juxtaposition of what should be to what exists. This juxtaposition reflects the practical weakness of the German burgherdom of Kant's time which divorced the theoretical principles of ethics from the practical class interests underlying them and regarded these principles as "purely ideological definitions of concepts and moral postulates" (Marx and Engels).

Categories (Gk. indication, affirmation), in philosophy, the main concepts reflecting the most general and essential properties, sides, and relations of phenomena of reality and knowledge. C. formed in the process of historical development of knowledge on the basis of social practice. They enable man to gain a profound knowledge of the world around him. The process of cognising an object is not a simple mechanical act of reflecting reality in the mind

of man, but an intricate process of transition from sensory data to abstraction, from the singular to the universal, and so on. The formation of concepts and C. is one of the most essential features of abstract thinking. The roots of the doctrine of C. extend into the distant past. The doctrine of the Vaiśeṣhika (q.v.), for example, spoke of the C. of substance, quality, action, etc. Aristotle (q.v.) rendered a great service in elaborating the philosophical categories. He listed ten C. (substance, quality, etc.), regarded C. as the main modes of being and highly assessed their cognitive importance. According to Kant who developed the idealist doctrine of C., the latter are a priori forms of contemplation and reason. Hegel (q.v.) regarded C. in their dialectical development, but in his system they are ideal forms, stages in the development of the Absolute Idea, which creates the real world. In contemporary idealist, especially neo-positivist, philosophy, C. are ignored or are regarded as purely subjective and "convenient" forms of systematising human experience. Other idealists (see Hartmann, Neo-Thomism, Existentialism, etc.) place C. among purely spiritual transcendental forms. Dialectical materialism attaches great importance to C. as forms of the reflection of being and future of knowledge. The main C. of dialectical materialism are matter, motion, time and space, quality and quantity, contradiction, causality, necessity and chance, form and content, possibility and reality (qq.v.), etc. These C. are definitely interconnected and represent a system in which they are not simply placed arbitrarily one beside another, but are deduced one from another in accordance with the objective laws of reality and development of knowledge (see Categories; Co-ordination and Subordination of). The main principle in constructing a system of C. is unity of the historical and the logical (q.v.), development of knowledge from appearance (q.v.) to essence (q.v.), from the external (q.v.) to the internal, from the abstract (q.v.) to the concrete, from the simple to the complex. The

C. of Marxist philosophy, as of any other science, are not a closed, immutable system. With the development of objective reality and the progress of scientific knowledge, the number and content of scientific C. are constantly enriched and the system of C. is drawing increasingly closer to complete and all-round reflection of the objective world. Expressing essential connections of developing reality, C. must also be as mobile and flexible as the phenomena they reflect.

Catharsis (Gk. purification), a concept of ancient Greek aesthetics describing the influence of art on man. According to Aristotle, q.v. (*Poetics*), C. is the purging of the emotions of pity and fear effected by a tragedy. In *Poetics* he states that music, too, by influencing man, performs a kind of purification, i.e., "all are in a manner purged and their souls lightened and delighted". The word C. was used by Greeks in many senses: religious, ethical, physiological, and medical. In the extensive literature on C. there is no single view concerning its essence. C. evidently included physiological (relief after a big emotional strain) and ethical (ennobling of man's feelings) elements, synthesised in aesthetical emotions.

Catholicism (Gk. universal), a denomination of Christianity (q.v.) widespread chiefly in Western Europe and Latin America, exists since 1054. The dogmatic distinctions of C. are: recognition of the procession of the Holy Spirit not from God the Father alone, but from God the Father and God the Son, the dogma of purgatory, the supremacy of the Pope as the vicar of Jesus Christ on earth, the infallibility of the Pope, etc. Cult and canonical distinctions of C. are celibacy of the clergy, service in Latin, and a developed cult of the Holy Virgin, etc. The Vatican is the world centre of C. Catholicism extends its power to the Catholic parties, trade unions, youth and women's organisations, educational establishments, the press, publishing houses, etc. Neo-Thomism (q.v.) is the official philosophy of C. proclaimed in the encyclical of Pope Leo XIII in 1891.

Causality, a philosophical category denoting the necessary connections between phenomena, one of which (called cause) determines the other (called the effect, or consequence). There is a difference between the complete cause and the specific cause. The complete cause is the sum total of all the circumstances, the presence of which necessarily gives rise to the effect. The specific cause is the sum total of circumstances, the presence of which (with the presence of many other circumstances already present in the given situation even before the appearance of the effect and providing the conditions for the action of the cause) leads to the appearance of the effect. The establishment of a complete cause is possible only in comparatively simple cases, and usually scientific investigation is directed towards the disclosure of the specific causes of the phenomenon. Another reason for this is that the most essential components of the complete cause in a given situation are united into the specific cause, and the other components are only the conditions (q.v.) for the action of this specific cause. The problem of C. is the field of a fierce struggle between materialism and idealism. Materialism maintains the objectivity and universality of C., regarding causal relations as relations between objects themselves, existing outside and independent of consciousness. Subjective idealism either denies C. altogether, seeing in it only the ordinary sequence of human sensations (see Hume), or, recognising C. as a necessary relation, considers that it is introduced into the world of phenomena by the cognising subject (the a priori character of C.—see Kant). Objective idealism may recognise the existence of C., independent from the cognising subject, but it sees its roots in the spirit, in the idea, in the concept, which it regards as independent of the subject. Dialectical materialism not only recognises the objectivity and universality of C., it also rejects a simplified view of it, particularly the opposition between cause and effect which is characteristic of metaphysics, and regards them as the aspects of interaction

by which the effect, determined by the cause, in turn influences the cause. Causal relations are multiform, and it is impossible to reduce them, as metaphysical materialism did (for example, Laplacian determinism, which absolutised mechanical C.), to any single form. The development of contemporary science, rejecting the absolutisation of the early known forms of cause-effect relations, confirms, discloses their variety, deepens and enriches the dialectical and materialist understanding of C. The category of C. is one of the main categories of scientific investigation, which in the last analysis always leads to the discovery of the basic causal dependence. Where cognition achieves the level at which a strict quantitative analysis of the phenomena under study is possible, the causal relation is expressed in the form of functional dependence (q.v.), which, however, does not make redundant the category of C. (see Determinism and Indeterminism).

Cell, structural element from which the organs and tissues of living organisms are built. Cc. also exist in the form of independent organisms (some of the tiniest animals and plants). The discovery of the cellular structure of organisms by Schwann (q.v.) and Schleiden (q.v.), together with Darwin's evolutionary theory (q.v.) signified the victory of materialism in biology and provided confirmation of the material unity of living nature.

Chaadayev, Pyotr Yakovlevich (1794-1856), Russian thinker and public leader. C. came from a noble family; took part in the 1812-14 war against Napoleon. On returning to Russia he joined Welfare Union (1819) and then the Northern Society (1821). In 1823, after resigning from the army, C. went abroad, where he studied and met Lamennais and Schelling. On returning to Russia in 1826, he was arrested for his ties with the Decembrists. Owing to insufficient evidence, he was released but remained under police surveillance. In 1829-31 wrote a series of famous *Filosoficheskiye pisma* (*Philosophical Letters*), the first of which was published in the journal *Teleskop*

in 1836. According to Herzen, it staggered intellectual Russia and aroused the indignation of monarchic circles. *Teleskop* was closed, its editor Nadezhdin was exiled, and C. was declared insane. In 1837, C. wrote *Apologiya sumasshedshego* (*Apology of a Madman*) and in the 1840s, together with Herzen and Granovsky (qq.v.), participated in the struggle of the Westerners (q.v.) against the Slavophiles (q.v.). A number of articles written by C. were circulated in manuscript form. Prior to 1823, C.'s world outlook was typical of the progressive-minded Russian noblemen of those days, brought up on the ideas of the French encyclopaedists and the Russian 18th century Enlighteners opposed to serfdom. Alexander Pushkin, with whom C. was bound by personal friendship, stressed the radicalism of C.'s views in those days, calling him Brutus and Pericles. C. was not satisfied with the theoretical positions of the Decembrists, he sought in history the laws governing its development to justify the social ideals proclaimed by the Decembrists. These explorations ended in the switch of C. to the positions of Catholicism (q.v.) and renunciation of revolutionary methods of transforming society. True, C.'s Catholicism was in effect a form of social utopia. An analysis of the *Philosophical Letters* shows that even in that period C. remained an enemy of the autocracy, the Russian Orthodox Church, and serfdom. His criticism of the system which existed in Russia was acclaimed by Russian progressives. The publication of the first *Philosophical Letter* was of great importance for the country weighed down by oppression as the first open protest against the autocracy and serfdom after December 25, 1825. C.'s philosophy claimed that divine law was supreme in nature and society. On the whole C. adhered to objective idealism capable to some extent of assimilating ideas of the natural sciences. Man, according to C., is incapable of conceiving the most general laws of the world without revelation from above. Applying this principle to the philosophy of history, C. arrived at the conclusion that divine

révelation plays the decisive part in social development. In this connection he regarded the religious education of mankind as the main means for achieving the "kingdom of God" on earth. C. understood the future "kingdom of God" as a civil society in which equality, freedom, and democracy prevail. In this connection he, like Lamennais and St. Simon, advocated the need for modernising Catholicism. The religious form of his views held him aloof from the general advance of the Russian revolutionary democratic movement, and his ideology was inclined towards historical pessimism. The contradictory nature of C.'s world outlook gave the Vekhists (see Vekhistism) and other falsifiers of Russian social thought a pretext for placing C. in the camp of mystics, alien to social interests and aspirations.

Chance, see Necessity and Chance.

Chang Tsai (1020-77), one of the founders of Neo-Confucianism. According to C.T., everything existing in the world is formed from primary matter, *ch'i* (q.v.), which possesses the property of motion and rest. Nature is the "root", and reason is its product. C.T. called the primary state of *ch'i* the Ultimate Vacuity (*Tai Hsü*). Primary matter is scattered in the Ultimate Vacuity and its accumulation is like the conversion of water into ice. The concentration or dispersal of *ch'i* determines the birth or death of all phenomena and things. C.T.'s philosophy attached great importance to the concept *tao* (the way) which designated the process of change and conversion of *ch'i* (see Tao). The motion and change of primary matter are based on the interaction of two extreme opposites: the positive *yang* and negative *yin*. Their unity is *tao*, which C.T. also defined as Great Harmony. Motion in nature is not chaotic, it is determined by law, *li* (q.v.) inherent in *ch'i* itself. Law does not depend on the will of men. In his theory of knowledge C.T. was not consistent. Sensations, he maintained, are the source of knowledge, through them man establishes contact with the external world. But knowledge of *tao* is not based on

sensory perception. His teaching became widespread among subsequent followers of the Neo-Confucian school.

Change, the most general form of being of all objects and phenomena. C. embraces every motion (q.v.) and interaction (q.v.), the passage from one state to another, etc. In philosophy, C. has always been contrasted to relative stability of properties, the structure or the laws of the existence of bodies. But the structure, properties and laws themselves are a result of interaction, they are determined by the various relations between bodies and are, therefore, produced by C. of matter.

Character, the sum total of stable mental traits of man which depend on his activity and living conditions and are displayed in his actions. Knowing a man's C. it is possible to predict how he will behave in given circumstances and consequently to direct his behaviour, developing in the individual traits which are useful to society. C. is manifested in the way a man regards himself, other people, the job entrusted to him, etc. C. is most fully displayed in socially useful labour, in man's actions, and lays its imprint on his entire behaviour. C. is socio-psychological, i.e., it depends on a man's world outlook, the knowledge and experience he has accumulated, the moral principles he has assimilated, on how he is influenced by other people, and on his relations with them. C. is not inborn, it is shaped by the surroundings and depends on education.

Character in Art, an artistic embodiment of the social, mental, and other specific traits which make up a human type and are manifested in individual behaviour. True portrayal of "typical characters in typical circumstances" which surround people and make them act in a certain way is especially important for realistic art. Typical characters in art are concrete people in their multififormity, intricate and contradictory development. Art demands aesthetic precision of each character created by the artist.

Charron, Pierre (1541-1603), French philosopher. He started as a lawyer, later became a priest. He was known

for his sceptical views, close to those of Montaigne (q.v.), which were chiefly set forth in *De la sagesse* (1601). He believed that it is impossible to guarantee the truth of any form of religion, because religion is not inherent in man, but is formed under the influence of education and the surrounding conditions. Morality alone is primary in man. Hence, religion depends upon morality. Consequently, one must live according to primary moral laws but profess the religion which is upheld by the authorities. C. hid his sceptical, anti-religious views behind a formal recognition of Orthodox religion. Theologians found in the treatise *De la sagesse* reason to accuse C. of disbelief.

Charvaka, see Lokāyata.

Chelpanov, Georgi Ivanovich (1862-1936), Russian psychologist and idealist philosopher, logician; professor of psychology and philosophy at Kiev University (1892-1906) and Moscow University (1907-23). He founded the Moscow Psychological Institute in 1912. In philosophy C. was close to Neo-Kantianism (q.v.) and positivism (q.v.). His *Mozg i dusha (Brain and Soul)*, published in 1900, and other works contained a criticism of materialism. In psychology C. developed the theory of "empirical parallelism" of the soul and body which goes back to the psycho-physical parallelism of Wundt (q.v.). Engaging chiefly in experimental psychology, C. studied it from erroneous methodological positions (recognition of self-observation as the sole source of knowledge of mental phenomena, assignment of an auxiliary role to experiments, etc.). After the October Revolution, C. opposed the application of Marxism in Soviet psychology. The reactionary nature of C.'s positions was exposed by Marxist critics in 1923-25. C. was the author of textbooks on psychology and logic. His works: *Problema vospriyatiya prostranstva v svyazi s ucheniyem ob apriornosti i vrozhdynnosti (Problem of Perception of Space in Connection with the Doctrine of Apriority and Innateness)*, published in two volumes in 1896 and 1904, and *Vvedeniye v eksperimentalnyuyu psikhologiyu (In-*

troduction to Experimental Psychology), 1915, etc.

Chernyshevsky, Nikolai Gavrilovich (1828-89), Russian revolutionary democrat, materialist philosopher, critic, and utopian socialist. He was born into a priest's family in Saratov, graduated from St. Petersburg University in 1850 and taught in a Saratov school. From 1853 to 1862, C. was contributor to and chief editor of the *Sovremennik*. In 1862, C. was arrested, imprisoned in the St. Peter and Paul Fortress, and then sentenced to hard labour and exiled to Siberia for life. In 1883, he was allowed to settle in Astrakhan and later to return to Saratov, where he died. C. was the leader of the revolutionary democratic movement in Russia in the 1860s, one of the outstanding predecessors of the Russian Social-Democrats who persistently pursued "the idea of the peasant revolution, the idea of the struggle of the masses for the overthrow of all the old authorities". (Lenin, Vol. 17, p. 123.) A generation of Russian revolutionaries was brought up on his writings which, as Lenin put it, exhale the spirit of the class struggle. C.'s world outlook was moulded under the influence of the ideas of Herzen and Belinsky (qq.v.) and also German classical philosophy, especially Feuerbach (q.v.). But C. went farther than Feuerbach in understanding the social role of philosophy in general and the importance of Hegel's dialectics in particular. He fully subordinated his theoretical views to the struggle for the emancipation of "ordinary people" from serfdom and bourgeois slavery. In epistemology, C. adhered to strictly materialist positions and sharply criticised the agnosticism of Kant (q.v.) and others. C. saw the source of knowledge in the objective world, which acts on man's sense-organs. He attached great importance to practice, which he called the touchstone of any theory. Unlike Feuerbach, C. sought to reshape Hegel's dialectics in the materialist spirit. In a number of spheres (political economy, history, aesthetics, and art criticism) he furnished splendid examples of a dialectical

approach to theoretical and practical problems. C. lived and worked under feudalism and because of this could not advance to the materialism of Marx. C.'s materialism is not free of substantial shortcomings (anthropologism, limited understanding of practice and the process of knowledge, etc.) but revolutionary democracy helped him to overcome many weaknesses of anthropologism (q.v.). On a number of questions he drew close to a materialist explanation of social life. This was true above all of his understanding of the class nature of contemporary society, recognition of the class struggle as a driving force of development, etc. C. also saw the connection of ideology and consciousness of people with the economic conditions of their life; he emphasised that in the history of society the interests of the working people are of primary importance and regarded the masses as the chief maker of history. He rendered a great service by exposing the counter-revolutionary essence of Russian and West European liberalism. During the peasant reform C. fought against the servility of the liberals towards the feudal lords. Lenin spoke of C. as a man "who saw how limited, how poverty-stricken was the overadvertised 'Peasant Reform', and he recognised its true feudal nature". (Vol. 17, p. 122.) C. dreamed of advancing to socialism via the old peasant commune; he, like Herzen, was a founder of Narodism (q.v.). C. did not know and could not know that only the proletariat is the force capable of building socialism. But of all the utopians C. drew closest of all in theory to scientific socialism, for he placed his hopes in revolution. C.'s utopian socialism was closely linked with his revolutionary democratic views. He understood that socialism could be created only on the basis of developed technology and that only the people themselves could build it. C. also worked fruitfully in the sphere of political economy. Marx said that as an economist C. splendidly disclosed the bankruptcy of bourgeois economics. The main idea of his "political economy of the working people" was the idea

of "fully combining the owner and worker in one and the same person". Labour, he said, must cease to be a "commodity for sale". In his *Esteticheskiye otnosheniya iskusstva k deistvitel'nosti* (*Aesthetic Relations of Art to Reality*), 1855, C. profoundly criticised idealist aesthetics and formulated the basic principles of realistic art. C.'s literary criticism, like the works of Belinsky (q.v.) and Dobrolyubov (q.v.), exerted great influence on the development of progressive Russian literature, painting, and music; they have preserved their significance to this day. Main works: *Ocherki gogolevskogo perioda russkoi literatury* (*Essays on the Gogol Period in Russian Literature*), 1855-56; *Kritika Filosofskikh predubezhdeniy protiv obshchinnogo vladeniya* (*Critique of Philosophical Prejudices Against Communal Ownership*), 1858; *Antropologicheskyy printsip v filosofii* (*The Anthropological Principle in Philosophy*), 1860; *Kharakter chelovecheskogo znaniya* (*Nature of Human Knowledge*), 1885. C. is also known for his *What Is To Be Done?*, 1863; *Prologue*, 1867-69, and other works of fiction.

Ch'i, or Yuan Chi, a basic concept of Chinese natural philosophy. Originally, it meant "air", "vapour", "breath". It acquired a very broad meaning—primary matter, basic matter of nature, the vital force, and so on. According to the oldest natural philosophical concepts, the world is formed of C., prime matter, the pure and light portion of which rose upward, creating the heavens, and the impure and heavy settled down, creating the earth. The first is called *yang ch'i* and the second *yin ch'i*. In addition there are also five *ch'i*, five prime "elements" of nature: water, fire, wood, metal, and earth. The flowering and death of *yin-yang* (q.v.) and the five "elements" occur through the succession of the year's four seasons. This natural philosophical scheme in which *yin-yang* and the five "elements" appear simultaneously as semi-physical and semi-metaphysical concepts has exerted an exceptional influence on the development of Chinese philosophical

thought. It has been widely utilised in Taoism (q.v.), Confucianism (q.v.), and to a certain extent in Buddhism (q.v.).

Chicherin, Boris Nikolayevich (1828-1904), Russian expert in the theory of law, historian, and idealist philosopher; professor of Moscow University (1861-68) and a leader of the liberal movement. C. was a Hegelian who borrowed from Hegel chiefly his criticism of empiricism and his doctrine of the absolute idea. C. admitted dialectics but distorted its meaning and adapted it to his sociology designed to justify private property. True knowledge, according to C., is possible only by applying speculative principles to the objects studied. The source of social relations is the individual as a kind of "metaphysical being". The main part in society is played by law, i.e., the "free will" of the individual determined by legal rules. The legal and ethical elements merge in the state, which C. considered to be an "ideal" force uniting people into a single whole. He tried to picture the bourgeois-landowner state as an organisation standing above classes. C. founded the so-called legal school (in Russian historiography), which examined the historical process above all as a succession of legal relations. C. was an advocate of constitutional monarchy and was opposed to the revolutionary movement and scientific socialism. Main works: *Nauka i religiya* (Science and Religion), 1879; *Misticizm v nauke* (Mysticism in Science), 1880; *Sobstvennost i gosudarstvo* (Property and the State), two volumes, 1882-83; *Polozhitelnaya filosofiya i yedinstvo nauki* (Positive Philosophy and the Unity of Science), 1892; *Osnovaniya logiki i metafiziki* (Foundations of Logic and Metaphysics), 1894; *Filosofiya prava* (Philosophy of Law), 1900.

Chiliasm, a religious doctrine of "the kingdom of God" on Earth which will last a thousand years prior to the end of the world. C. was inherent in Judaism (q.v.) and early Christianity (q.v.) in which it was associated with the advent of the Messiah, the Redeemer. The ideas of C. attracted the slaves

and the poor. On becoming the official religion of the Roman Empire, Christianity renounced any change of the order of things on Earth, laid stress on the idea of reward in the other world, and rejected C. as a false teaching. In the Middle Ages, C. was revived in a number of heretical teachings which represented the religious shell of social protest by the peasantry and urban poor against feudal exploitation. Today C. is a component of the reactionary ideology of some religious sects.

Chinese Philosophy has a long history. Its sources date from the beginning of the first millennium B.C. As early as the 8th-5th centuries B.C., C.P. had a widespread doctrine of the "primary sources", the Five Elements of nature: water, fire, wood, metal, and earth. The ancient Chinese thinkers taught that combinations of the Five Elements create the entire diversity of phenomena and things. There was also another system for revealing the primary sources of the real world. The *Yi King* (*Books of Changes*) named eight such primary sources, whose interaction formed different situations of reality. Basically *Yi King* was merely a collection of surmises and only somewhat later it was given a philosophical interpretation. The images and symbolics of *Yi King* exerted exceptional influence on the subsequent development of C.P. At the same time, the main principles of the doctrine of the opposite and interconnected *yin* (passive) and *yang* (active) (q.v.) forces were shaped. The action of these forces was regarded as the cause of motion and change in nature. They were symbols of light and darkness, positive and negative, male and female elements in nature. Ancient C.P. was further developed from the 5th to the 3rd century B.C. It was in this period that the main Chinese philosophical schools emerged. Proponents of Taoism (q.v.), above all Lao Tzū and Chuang Tzū, took a great interest in philosophical problems. Mo Ti (see Mo Tzū) and his followers studied questions of epistemology. Many ancient Chinese thinkers sought to

solve the logical problem of the relationship between concepts "name" and reality. Hsün Tzū (q.v.) and others held that concepts are reflections of objective phenomena and things. Kungsun Luna gave an idealist explanation of the problem. He was known for his statements resembling Zeno's aporias (q.v.) and for absolute abstraction of concepts and their divorce from reality. His doctrine of "names" has much in common with Plato's (q.v.) theory of "ideas". During this period Tsou Yan elaborated the concept of *yin* and *yang* and the Five Elements of nature. The ethical and political constructions of Confucius and Mêng Tzū (q.v.), the statements of Han Fei Tzū and other members of the Legalist school (see Fa Chia) about the state and law became widespread. That was the Golden Age of C.P. On questions of the philosophy of nature the struggle centred round the concept of *tien* (sky) regarded by some as nature (Hsun Chi), while others considered it the supreme, purposeful force (Confucius, Mêng Tzū); the concepts *tao* (q.v.), the way (natural law and absolute); *te*, virtue, power, character; *ch'i* (q.v.), the primary matter; the "elements" of nature, etc. In the sphere of ethics, attention was devoted to the teaching on the essence of man. The views of Confucius led to the concept of Mêng Tzū about the innate goodness of human nature and of Hsun Chi about the innate evil of human nature. Yang Chu's (q.v.) theory of individualism and Mo Tzū's theory of altruism were widely known. The ancient Chinese concepts in the philosophy of nature lacked empirical material. The doctrine of the Five Elements, of the polar *yin* and *yang* remained the basis of numerous natural philosophical and cosmological constructions between the 3rd century B.C. and the 3rd century A.D. The concept of *ch'i* received a materialist interpretation in the deeply argued system of Wang Chung (q.v.). At the same time various mystic teachings were developed, and religious trends appeared in Taoism and Confucianism (q.v.). The

relationship of "being" to "non-being" became the central issue of struggle between materialism and idealism in the first centuries of our era. The concepts of the Beginning (*yuan*), the Prime Matter (*ch'i*), *tao*, and other prime sources of being were developed during this period as a result of the mutual influence and synthesis of Taoist and Confucianist ideas. Buddhism (q.v.) began to spread in China from the 1st century. Together with Confucianism and Taoism it became a leading trend in Chinese thought. The 5th and 6th centuries were stamped by Buddhist mysticism. Struggle around the Buddhist teaching of the unreality of the world developed during that period. Many philosophers took a great interest in problems of the relationship between essence and phenomenon, being and non-being, body and soul. The materialists Ho Chen-tien and Fan Chen subjected the belief in the immortality of the soul to withering criticism. Buddhism remained the most widespread teaching in the 7th-10th centuries. Attacks on Buddhist idealism were waged mainly from the positions of Confucianism and Taoism. Philosophy flourished in China in the 10th-13th centuries as a result of the deep socio-economic changes. The further development of Confucianism, known as Neo-Confucianism, came as a reaction to Buddhism and Taoism. Neo-Confucianism was not limited to the elaboration of ethical and political ideas. Questions of ontology, philosophy of nature and cosmogony were represented more widely in it. The central issue was the relation between the ideal element *li*, q.v. (law, principle) and the material element *ch'i* (prime matter). Early Neo-Confucians approached some questions from the standpoint of materialism (Chou Tun-i and Chang Tsai, q.v.). Chu Hsi (q.v.) holds an important place in the development and generalisation of Neo-Confucian constructions. Examining the interconnection of *li* and *ch'i*, Chu Hsi ultimately came to regard *li* as primary and *ch'i* as secondary. Lu Chiu-yüan (Lu Hsiang-shan) and especially Wang Shou-jên (Wang

Yang-ming) developed subjective idealism in Neo-Confucianism. The former said: "The world is my reason (heart) and my reason is the world." Neo-Confucian idealism was opposed by the materialist doctrines of Ch'ien Lung, Yeh Shih, Lo Chin-shun, and Wang Ting-hsiang. The doctrine of the progressive thinker Li Chih played a big part in the struggle against the Orthodox school of Neo-Confucianism. The questions of the relationship between *li* and *ch'i* was further developed in the 17th and 18th centuries; its materialist solution was offered by Wang Fu-chih (Wang Ch'uan-shan) and Tai Chen (q.v.). The Opium War in 1840 marked the beginning of foreign penetration of China. The Chinese people replied to the oppression of the feudal lords and foreign aggression by a powerful peasant rebellion, the T'ai-ping movement. Utopian ideas on the social reconstruction of society played no small part in it. Subsequently, China was turned into a semi-colony. The best traditions and materialist ideas of C.P. were taken over and continued by progressive thinkers (see T'an Ssu-t'ung and Sun Yat-sen). The anti-imperialist and anti-feudal movement of May 4, 1919, began under the influence of the Great October Socialist Revolution. Since then Marxism has acquired ever greater importance as the ideological weapon in the struggle for national independence and the revolutionary transformation of China. But petty-bourgeois ideology has continued to play an important part in the spiritual life of China, and it has inevitably exerted an influence on the Chinese Marxists. That is why various deviations have repeatedly arisen in their ranks. This has also been the reason why vulgar materialism and elements of voluntarism and subjectivism have recently assumed a leading place in philosophy of China.

Christianity, one of the world religions, alongside Islam (q.v.) and Buddhism (q.v.). C. arose in the second half of the first century in the Eastern provinces of the Roman Empire as a religion of the slaves and oppressed toilers. In the course of time C. under-

went many changes and became the religion of the ruling classes and the state religion of many countries. C. triumphed because (1) it gave the disinherited classes hope for happiness and justice in a future life; (2) the Roman Empire needed a single religion which would appeal to all men irrespective of their class and national distinctions; (3) the ruling classes were interested in C. because it did not affect the class foundations of society and gave divine sanction to the existing oppression. The Council of Nicaea (325) played an important part in the development of C. and the creation of a church organisation and rites. A symbol of faith, a brief exposition of the basic Christian dogmas, was formulated at that Council. At present there is no single C. with the same dogmas and rites. There are three main trends—Catholicism (q.v.), Orthodoxy (q.v.), and Protestantism (q.v.) and very many different sects (Baptists, Adventists, Witnesses of Jehovah, etc.). The ideas of Eastern religions (see Polytheism and Monotheism) on the redemption and the divine saviour formed the basis of C.; it was also influenced by the doctrines of the stoics (q.v.), particularly Seneca, and of Philo. The main thing in C. is the teaching of the mythical man-God Jesus Christ, the son of God, who descended from heaven on earth, underwent suffering and death, and then rose from the dead to redeem people from original sin. Earthly life, C. teaches, is a temporary abode for man in preparation for eternal life in the other world. Abolition of the exploiting system undermines the social roots of C., which exists only as a survival of the past and will disappear in the process of building communist society.

Chrysippus (281/78-208/05 B.C.), the most outstanding exponent of the Stoic school. In antiquity he was regarded as the second leader of that school and it was said that "had there been no Chrysippus there would have been no stoics". Diogenes Laertius wrote that "had the gods engaged in dialectics, they would have used the dialectics

of Chrysippus". The stoics divided logic into rhetoric and dialectics. C. provided logic with an exact definition of the sentence and the rules of systematic division of all sentences into simple and complex (see Stoics).

Chu Hsi (1130-1200), Chinese philosopher and outstanding exponent of Neo-Confucianism of the Sung epoch (960-1279). Under the influence of Buddhism (q.v.) and Taoism (q.v.) Neo-Confucianism turned to the elaboration of metaphysical problems. C.H.'s doctrine is frankly idealistic. It systematised the ideas of Confucianism (q.v.). The ideal substance, *li* (q.v.) is devoid of form and properties and is inaccessible to sensory perception. The Great Ultimate gives rise to the force of motion, *yang* and the force of rest, *yin*. There is constant alternation of motion and rest, and in this process the five material prime elements of the world arise—water, fire, wood, metal, and earth. C.H. considered the ideal element, *li*, as primary and the material element, *ch'i* (q.v.), as secondary. C.H. resolutely upheld the ethical and political doctrine of Confucianism. He deduced man's innate nature from the ideal element, *li*. C.H. saw the foundation of social life in the strictest observance of Confucian ethical and political principles. Subsequently, the doctrine of C.H. was officially recognised and became the basis of the traditional educational system.

Circular Evidence (Lat. *circulus in demonstrando*), or vicious circle (Lat. *circulus vitiosus*), a logical error arising out of the adduction of proof or evidence involving premisses which assume the conclusion which is to be established. This error is occasionally encountered in scientific works. Thus, for example, over the past 2,000 years many mathematicians attempted to prove Euclid's fifth ("parallel") postulate by building their proof indirectly, on the very postulate to be proved. Marx demonstrated that A. Smith and other bourgeois economists reasoned in a "vicious circle": the value of commodities represents the sum of the wages, profit, and rent, while the value

of the wages, profit, and rent is in turn determined by the value of commodities, etc.

Civic Society, the term first used in the 18th century by pre-Marxian philosophers for social and, more narrowly, for property relations. A substantial shortcoming of the theory of C.S. propounded by the French and English materialists was that it failed to understand the dependence of C.S. on the mode of production. It inferred the origin of C.S. from the natural properties of man, from political tasks, forms of government and legislation, morality, etc. Hegel (q.v.) used the term to imply a "system of requirements" based on private property, on property relations and relations of social estates, on the system of judiciary relations, etc. Although Hegel's views on C.S. contain a few conjectures about the real laws of social development, they are generally wrong. Hegel's idealism comes to the surface in that he regards C.S. as dependent on the state, which he holds to be the true form of the objective spirit, with C.S. being only the "ultimate" form of the spirit. Marx uses the term and concept of C.S. in his early works; in particular, he uses it in 1843 in his critique of Hegel. By C.S. Marx understands the family, estate and class organisation, property relations, forms and methods of distribution, and, in general, all the conditions which ensure the existence and functioning of society, the conditions of the actual life and activity of man. He stresses their objective nature and economic basis. Subsequently, Marx replaces this insufficiently clear term with strictly scientific concepts (economic structure of society, economic basis, mode of production, etc.).

Clan, a group of men connected by ties of consanguinity, the main production cell of the primitive-communal system (q.v.). The clan numbered up to hundreds of members. Clans were united into fraternities (brotherhoods), while the union of fraternities made up a tribe (q.v.). In the period of the appearance and efflorescence of the clan system the most important posi-

tion in the clan was held by the woman (see Matriarchy), but with the decay of the clan it came to be held by the man (see Patriarchy). The structure of the clan was founded upon social ownership of the means of production, upon collective labour. The head of the clan was the elder who was elected. All affairs were settled by the council of the clan, i.e., a meeting of all the adult men and women. The absence of private ownership and classes led to the absence of class violence in the clan; there was no place for domination or oppression. With the growth of the social division of labour (q.v.), exchange and private ownership, the disintegration of the primitive-communal system, and, consequently, that of the clan, began. The appearance of a new mode of production, based on the class division of society, put an end to the clan system.

Class (in logic), finite or infinite totality of objects singled out according to some property which is taken in its entirety. Objects forming a C. are called its elements. Not only individuals can be elements of a C. but also Cc. themselves. Hence there are also different types of Cc. Usually a C. is determined by the properties common to all its elements. This makes it possible to treat the concept of C. as the concept of a propositional function (q.v.), since for an element to belong to a given C. it is necessary and sufficient that it possess the property forming this C. The theory of classes (see Classes, Theory of) provides a complete and systematic examination of C., their common properties and manipulations with them in logic.

Class Struggle, struggle between classes (q.v.) whose interests are incompatible or contradictory. The history of all societies, beginning with the slave society, was the history of the struggle of classes. Marxism-Leninism gave a scientific explanation of the C.S. as the driving force of the development of society divided into antagonistic classes and showed that in bourgeois society the C.S. inevitably leads to the dictatorship of the proletariat (q.v.), the purpose of which is to abol-

ish all classes and create a classless communist society. The main forms of the C.S. of the proletariat are economic, political, and ideological. Political struggle, which in bourgeois society leads to the socialist revolution and the dictatorship of the proletariat, is the decisive condition for the emancipation of the working class and the whole of society from exploitation. The economic and ideological forms of struggle are subordinated to the tasks of the political struggle. In contemporary capitalist society the C.S. of the proletariat is spearheaded against the omnipotence of the monopolies. In the course of the struggle against the capitalist monopolies all the main sections of the nation interested in preserving peace and in implementing broad democratic reforms unite around the proletariat. With the establishment of the dictatorship of the proletariat the C.S. assumes new forms. Proceeding from the experience of the young Soviet Republic, Lenin named five such new forms: (1) suppression of the resistance of the exploiters, (2) civil war as the extreme form of the C.S. between the proletariat and the bourgeoisie, (3) struggle for leadership of the peasantry and other non-proletarian working masses, (4) struggle for the utilisation of bourgeois specialists, (5) struggle to educate people in a new, socialist labour discipline. Depending on the concrete historical conditions the C.S. can assume more or less acute forms. "The general trend of class struggle within the socialist countries in conditions of successful socialist construction leads to the consolidation of the position of the socialist forces and weakens the resistance of the remnants of the hostile classes. But this development does not follow a straight line. Changes in the domestic or external situation may cause the class struggle to intensify in specific periods." (Programme of the CPSU.) The complete and final victory of socialism eliminates the grounds for the C.S., and promotes the socio-political and ideological unity (q.v.) of society. The CPSU criticised Stalin's erroneous thesis on the sharp-

ening of the C.S. after the victory of socialism, a thesis which served as a pretext for gross violations of socialist democracy and legality in conditions of the cult of the individual (q.v.). Transition from socialism to communism is effected in conditions when all social groups—workers, peasants, and the intelligentsia—are interested in the victory of communism and are purposefully working for it. Hence there are no grounds for C.S. within the country. But C.S. remains in relations with the capitalist world. Peaceful coexistence (q.v.) is a specific form of the C.S. between socialism and capitalism.

Classes (social) "Classes are large groups of people differing from each other by the place they occupy in a historically determined system of social production, by their relation (in most cases fixed and formulated in law) to the means of production, by their role in the social organisation of labour, and, consequently, by the mode and dimensions of acquiring the share of social wealth of which they dispose. Classes are groups of people one of which can appropriate the labour of another owing to the different places they occupy in a definite system of social economy." (Lenin, *Selected Works*, Vol. 3, p. 248.) The existence of C. is associated only with definite periods in the development of social production. The emergence of C. is determined by the development of the social division of labour (q.v.) and the appearance of private ownership of the means of production. In every class society, besides the basic C.—slave-owners and slaves in slave society, landowners and serfs under feudalism, capitalists and proletarians in bourgeois society—there also exist non-basic C.; the latter are associated either with remnants of the old mode of production (in bourgeois society, the peasantry) or with the emergence of a new mode (the bourgeoisie which arose in feudal society). Abolition of society's division into C. becomes possible only as a result of the socialist revolution (q.v.), the overthrow of the rule of the exploiting C., abolition

of their private ownership of the means of production, and its replacement by public ownership. The victory of socialism radically changes the character of the working class and draws the workers and peasants nearer to each other. Under socialism the working class can no longer be called the proletariat; it is free of exploitation and, together with the entire people, owns the means of production and does not sell its labour power. From a class deprived of all means of production and oppressed as it was under capitalism, the proletariat is transformed into the working class, the full master of the country, which works for itself, for the whole of society. As the most advanced and most organised class connected with public property, it leads the other sections of the population. Under socialism the peasantry does away for ever with farming based on private property, with disunity inherited from capitalism and renounces backward and primitive implements and farming methods. It farms on the basis of collective socialist ownership (see State and Collective-Farm and Co-operative Forms of Property). The intelligentsia, the social stratum of intellectual workers, has also radically changed. The intelligentsia has never been, nor could it be, a separate class, since it does not hold an independent position in the system of social production. As a social stratum it is incapable of pursuing an independent policy, its activity is determined by the interests of the classes it serves. After the victory of the socialist revolution, the working class is confronted with the problem of utilising the old and developing a new intelligentsia. Together with the workers and peasants, the intelligentsia actively participates in the building of communist society. The distinctions between the workers, peasants, and intelligentsia are effaced in the course of building communism. This process is based on the gradual obliteration of the essential distinctions between town and country, between physical and mental labour. The socio-political and ideological unity (q.v.) of the people achieved under socialism

is consolidated and the social homogeneity of society is extended. The further strengthening of the alliance of the working class and the collective-farm peasantry, the leading role of the working class, are of decisive political and socio-economic significance for the building of communism in the USSR. The division of society into C. and social strata will vanish completely with the victory of communism.

Classes, Theory of, a logical theory. Main concepts: class (q.v.), an element of class. Main propositions: an element of class (x) is a member of the class (A) (in symbols: $x \in A$); the universal class (1) complements the null (or empty) class; relations between classes are of four types: of two arbitrary classes A and B, either A is included in B (as its subclass) or vice versa, for instance $A \subset B$ and $B \subset A$; or A and B coincide partially or have no common elements at all. T.C. determines the following operations involving classes: (1) intersection $A \cap B$, i.e., the formation of a new class out of the elements common both to A and B; (2) union $A \cup B$, i.e., the formation of a class, whose elements belong either to A or to B, or to both; (3) complementation of A, i.e., the formation of a class out of all the elements of the universal class which are not included in A. The laws governing the relations between classes and the operations involving them are treated in the so-called calculus of classes, which is one of the interpretations (see Interpretation and Model) of algebra of logic (q.v.). At the same time the calculus of classes is treated as the calculus of singular predicates, since the expression $x \in A$ corresponds to a propositional function (q.v.).

Classification, a particular case of applying the division of concepts (q.v.), representing a certain sum total of divisions (division of concepts into species, division of these species, etc.). C. is designated for constant use in science or practical activity (for example, C. of animals and plants, socio-economic formations or C. of books in a library). Usually features essential to the given objects are taken as a

basis for C. In this case, C. (called natural) brings out essential similarities and differences between objects and is of cognitive significance. In other cases, when the purpose of C. is merely to systematise objects, features convenient for this purpose but not essential to the objects themselves (for example in alphabetical catalogues) are taken as a basis. Such C. is called artificial. The most valuable are Cc. based on knowledge of the laws of connection between types and the transition from one type to another in the process of development. Such, for example, is the C. of chemical elements created by Mendeleev (q.v.). Every classification is the result of a certain rough demarcation of the real boundaries between types, for they are always conventional and relative. With the development of knowledge Cc. are altered and made more precise.

Classification of Sciences, the interconnection of the sciences, their place in the system of knowledge determined by definite principles which reflect the properties of and the connection between the objects studied by different sciences. Epistemologically, the principles of C.S. can be objective, conforming to the nature of the subject-matter of the sciences, or subjective, depending on man's requirements. In his *Dialectics of Nature* (q.v.) Engels elaborated the dialectical materialist principles of a C.S. He developed a classification which removes the one-sidedness of earlier attempts at classifying the sciences (Saint-Simon and Comte, qq.v., on the one hand, and Hegel, q.v., on the other). Engels understood the interconnection and transitions of the sciences as a reflection of the interconnections and transitions of the forms of motion of matter studied by the particular sciences. For the natural sciences Engels suggested the following series: mechanics—physics—chemistry—biology. Further, the labour theory of anthropogenesis (q.v.), elaborated by Engels, opens the transition from nature to man and, correspondingly, from the natural to the social sciences (history) and sciences of thought. Engels devoted his at

tention chiefly to transitions between the separate sciences (corresponding to the forms of motion), acting on the principle that the essence of a higher form of motion is revealed through cognition of its connection with the lower forms from which it historically arose and which it contains as subordinated ones. The further development of the sciences proceeded so that their differentiation made for their increasing integration, their combination into a single whole through the appearance of intermediate sciences between the formerly disunited sciences and sciences of a more general nature. The technical sciences (including agricultural and medical) stand between the natural and social sciences; mathematics stands between the natural sciences and philosophy, with mathematical logic on the boundary between them. Psychology is linked with all the three spheres of knowledge (with nature, through zoopsychology and the theory of higher nervous activity; with society, through linguistics, pedagogy, social psychology, etc.; with thinking, through logic and the theory of knowledge). Cybernetics holds a special place. First of all, it is part of the technical and mathematical sciences, and at the same time deeply penetrates other sciences as well; the natural sciences (biology and physiology) and the social sciences (linguistics, law, and economics) and logic, especially mathematical. The contemporary development of science has introduced radical changes in Engels' original scheme of C.S: an entirely new science of the microworld has emerged (subatomic physics—nuclear, quantum mechanics, etc.); intermediary sciences (biochemistry, biophysics, geochemistry, and others) have been formed; old sciences have divided (for example, into sciences which study the macro- and microworld). As a result the C.S. can no longer be uniserial but must be extremely detailed and ramified. The need has arisen for dividing the sciences into the more general, abstract, and the more particular which study the forms of motion having a specific material substratum (carrier).

Clausius, Rudolf Julius Emanuel (1822-88), German physicist, one of the founders of thermodynamics (q.v.) and the kinetic theory of gases. Known for attempts to interpret electromagnetic phenomena from the standpoint of Newton's (q.v.) mechanics. C. gave his formulation of the second law of thermodynamics and introduced the concept of entropy (q.v.). The unjustified extension of the second law of thermodynamics to the world as a whole offered C. grounds for the conclusion about the inevitable "heat death" of the Universe. This conclusion (according to Engels) brought C. into conflict with the law of conservation of energy.

Clericalism, a socio-political trend in capitalist countries seeking to strengthen the position of religion and the church in different spheres of social life. According to its objective class role C. serves to reinforce the domination of the bourgeoisie, to prevent the working people from grasping the communist world outlook and the ideas of communism. C. enjoys the greatest influence in France, Italy, West Germany, Austria, Spain, and a number of Latin American countries. The growth of C. in present-day conditions is caused by the aggravation of the general crisis of capitalism (q.v.). The greater activity of C. is expressed in that the top hierarchy of the church, with the utmost support of the monopolies, uses its ramified apparatus to spread refined social demagogy and foster illusions about the possibility of "Christianising" capitalism. These illusions are entertained by backward sections of the people, who frequently see in religious organisations the defenders of their wrongly understood interests. C. creates its parties, trade unions, peasant, youth, women's, and other mass organisations to reinforce the influence of the church on the masses and thereby undermine the revolutionary action of the working class, disunite and demoralise the working people and prevent them from uniting in class organisations. Making use of these organisations, church leaders try ideologically to justify capitalist

exploitation and advocate reactionary ideas of "social peace". Struggle for peace, democracy, social progress, and a scientific world outlook presupposes the utmost exposure of the reactionary role of clericalist theory and practice.

Cognition, the process of reflection and reproduction of reality in human thought, conditioned by the laws of social development and inseparably linked up with practice. The aim of cognition is the achievement of objective truth (q.v.). In the process of C. man acquires knowledge and concepts of the phenomena of reality, realises the surrounding world. This knowledge is used in practical activity for the purpose of transforming the world, subordinating nature to human requirements. C. and the practical transformation of nature and society are two mutually conditioned and interdependent aspects of a single historical process. C. itself is a necessary factor in the practical activity of society, because this activity is carried out by people on the basis of C. of the properties and functions of things and objects. On the other hand, in the productive activity of society, practice acts as a necessary factor of the process of C. itself. Only the inclusion of practice in the theory of knowledge transformed it into a real science, disclosing the objective laws of the origin and formation of the knowledge about the material world. At the source of C. there is active practical influence upon nature, practical processing of natural substance, the utilisation of this or that property of things for production purposes. Not the outward appearance of the object, but its functions and its objective essence are assimilated in practice and become the domain of human knowledge, concepts, and theories. C. is a complicated dialectical process, taking place in different forms, having its own stages and degrees of development, and involving the participation of man's various powers and abilities. Based on experience, practice, C. begins with sense-perceptions of things surrounding man. Great therefore is the role

of "living perception", of man's direct sensual connection with the objective world, in the process of C. Man can know nothing about reality without sensations. "Living perception" takes place in such forms as sensation (q.v.), perception (q.v.), notion (q.v.), investigation of facts, observation of phenomena, etc. Sensations bring man in touch with the external qualities of objects. By distinguishing heat, cold, colours, smells, hardness, softness, etc., man finds his bearings in the objective world, differentiates things from one another, and receives various information on the changes in surrounding reality. The perception of the images of objects and their storing in the imagination allow man to operate freely with those objects, to apprehend the relationship between the external appearance of the object and its functions. But however important is the sensual form of C., it does not in itself give the possibility of penetrating into the essence of objects, of discovering the laws of reality. Yet precisely this is the main task of C. The data of "living perception", experience, are processed and generalised by man's higher cognitive ability—abstract-logical thought (q.v.), which is effected in the forms of concepts, judgements, conclusions (qq.v.). Concepts arise in man also as a result of his socio-productive activities. The properties and functions of objects, their objective practical value fixed in man's signal-speech activity, become the meaning and the sense of the words with whose help human thought creates definite notions of the objects, their properties and manifestations. The logical activity of thought is effected in various forms: induction and deduction, analysis and synthesis, the construction of hypotheses and theories, etc. Imagination, creative fantasy, intuition, which make it possible to form broad generalised ideas on the nature of things from certain data of experience, also play a great role in C. Thought, however, creates only subjective ideas; there still remains the question: do such ideas correspond to reality itself? This problem may

be solved not by theoretical discussions and proofs alone, but first and foremost by socio-historical practice. The subjective idea becomes the objective truth, completing a separate cycle of C., only if practical social activity is based directly or indirectly upon this idea, and allows men to master the natural or social forces (see Criterion of Truth). And only when social productive practice confirms the coincidence of ideas, knowledge, theories with reality, can it be said that those ideas, that knowledge, those theories are true. Lenin wrote: "From living perception to abstract thought, and from this to practice,—such is the dialectical path of the cognition of truth, of the cognition of objective reality." (Vol. 38, p. 171.) Scientific truth is finally proved in social practice, not in one isolated, specially carried out experiment. Social productive activity as a whole, the whole social being in the course of its history defines, deepens, and verifies knowledge. Truth is a process. Inasmuch as it is definite enough to distinguish objective truth from error, to confirm the truth of our knowledge, practice itself is at the same time a developing process, which is limited at every given stage by the potentialities of production, its technical level, etc. This means that it is also relative, as a result of which its development does not allow truth to be transformed into a dogma, into an immutable absolute (see Truth, Absolute and Relative).

Cognition, Object of, aspects, properties, and relations of objects, fixed in experience and included into the process of practical human activity, and investigated with a definite purpose in the given circumstances. Depending on the level of the development of cognition, it is also possible to investigate phenomena whose essence is known in some degree. In this case knowledge is obtained of the fundamental and more general regularities of an object, its essence is more profoundly revealed, and cognition goes from the essence of the first order to the essence of the second order, etc. Besides,

as the knowledge of the object develops, its new aspects are disclosed, and they also become Oo. C. For one and the same object different sciences have different Oo. C. (for example, anatomy investigates the structure of the organism; physiology the functions of its organs; medicine its diseases, etc.). The O.C. is objective in the sense that it belongs to the object of cognition, its contents being independent of man and mankind. In each individual case the choice of the O. C. seems to be arbitrary and subjective, but in the last analysis it is determined by the requirements and the level of development of social practice. The O.C. may or may not be given directly in sensations. In the latter case it is investigated by means of its manifestations. In its entirety and self-development the object is cognised by the thought passing from the abstract to the concrete. The process of cognition itself can be the O.C.

Cohen, Hermann (1842-1918), German philosopher, founder of the Marburg school (q.v.). Beginning with the 1870s he undertook to reconstruct Kant's (q.v.) theory of experience, his ethics and aesthetics in a spirit of idealism with greater consistence than Kant himself: he rejected the "thing-in-itself" (q.v.) as the real cause of sensations and considered it only as the limited concept of experience. Proceeding from Kant, he constructed a system of philosophy embracing logic, ethics, aesthetics, and the philosophy of religion. Philosophy, according to C., for the first time matures to be a science only when it takes as its subject-matter not things and processes, but the facts of science. The soul of philosophy is the idealist method modelled on the mathematical infinitesimal calculus. Cognising thought is creative; its subject is not "given" but "set" before it like a problem. Satisfying the requirements of knowledge, concepts give rise to new requirements, to which neither philosophy nor science give final answers. Philosophical consciousness is cognising consciousness; even religious belief rests on the clarity of systematic knowledge. His

main works are *Kants Theorie der Erfahrung*, 1871, and *System der Philosophie*, three volumes, 1902-12.

Coherence, Theory of (Lat. internal connection), a neo-positivist theory of truth, founded and developed by O. Neurath (q.v.) and R. Carnap (q.v.) in the course of their polemic in the Vienna circle (q.v.) against Schlick (q.v.). While Schlick imparted "realistic" tinge to his idealist understanding of truth, his opponents, by introducing the T.C., actually went over to positions of open subjectivism. According to this theory, truth is based on internal harmony of propositions in a definite system. Any new proposition is true if it can be introduced into the system without upsetting its internal non-contradictoriness. To be true means to be an element of a non-contradictory system. Moreover, a system is understood to mean a language structure deductively developed from the sum total of arbitrary initial axioms. Originally, the T.C. was based on recognition of "protocol propositions", a special type of propositions fixing empirical facts, and thus to some extent admitted a connection between the system and reality. Subsequently, with the adoption of the postulate that any proposition can be considered a "protocol" one (K. Popper), the T.C. assumed a purely conventionalist subjective idealist character (see Conventionalism).

Collectivism, a principle of joint social life and activity; diametrically opposed to individualism (q.v.). Arose in the period of the formation of human society and has a number of historical forms. In primitive society it was embodied in the joint struggle for existence. Communal ownership formed its basis. In slave and feudal societies C. was ousted by individualism bred by the domination of private ownership of the means of production. C. is preserved only in some residual forms (for example, joint communal ownership of land); under capitalism it is fully overpowered by the bourgeois individualism. At the same time a new form of C. is born, of which the proletariat becomes the vehicle. The

social nature of production and work at factories and in large groups determine the formation of proletarian collectives and the moulding of collectivist views, in the ranks of the workers. In socialist society C. becomes a principle inherent in all sections of the population. The principle of C. is part of the moral code of the builder of communism (see Moral Code, etc.). Expressing socialist relations of production, C. has its social basis in social ownership of the means of production and absence of exploitation of man by man, and its political basis in the equality of all citizens. C. is founded on the harmonious relationship between society and the individual, the mutual rights and duties of the collective and the individual. The main demands on the individual as a result of the principles of C. are as follows: comradesly mutual assistance, social awareness and fulfilment of duty to society, conscious voluntary subordination of personal interests to social, equality in the collective, respect for the collective and its decisions, awareness of responsibility to the collective for one's actions and for the behaviour of one's comrades. The collective cares for man, cares for the satisfaction of his requirements and the full development of the gifts and capabilities of the individual. The principle of C. does not involve the abolition of the personality of man. On the contrary, it is only in a collective that man develops and displays his gifts and abilities to the full. Communism signifies the highest form of C.

Comic, **The** (Gk. revelry, festival, song), an aesthetic concept expressing the historically conditioned (complete or incomplete) irrelevance of a social phenomenon, human action or behaviour, moral standards or customs to the objective development of a situation and the aesthetic ideal (q.v.) of the progressive forces of society. The aspects of C. are varied: they may reflect incompatibility between the new and the old, between form and content, or the end and the means, the action and the circumstances, a man's real nature and his opinion of

himself. Comic incidents and characters provoke laughter, disapprobation, etc. Its origin, nature and aesthetic function confer a social character upon C. Its source lies in the objective contradictions of social life. C. may depict the ugly (q.v.), historically doomed and inhuman in a hypocritical effort to pass for the beautiful, progressive and humane. In such a case C. arouses either angry laughter or a satirically negative reaction. The absurd urge to hoard for the sake of hoarding is comic inasmuch as it contradicts the ideal of a harmoniously developed individual. Marx saw in laughter a powerful tool of revolutionary criticism in the fight against all that is withering away. As communist society is being built, the ideal of a perfect individual developing in complete freedom is being realised more and more fully. Yet the process of moulding the man of the future is attended by no few elements of C. either in the form of survivals of the past (e.g., parasitism, careerism, bureaucratism, adulation, servility, etc.) which are the objects of angry and critical satire, or in the form of circumstances arising even in commendable situations, in public and private life, which need to be ridiculed. The various aspects of C. are satire, humour, etc.

Common Sense, sum total of views, habits and forms of thought developed by man in his everyday activity. This term is used in philosophical literature primarily in contrast to abstract speculative constructions of idealism. In this respect, C.S. coincides with the position of materialism, so it is not without reason that materialists in the past frequently cited C.S. arguments. But C.S. in this interpretation had substantial shortcomings. It did not delve into the essence of objects and processes, thus reflecting only the limited nature of daily practice. For this reason C.S. was often counterposed to scientific thinking. The broader ties of science with production and the spread of scientific views are changing the nature of everyday experience, bringing C.S. to a certain extent closer to scientific knowledge. That is why the counter-

posing of the two is becoming quite relative.

Communication, a category of idealistic philosophy denoting intercourse in which the self is revealed in another. C. finds its fullest expression in the existentialism (q.v.) of Jaspers (q.v.) and in modern French personalism (q.v.). Historically, the doctrine of C. originated as a refutation of the teaching of the social contract (q.v.), which has its origins in the age of enlightenment (q.v.). The adherents of the C. theory (K. Jaspers, O. Bollnow, E. Mounier) emphasise that a social contract is essentially a contract or transaction, the parties to which are bound by mutual obligations; mutual perception and cognition is achieved solely in the light of such obligations, i.e., in an abstract or impersonal manner. The contract is a bond based on the practical dissociation of individuals. C. is considered to be an arbitrarily established interdependence as opposed to the contract. "Contact rather than contract" (F. Kaufmann). C. is stated to be established by discussion in the course of which individuals become convinced that their dissociation is caused by the accepted patterns of thought, whereas they are brought closer together by that wherein they differ and by that which constitutes their unique individuality. The "individually unique" are the carefully concealed subjective fears, concerns and worries in which people, in the final resort, experience (each in his particular way) merely their own actual membership of some group of modern bourgeois society. Seen in this light, discussion is merely a means of clarifying this membership, and the doctrine of C. as a whole is a refined form of protection of caste and corporate bonds. Objectively, the doctrine of C. is counterposed to the Marxist conception of the collective.

Communism, see Socialism and Communism.

Communism, Scientific, a doctrine on communism which, in contrast to utopian socialism (see Socialism, Utopian), is based on science, on knowledge of the laws of historical develop-

ment. It was founded by Marx and Engels (q.v.). S.C. is a component of Marxism, which also includes the philosophy of Marxism and its economic doctrine, both inseparably interconnected. The subject-matter of S.C. is the laws governing the birth and development of the communist socio-economic formation (q.v.). The historical necessity of communism is demonstrated by the Marxist teaching on the law-governed succession of modes of production (q.v.) as a result of the conflict between the growing productive forces (q.v.) and the obsolete relations of production (q.v.), which retard their development. Marx's doctrine of the inevitable downfall of capitalism was further developed by Lenin in his doctrine of imperialism (q.v.) as the last stage of capitalism (q.v.) and the eve of socialism. The historic necessity of the communist reconstruction of society is the basic idea of S.C. It is specified and developed in the doctrine of the two phases of communism: the first phase (socialism) and the second, higher phase (communism) (see Socialism and Communism). The doctrine of the two stages of communism holds good for all countries. No country can arrive at full communism, skipping the first phase, socialism. Transition from socialism to communism is also a law-governed process. The founders of S.C. outlined its general features. A concrete, more precise description of this process can be given in the course of building communism by summing up the practical experience of this construction. The laws governing the development of socialism into communism are revealed in the new Programme of the CPSU, which demonstrates the objective necessity of building the material and technical basis of communism (see Material, etc.). It outlines the entire chain of consequences which follow from the creation of new productive forces for the shaping of communist social relations, for the advance of the material and cultural standards of people and their all-round development. The Programme reveals the importance of the material and technical basis of communism, above all automation of

production, for the development of socialist labour into communist labour (q.v.). It shows the concrete ways for the formation of single ownership by the whole people; the complete obliteration of class distinctions between the collective-farm peasantry and the working class; the obliteration of distinctions between the town and country in culture and the way of life; obliteration of distinctions between the peasantry and the working class and the intelligentsia; greater drawing together of nations and national cultures, and advance towards social homogeneity. The CPSU Programme sets the task of educating the new man, the all-round development of the personality (see All-Round Development, etc.) as an important component of communist construction. It charts concrete ways for accomplishing this task: moulding a scientific communist world outlook, labour education, and the establishment of the principles of communist morality (q.v.). In the course of building communism the dictatorship of the proletariat (q.v.), completing its tasks, develops into a state of the whole people (q.v.)—this proposition, formulated and grounded in the Programme, is an important contribution to the theory of S.C. The Programme outlines the concrete ways for the development of socialist statehood into communist public self-administration (q.v.). The theory of S.C., enriched by the Programme of the CPSU, illumines with the light of scientific knowledge the true road leading mankind to communism.

Communist Education, the moulding of conscientious, full man of socialist and communist society, free of any survivals of the past. C.E. is one of the most important aspects of the transformation of society during its transition from capitalism to communism. Socialism and communism cannot be built without a transformation of men's consciousness, mental attitudes and morals. A new way of life and participation in socialist and communist construction are essential elements of C.E. The actual practice of communist construction provides the best schooling

for C.E., while the process of moulding the new man exercises a great influence on the practical transformation of society. C.E. is not a spontaneous process subject to objective factors alone: it requires systematic, purposeful training, the results of which depend on its being connected with everyday life, with work for the good of society. The main aspect of C.E. is the development of a communist attitude towards work, including an appreciation of its high social significance and a realisation of one's duty towards society. For a man trained in the spirit of communism work becomes a prime necessity of life, and high moral virtues become permanent features of his character and conduct. One of the important aims of C.E. is to shape a scientific world outlook, an essential pre-condition of which is to master the progressive cultural legacy of the past and all the wealth of knowledge accumulated by mankind. A study of Marxist-Leninist theory helps people understand the laws of social development and the significance of their own activity. C.E. implies a systematic struggle against the survivals of capitalism (q.v.) in man's consciousness, including religious superstitions and the influence of bourgeois ideology. An important aspect of C.E. is the development of a sound sense of beauty. During the period of all-out communist construction in the USSR the main accent in C.E. is on the affirmation of the principles of communist morality as embodied in the moral code of the builder of communism (see Moral Code) contained in the Programme of the CPSU (see Morality, Communist; All-Round Development of the Individual).

Communist Labour. With the establishment of communism all labour for the good of society becomes not only a duty but also a prime necessity of life, a recognised necessity for everyone. According to Lenin, "Communist labour in the narrower and stricter sense of the term is labour performed gratis for the benefit of society ... voluntary labour, irrespective of rates, labour performed ... without the condition of reward, labour performed out

of a habit of working for the common good, and out of a conscious realisation (become a habit) of the necessity of working for the common good—labour as the requirement of a healthy organism". (Vol. 30, p. 517.)

Communist Public Self-Administration is a form of society's organisation under communism which will replace the state of the whole people (q.v.) once a developed communist society has been established within a country and once socialism is victorious and firmly established on the international scene. A distinguishing feature of C.P.S.A. is that its organs and functions will be no longer political, and public administration will be no longer carried on as a special profession. Pre-conditions of the establishment of C.P.S.A. are: creation of the material and technical basis of communism (q.v.); development of communist social relations and formation of the new man, i.e., attainment of so high a level of consciousness among all members of society that the principles of law and morality merge into a single code of conduct for all members of the communist society. The main trend in the emergence of C.P.S.A. is the further development of socialist democracy and the participation of all citizens in social management. This requires continuous improvement of the material and cultural standards of living; perfection of the forms of popular representation and the democratic principles of the electoral system; extension of the practice of nationwide referendums on important problems of communist construction and draft legislation; the widest possible extension of public control over the activities of administrative bodies; and gradual extension of the electivity and accountability principles to cover all high officials of state and mass organisations. Involving as it does the transformation of organs of state power into public self-administration bodies, the development of C.P.S.A. also implies an expansion of the activities of all existing mass organisations. "As socialist statehood develops, it will gradually become *communist public self-administration* of the people which will comprise

the Soviets, trade unions, co-operatives, and other mass organisations of the people." (Programme of the CPSU.)

Comparative Method, a method of investigating and explaining cultural phenomena; infers genetic kinship, that is, common origin, by ascertaining similarity in form. C.M. reproduces and compares the oldest elements common to various spheres of material culture and knowledge. Wilhelm von Humboldt and, particularly, Auguste Comte (q.v.) were chiefly responsible for the development of the C.M. The C.M. was developed further by the 19th century protagonists of comparative philology, Jacob Grimm, August Friedrich Pott, August Schleicher (Germany), Ferdinand de Saussure (Switzerland) and the Russian linguists I. A. Boduin de Courteney, A. N. Veselovsky, A. K. Vostokov, F. F. Fortunatov, etc. The C.M. advanced linguistics and ethnography and prompted deep-going studies of myths and legends. However, the C.M. concentrated on the outward resemblances of cultural and ideological forms, while neglecting the material social relations that caused their appearance. This is one of the limitations of the C.M. In modern historical research, the C.M. is employed as an auxiliary to various methods of substantive interpretation of the history of culture.

Comparison, a way of determining resemblances and differences between objects. It is the key premiss of generalisation (q.v.). C. is prominent in judgements by analogy (q.v.). Judgements expressing the result of C. serve the purpose of determining the content of concepts of the objects compared. In this sense, C. is a method supplementing, and sometimes replacing, definition (q.v.).

Complementarity, Principle of, a methodological principle suggested by Bohr (q.v.) to interpret quantum mechanics. It may be formulated as follows: to show the wholeness of a phenomenon, cognition must make use of mutually exclusive "complementary" classes of concepts. In the works of several representatives of the group known as the Copenhagen school, q.v.

(Jordan, Frank, q.v., and other advocates of extreme positivist views) the P.C. was used to defend idealist and metaphysical views of space, time, and causality. Attaching absolute importance to the increased role played by instruments in the microcosm and by incorrectly interpreting this as "uncontrolled perturbation", they regarded space and time, on the one hand, and causality, on the other, as mutually exclusive "complementary" characteristics of microprocesses. The necessity of using "complementary" concepts was inferred not from the objective nature of microobjects but from the peculiarities of the cognitional process, and was associated with the arbitrary intervention of the observer. The positivist form of P.C. was critically analysed by Vavilov (q.v.), Blokhintsev, Fok, de Broglie (q.v.), Langevin (q.v.), Jánossy, and others.

Compte, Auguste (1798-1857), French philosopher, founder of positivism (q.v.). Secretary and associate of Saint-Simon, q.v. (1818-24). The basic thesis of C.'s "positive philosophy" was his demand that science limit itself to a description of the outward appearance of phenomena. On the strength of this thesis C. asserted that "metaphysics", i.e., the teaching of the essence of phenomena, should be abolished. C. attempted to synthesise the vast body of data provided by natural science, but owing to his philosophical outlook (subjective idealism and agnosticism) his attempt led to a falsification of science. C. described the knowledge of nature in terms of three stages, each of which corresponded to a definite type of world outlook: the theological, the metaphysical, and the positive. In the first, theological, stage man attempted to attribute the various phenomena to supernatural powers or God. The metaphysical world outlook, according to C., is a modification of the theological; according to the metaphysical conception, the basis of all phenomena is to be found in abstract metaphysical essences. The theological and metaphysical world outlooks were followed, according to C., by the "positive method",

which rejected "absolute knowledge" (i.e., materialism first of all, and also objective idealism). The three-stage formula distorted the history of science and philosophy. For instance, the classification proposed by C. failed to take into account an entire period in the development of human thought—the epoch of antiquity. On balance, C.'s formula was an uncouth imitation of the dialectical triad borrowed from Saint-Simon. C. applied his three-stage formula to a classification of sciences and a systematisation of civil history. In his sociology (a term proposed by C.) he used an unscientific biological approach in an attempt to explain society. The principal reactionary idea of his sociological doctrine was the assertion that it is useless to seek to change the bourgeois system by revolutionary means. Capitalism, according to C., crowns the history of man's evolution; and social harmony could be achieved by propaganda of the "new" religion which substituted belief in an abstract supreme being (humanity in general) for faith in a personal God. C.'s most important work is the *Cours de philosophie positive* (1830-42).

Concept, one of the forms of reflection of the world in the mind, with the help of which it is possible to cognise the essence of phenomena and processes, to generalise their essential aspects and attributes. The C. is a product of historically developing cognition, which arises from a lower to a higher stage; it summarises, on the basis of practice, the results obtained in the concepts of increasing depth, improves and defines old concepts more precisely and formulates new ones. That is why Cc. are not static, not final, not absolute, but are in the process of development, change, progressing to the adequate reflection of reality. Cc. impart the sense (see Denotation and Sense) to the words of a language. The main logical function of C. is to single out in thought by definite attributes the objects which interest us from the point of view of practice and of cognition. Thanks to this function Cc. link up words with definite objects, which makes it possible to

determine the exact meanings of words and to operate with them in the process of thought. The differentiation of the classes of objects and their generalisation in C. is an indispensable condition for the cognition of the laws of nature. Every science operates with definite Cc., in which the knowledge accumulated by science is concentrated. The C., as Lenin characterised it, is the highest product of the brain, which is itself the highest product of matter (see Vol. 38, p. 167). The formation of C., the transition to it from sensory forms of reflection, is a complicated process including the application of such methods of cognition as comparison, analysis and synthesis, abstraction, idealisation, generalisation, and more or less complex forms of deduction. At the same time, scientific Cc. are often created initially solely on the basis of hypothetical assumptions concerning the existence of objects and their nature (that is how, for example, the C. of atoms emerged). On the basis of knowing laws and trends of development, the C. of some objects may be formed before the emergence of objects themselves (C. of communism). Thus, the formation of Cc. is a manifestation of an active and creative character of thought, although the successful use of the Cc. created depends entirely on the precision with which objective reality is reflected in them. Every C. is an abstraction, which makes it appear to be a deviation from reality. As a matter of fact, with the help of a C. a more profound knowledge of reality is obtained by the singling out and investigation of its essential aspects. Moreover, the concrete which is incompletely reflected in particular Cc. may be reproduced to a certain degree of completeness by an aggregate of Cc. reflecting its various aspects. Any scientific C., being a reflection of reality, is just as mobile and flexible as the objects and processes of which it is a generalisation. To quote Lenin, a C. "must be hewn, treated, flexible, mobile, relative, mutually connected, united in opposites, in order to embrace the world". (Vol. 38, p. 146.) The tenet on the flexibility, mobility, mutual connection, and trans-

formations of C. is one of the most essential aspects of the teaching of dialectical logic on C. Although only the general is singled out in C., this does not mean that it is in opposition to the individual and the particular. What is more, a scientific C. contains the richness of the special, the individual. Only on the basis of the general is it possible to single out and cognise the particular groups (kinds) of objects, as well as the individual objects of a class. The dialectical-materialist approach to the C. is corroborated by the development of the whole of modern science and serves as a method of scientific cognition.

Concept, Volume and Content of, two interconnected sides of a concept (q.v.). Volume is a class (q.v.) of objects generalised in a concept; content is the sum total (usually of essential) properties, according to which objects are generalised and singled out in the given concept. By formulating the content of a concept we single out the identical (general) in objects of the given class; a characteristic of volume, i.e., differentiation of elements (objects which are carriers of the properties comprising the content) and parts (species, subclasses of the given class) brings out the difference between objects of the given class. There is a connection between content and volume expressed in formal logic by the law of inverse relation (see Inverse Relation, Law of).

Conceptualism, a theory of scholastic philosophy, mainly connected with the names of Abélard and Occam (qq.v.). In the debate over universals (q.v.) the conceptualists denied their real existence apart from particular objects, as did the nominalists (see Nominalism), but unlike the latter they admitted the existence of general a priori concepts, or mental images abstracted from actions or things, as a special form of knowledge of reality. Locke (q.v.) held views close to C.

Concrete Sociological Investigations, studies of various aspects and elements of society (economy, everyday life, family and matrimonial relations, public opinion, cultural level and technical education of workers and peasants,

etc.). C.S.I. effected by the various social sciences (i.e., theory of scientific communism, economics, statistics, jurisprudence, etc.) employ the methodology of historical materialism which offers a truly scientific analysis of concrete facts. The purposes of C.S.I. are: ascertainment and generalisation of new phenomena in social life; investigation of the practical activities of state and mass organisations; generalisation of the experience of socialist and communist construction; and the discovery of new laws governing the economic, political and cultural development of socialism and its growth into communism. An example of C.S.I. is to be found in Lenin's *A Great Beginning* with its profound factual analysis of the early communist "subbotniks" (voluntary labour performed after working hours on weekends) and evaluation of their tremendous impact on the pace of communist construction in Russia. C.S.I. employ such methods and techniques as the statistical approach, questionnaires, interviews or polls, etc. C.S.I. differ fundamentally from empirical sociology (q.v.), which rejects the study of the objective laws of social development (thus inevitably leading to the misrepresentation of concrete facts) and gets lost in a trivial description and enumeration of facts.

Concreteness of Truth, an attribute of truth, deriving from the consideration and generalisation of specific conditions of the existence of some fact; the dependence of truth upon definite conditions of time and space, systems of calculation and units of measurement, etc. Thus, the truth or falsity of a proposition cannot be established unless the relevant conditions are specified. Truth is never abstract, it is always concrete. A concrete historical approach and consideration of circumstances of time and space are particularly important in analysing social development, which is characterised by the continuous emergence of new phenomena which lacks uniformity, differs from country to country.

Condillac, Étienne Bonnot de (1715-80), French encyclopaedist (see Enlightenment). Born at Grenoble, he became

a Catholic priest, but through his works tried to undermine the ideology of the church. He was a follower of Locke (q.v.) in respect of the theory of knowledge, but, unlike the latter, denied the existence of "reflection" as a source of knowledge second to sensation. His failure to understand the nature of the relationship between sensations and external objects, and his exaggeration of their subjectivity led C. to subjective idealism. Sensations, according to C., are produced by external objects, with which, however, they have nothing in common. Inasmuch as sensation is the sole link between the world and the intellect, the latter has for its object the sum total of sensations, rather than the objective world. Nevertheless C.'s sensationalism (q.v.) was opposed to the idealism of Leibniz (q.v.) and to any speculative philosophy. His influence on the French materialism of the 18th century (q.v.) was considerable. His principal works are: *Le Traité des systèmes, où l'on en démele les inconvenients et les avantages* (1749), *Le Traité des sensations* (1754), and others.

Condition, a philosophical category expressing the relationship of an object to phenomena around it, and without which it cannot exist. The object itself is something determined, while C. represents the diversity of the objective world external to the object. As distinct from the cause, which directly engenders phenomena or processes, C. is the environment, the atmosphere in which they emerge, exist, and develop. By learning the laws of nature, men are able to create Cc. favourable to their activity and eliminate unfavourable Cc. While influencing phenomena and processes, Cc. themselves are also subject to their influence. Thus, the socialist revolution, arising in definite Cc. subsequently changes the Cc. of society's material and spiritual life.

Conditionalism, a philosophical teaching which substitutes the concept of a concurrence of conditions for the concept of cause. It was founded by M. Verworn (1863-1921), a German physiologist, adherent of idealism in philosophy. The concepts of C. have supporters

among theoreticians in the field of medicine.

Condorcet, Jean Antoine (1743-94), French philosopher and encyclopaedist, Girondist sympathiser, member of the Academy of Sciences in Paris. In economic matters he was a follower of physiocracy (see Turgot). His criticism of religion was based on deism (q.v.) and enlightenment (q.v.). He called for the abandonment of superstitions and for a development of scientific knowledge. In his most important work, *Esquisse d'un tableau historique des progrès de l'esprit humain* (1794), C. viewed history as a product of the human mind, and declared the bourgeois system to be the apex of reasonableness and "naturalness". He divided history into 10 periods on the basis of random attributes, and undertook to prove that capitalism implied endless progress. C. opposed the system of social estates, fought for political equality, and called for the abolition of despotic rule and for the free development of the individual. At the same time, he considered inequality in regard to ownership beneficial for society. His views and illusions were typical of ideologists of the nascent bourgeoisie.

Conflict, dramatic, a specifically aesthetic form of expressing the contradictions occurring in men's lives, a form of reproducing through art the sharp clash of conflicting human acts, ideas, strivings, and passions. C. has its origin and finds its solution against the background of struggle between definite social forces and trends of social development. Realistic art reproduces social contradictions in the particular form of collision between typical characters in typical settings, i.e., in the form of dramatic Cc. The specific content of a dramatic C. is the struggle between the beautiful (q.v.) and the ugly (q.v.), the outcome of that struggle, and its evaluation in the light of a definite aesthetic ideal (q.v.). In the C. reproduced in works of art created by the school of socialist realism (q.v.) the exponents of the new and the beautiful are eventually victorious, although the road to victory may lie through setbacks, temporary

defeats, and tragic situations. The role and form of the C. largely depend on the characteristics and means of typification peculiar to the various genres of art. Thus, open struggle between opposites is depicted in drama and the novel; collision of various ideas and feelings—in painting, lyric poetry, and music. In true art, the dramatic conflict is marked by the depth and importance of its ideological and social content, by its poignance and tensivity, and perfection of artistic form, all of which endows the given work with a powerful aesthetic effect.

Confucianism, one of the leading philosophic schools in ancient China, founded by Confucius (551-479 B.C.), whose views were expounded by his followers in the *Lun Yü* (*Analects*). According to Confucius, the fate of man is ordained by "Heaven"; all men are unalterably either "noble" or "base". The younger must humbly submit to their seniors, subordinates to their superiors. A prominent follower of Confucius was Mêng Tzû (q.v.), or Mencius, who attributed social inequality to the "will of Heaven". Another Confucianist of note was Hsün Tzû (q.v.), who propounded a materialist doctrine according to which Heaven formed part of nature and lacked consciousness. According to Hsün Tzû, a man who has attained knowledge of the laws (*tao*, q.v.) of things should use those laws to advance his own interests. The central teaching of C., however, was a justification of the supremacy of the privileged classes and glorification of the "will of Heaven", which formed the basis of the orthodox Confucian school founded by Tung Chung-shu (177-104 B.C.). In the 11th and 12th centuries, Chu Hsi (q.v.) and others introduced Neo-Confucianism, which implied the existence of two fundamentals in the Universe—*li* (q.v.), or the rational creative principle, and *ch'i* (q.v.), or passive matter. *Li* generates virtue in men, whereas *ch'i* produces vice, surrender to sensual temptation. Wang Yang-ming (1472-1528) developed C. on the basis of subjective idealism. Together with Buddhism (q.v.) and the Taoist religion, C. was

for many centuries the leading ideology in feudal China.

Conscience, a complex of emotional experiences based on man's understanding of his moral responsibility for his conduct in society, an individual's own appraisal of his actions and behaviour. C. is not an inborn quality, it is determined by man's position in society, his living conditions, education, and so on. C. is closely related to duty (q.v.). Consciousness of having fulfilled one's duty is felt as a clear C., violation of duty is accompanied by pangs of remorse. Actively responding to the requirements of society, C. is a powerful driving force for the individual's moral improvement.

Consciousness, the highest form of reflection of objective reality inherent only in man. C. is the sum total of mental processes which actively participate in man's understanding of the objective world and of his personal being. It takes its origin in the labour, socio-productive activity of people and is closely connected with the appearance of language, which is as old as C. Language has exerted a tremendous influence on the development of C., on the formation of abstract logical thinking. Only in the process of labour, in social relations with one another, do people become aware and disclose the properties of objects, realise their own relation to the environment, single themselves out from it, and exert a purposeful action on nature with the object of subordinating its forces to their needs. C. is, therefore, a product of social development and does not exist outside society. Thinking, in terms of language, in abstract logical terms, makes it possible not only to reflect the external, sensory appearance of objects and phenomena, but also to understand their significance, their functions, and their essence. Without understanding, without knowledge, which is a result of man's socio-historical activity and human speech, there is no C. either. Any sensory image of an object, any sensation or concept, is part of C. inasmuch as it possesses definite meaning in the system of knowledge acquired through social ac-

tivity. Knowledge, denotation, and sense, preserved in language, direct and differentiate man's sentiments, will, attention, and other mental acts, combining them into a single C. Knowledge accumulated by history, political and legal ideas, the achievements of art, morality, religion, and social psychology constitute the C. of society as a whole (see Social Being and Social Consciousness). But C. must not be identified solely with abstract logical thinking. In general, there is no thinking outside man's vital, mental activity, sentiments and will. Were man to make only one logical operation after another, were he not to feel, sense, and experience the constant relationship between his concepts and his activity and perceptions of reality, he would not understand and would not be aware either of reality or of himself, i.e., would possess neither C. nor self-consciousness. On the other hand, the concept of C. and psyche must not be regarded as identical, i.e., we must not consider that all mental processes in each given moment are included in C. A number of mental emotions can be for a definite time "beyond the threshold" of C. (see Subconscious). Absorbing historical experience, knowledge, and methods of thinking elaborated by preceding history, C. perceives reality in an ideal way, setting itself new aims and tasks, directing all practical activity of man. C. is shaped by activity and, in its turn, influences this activity, determining and regulating it. Realising their creative plans, people transform nature and society and thereby transform themselves. In this sense Lenin proved that "man's consciousness not only reflects the objective world, but creates it". (Vol. 38, p. 212.) The problem of C. and its relation to matter (see Philosophy, Fundamental Question of) has been the keenest and basic issue throughout the ideological struggle of philosophies in science. A materialist understanding of history enabled Marx for the first time to solve this problem scientifically and thereby create a truly scientific philosophy.

Consequence, Logical, assertion B inferred (see Inference) according to

certain rules of logic from statements $A_1, A_2 \dots A_n$ (regarded as premisses in relation to B). A L.C. must be true if its premisses are true. The relation between the premisses and the L.C. inferred from them is expressed symbolically as follows: $A_1, A_2 \dots A_n \vdash B$, where \vdash is the sign of inference B from the given premisses.

Conservation Laws, a special class of physical laws reflecting the constancy of the fundamental properties and relations in natural processes. The C.L. are the essential indispensable element of the structure of any physical theory. Currently, we know the following C.L.: the law of conservation of mass, the law of conservation of energy (q.v.), the law of momentum, the law of conservation of moment of momentum, the laws of conservation of spin, electrical charge, baryon charge, isotopic spin, parity, strangeness, etc. The C.L. may be divided into general and particular, according to their degree of common operation. Discovery of a limit to the operation of a general law involves the discovery of a new law of conservation. For instance, violation of the law of conservation of parity in the sphere of weak interactions led to the discovery of the law of conservation of combination parity. The C.L. are associated with the properties of space and time symmetry, e.g., the law of the conservation of energy is associated with uniformity of time and that of momentum conservation with uniformity of space. The C.L. reflect the indestructibility of the fundamental properties of material objects and confirm in their entirety the principle of the uncreatability and indestructibility of moving matter. The processes of mutual transmutation of material objects are controlled by the C.L. For this reason the C.L. provide a basis for the essential law-governed causal relations in nature. Being the most general laws in any physical theory, they have a great heuristic value. The C.L. reflect one of the aspects of the dialectical contradiction inherent in nature, viz., the contradiction of conservation and change.

Conservation of Energy, Law of, one of the most important conservation laws according to which the total amount of energy (q.v.) neither disappears, nor is created anew, when changing from one kind into another. When a material system passes from one state into another, the amount of its energy changes in strict proportion to the increase or decrease in the energy of the bodies interacting with the system. The processes of conversion from one form of energy into another are regulated by numerical equivalents. L.C.E. was proved by Mayer, Joule, Helmholtz and others in the mid-19th century, its discovery being preceded by conjectures propounded by Descartes, Leibniz, and Lomonosov (qq.v.) on the conservation of matter and motion. The L.C.E. has far-reaching philosophical implications. It serves as a scientific proof of the materialist notion of the indestructibility of motion. Engels regarded the discovery of L.C.E. as one of the three great discoveries comprising the scientific foundation of the dialectico-materialist understanding of nature. The L.C.E. reflects the unity of the material world. With its discovery, Engels said, "the unity of all motion in nature is no longer a simple philosophical statement, but a scientific fact".

Constructive (Genetic) Method, one of the methods of deductive construction of scientific theories (see Deductive Method). The idea of C.M. was conceived and developed (in the works of D. Hilbert, L. Brouwer, A. Heyting, A.N. Kolmogorov, A. A. Markov, P. Lorentsen, and others) in an attempt to deal with the difficulties of an axiomatic rationalisation of mathematics and logic (for example, to solve the paradoxes, q.v., of the theory of numbers, etc.). Unlike the axiomatic method, the constructive method of developing a theory strives to reduce to a minimum the primary, non-demonstrable within the framework of the theory statements and undefinable terms. The basic purpose which the C.M. is to achieve lies in the consecutive construction (actually effected or possible with the available means) of

the objects taken as a system and the statements concerning these objects. The task facing the primary objects of a theory and the construction of new ones are effected by means of a body of special rules and definitions. All the other statements of the system are drawn from the primary basis by means of an inference technique characteristic of constructive theories and based on the principle of mathematical induction (q.v.). At present the C.M. is applied solely to the formal sciences, to the building of constructive mathematics and constructive logic. There is no apparent reason, however, for denying the possibility of using this method in building up knowledge in the field of the natural sciences as well.

Constructivism, a school of art, whose exponents attach special importance to the constructive aspects in artistic expression and the materials employed. C. originated after the 1st World War as a result of developing industrial techniques and the appearance of new building materials (e.g., reinforced concrete and glass), and found particularly wide acceptance in architecture. Several trends are distinguished in C., such as functionalism, rationalism, the "modernism" in architecture, etc. Exponents of C. are Le Corbusier (France), W. Gropius, E. Mendelsohn, B. Taut (Germany), F. Wright (USA), and others. C. stresses the functional element in architectural forms, as well as conveniences and economy. At the same time, it has serious shortcomings: oversimplification; insufficient attention to national tradition; tendency to overaestheticise modern materials and various architectural techniques. C. is also reflected in literature and music.

Conta, Basile (1845-82), Rumanian materialist philosopher. He drew his conclusions from data furnished by the natural sciences, largely basing them on the theories of C. Lyell, J. Lamarck, Ch. Darwin and E. Haeckel (qq.v.). According to C., nature precedes consciousness. Although he refuted the vulgar materialism of Vogt, C. failed to reach a scientific interpretation of thought. C. considered infinite matter as endlessly developing in

time and space. He classified all laws according to different forms of matter, while refusing to accept the conception of chance and asserting that all laws operate fatally. He considered the cognitive capacity of the human mind to be unlimited, just as reality itself. Knowledge is verified by practice, by which C. meant laboratory experiment and personal experience. Being an atheist, C. attributed the origins of religion to the ignorance and fears of primitive man. In the field of sociology, C. adhered to idealism. His materialistic teachings had a marked effect on the development of sociological and political thought in Rumania in the latter half of the 19th century. C.'s most important works are *The Theory of Fatalism* (1875-76) and *Essays on Materialistic Metaphysics* (1879).

Contemplation, the main shortcoming of pre-Marxist materialism in the theory of knowledge. Proceeding from the objectivity of the external world, the old materialists described consciousness as a passive process of perception, C., when the external world acts on man's sense-organs, while man himself is regarded only as the perceiving subject. Moreover, the objective world and human activity were regarded as opposites. Reality was taken only as an object and not considered subjectively, i.e., depending on the activity of the subject, transformed and changed by man's practical activity. Social production, moreover, was understood by the old materialists solely as individual activity of people aimed at satisfying their narrow personal and selfish requirements. They regarded practical activity merely as the "dirty mercantile form of its manifestation" (Marx). That practice is activity which creates both man and the world he lives in could not be grasped by the old materialists. This was determined by their idealistic understanding of history and by their ignoring of the role of production in society's life. As a result, only theoretical activity was regarded as truly human, while knowledge was divorced from practice and considered to be its opposite. Actually, in the process of cognition man deals

not so much with nature as such as with a "humanised" world, i.e., a world drawn into the process of production in one way or another. For this reason the practical transformation of the world reveals to man its laws and essence. Characteristic of C. is also understanding of the subject of knowledge as an abstract individual, isolated from society and often regarded only as a natural being. C. is inherent both in empiricism and rationalism because outside practice it is even impossible correctly to raise the question of their relationship. In the theory of knowledge C. inevitably leads to metaphysics and makes it impossible fully to refute idealism. Marxism overcame C. and thereby made a revolution in epistemology.

Contemporary Marxist Philosophical Thought Outside the USSR The victory of the 1917 Great October Socialist Revolution and the successful building of socialism in the former backward tsarist Russia aroused interest in Marxism-Leninism and its philosophy in many capitalist countries. The Communist Parties which emerged and united in the Third International (1919) considered dialectical and historical materialism as their philosophical banner. As early as the twenties, Lenin's works were translated into the main European languages. The revolutionary upsurge in a number of European countries (1918-23) led in several Communist Parties to the strengthening of a Left trend, whose features were subjectivism, underestimation of the role of the masses in history, and reduction of the social revolution to political conspiracy (the Bordiga group in the Italian Communist Party). Lenin's work "*Left-Wing Communism—an Infantile Disorder*" (1920) was of decisive importance in exposing the Left-wing deviation views. The partial stabilisation of capitalism (1924-29) and the intensification of bourgeois and Right-wing socialist ideology which it led to, caused the infiltration into the Communist Parties of the USA, Germany, Italy, and other countries of Right-wing opportunism and its ideological basis

mechanistic philosophy. The Marxists of the Third International joined the struggle against the Left and Right deviations on philosophical problems as well. In the twenties, philosophical problems were elaborated by G. Dimitrov, A. Gramsci, P. Togliatti, M. Thorez, E. Thälmann, W. Foster, and others. They proved the theoretical insolvency and practical harmfulness of subjectivist ideology and mechanistic philosophy, upheld the teaching of the unity between Marxist theory and the revolutionary practice of the proletariat. The deepening of the general crisis of capitalism caused by the successful building of socialism in the Soviet Union, on the one hand, and the general economic crisis (1929-33), on the other, was marked by the establishment of fascism in some capitalist countries. In the field of ideology these events were reflected in intensified propaganda of irrationalism, mysticism, and the like. The Communist Parties' tactics of a united people's front in the fight against fascism contributed to rallying the progressive intelligentsia around the Marxists and accelerated the transition of a number of its representatives to the positions of dialectical-materialist philosophy. The Marxist philosophers' work against intuitionism (G. Politzer, France), Neo-Hegelianism (Gramsci, Italy), Neo-Platonism (H. Selsam, USA), pragmatism (W. Foster, USA), Rehmianism (T. Pavlov, Bulgaria), and other idealist trends in the philosophy of the thirties enhanced the prestige of dialectical materialism, demonstrated its role as the methodological foundation of the sciences and an effective weapon against fascist ideology. A new stage in Marxist-Leninist philosophy has begun after the 2nd World War as a result of the profound changes which have taken place in all spheres of modern society, economic, social and socio-political. Following the defeat of German fascism and Japanese militarism, a number of socialist nations appeared in Europe and Asia. The Communist and Workers' Parties in the European People's Democracies have worked out such a vastly impor-

tant theoretical and practical question as the dialectics of the general laws of socialist construction and the national peculiarities in which they are manifested. During the socialist construction in those countries, a cultural revolution is being carried out and Marxist-Leninist philosophy has a great part to play in it. In this connection there has arisen the task of philosophical educating the working people, freeing their consciousness from survivals of capitalist ideology, religious superstition and the like. In the People's Democracies, new Marxist philosophers work alongside the older ones. All of them are spreading scientific philosophy among the people, and are also successfully elaborating problems of dialectics in social development and socialist construction (P. Pavlov in Bulgaria, H. Scheler in the German Democratic Republic, A. Schaff in Poland, and others), philosophical questions in the natural sciences (L. Jánosy in Hungary, Polikarov in Bulgaria and others), problems in ethics (C. Gulian in Rumania, Beck in the GDR, L. Svoboda in Czechoslovakia, and others), in aesthetics (S. Zólkiewski in Poland, A. Abusch in the GDR, and others), the history of philosophy (H. Ley and R. Gropp in the GDR), criticism of contemporary idealism (G. Mende in the GDR, J. Bodnár in Czechoslovakia, Iribajakov in Bulgaria, and others), logic (B. Fogarasi in Hungary, G. Klaus in the GDR, and others). In the capitalist countries, Marxist philosophical thought since the 2nd World War has been aimed at working out ways and means of fighting for democracy and socialism in the conditions of the new crisis of capitalism. The speeches and writings of the leading figures in the Communist and Workers' Parties stress that the new historical conditions demand an analysis of the national specifics of each country, the search for concrete ways of fighting for peace, democracy and socialism. The Marxist philosophers in the capitalist countries are actively defending progressive philosophical traditions, exposing anti-communist propaganda and the most recent meth-

ods of refined idealism. In their works R. Garaudy and J. Kanapa (France), A. Cornu (GDR), E. Sereni and L. Longo (Italy), H. Selsam (USA), and others, show that communism brings with it a new culture and a new humanism based on the best philosophical traditions. The works of M. Cornforth (Britain), Harry Wells (USA), G. Bess, Garaudy, H. Denis (France), and others uncover the essence of the latest idealist trends (neo-positivism, existentialism, Neo-Thomism, q.v.), and show that they are hostile to progressive culture and humanism. Foremost intellectuals in the capitalist countries support the Marxists and go over to the positions of dialectical materialism (J. Bernal, q.v., in Britain, P. Langevin, q.v., and J. P. Vigier in France, J. B. Furst and B. Dunham in the USA, and others). A strong impulse to constructive development of Marxist philosophy was given by the 20th Congress of the CPSU (1956), which laid the basis for a new stage in the development of the communist movement. This Congress made a profound and all-round criticism of the cult of Stalin's personality and thereby cleared the way for creative development of Marxism-Leninism. It also drew exceedingly important conclusions on the possibility of preventing world wars in the contemporary epoch, on the possibility of a peaceful as well as a non-peaceful way of the socialist revolution, and on the variety of forms the dictatorship of the proletariat may take. The Declaration of the Moscow Meeting of Representatives of the Communist and Workers' Parties (1957) formulated the general laws for the transition from capitalism to socialism and emphasised the significance of dialectical materialism as the science of the most general laws of development of nature, society, and thought. The Statement of the 1960 Moscow Meeting of Representatives of the Communist and Workers' Parties gave a Marxist definition of the present epoch, charted the ways and means for the struggle for peace, democracy and socialism in contemporary conditions. The new Programme adopted

by the 22nd Congress of the CPSU is of enormous importance for the creative development of Marxism-Leninism. This development is inseparably associated with the fight against revisionism and dogmatism. Prominent Marxists-Leninists in many countries have criticised revisionism and dogmatism and revealed the danger they present for the communist movement.

Contradiction, a category in dialectics expressing the inner source of all motion, the root of vitality, the principle of development. It is the recognition of C. in the objects and phenomena of the objective world that distinguishes dialectics from metaphysics. "Dialectics in the proper sense is the study of contradiction *in the very essence of objects...*" (Lenin, Vol. 38, pp. 253-54.) Dialectical Cc., reflected in thought, concepts, theories, must be distinguished from so-called logical Cc., which are manifestations of confusion and inconsistency in thinking.

Contradiction, Law of, a law of logic, according to which two propositions A and \bar{A} negating (see Negation) each other cannot be simultaneously true. The first formulation of the L.C. was given by Aristotle. This law may be formulated as follows: proposition A cannot be simultaneously false and true. In symbolic writing

$A \cdot \bar{A}$, where \cdot is the sign of conjunction and the line above the symbols is the sign of negation. The L.C. plays an important role in thinking and cognition. Judgements or scientific theories become inconsistent when they contain formal contradictions. The L.C. is the reflection in the mind of the qualitative definiteness of objects, of the simple fact that, if abstraction is made of a change in the object itself, it cannot simultaneously possess properties which exclude each other.

Contraposition, a logical operation in which the propositions of an implication (q.v.), i.e., its antecedent and consequent, are replaced by their negations (obversion) and change places (conversion). Thus, C. of the proposition "If x is divisible by 4, then

x is divisible by 2" would yield the proposition "If x is not divisible by 2, then x is not divisible by 4". C. retains the value of truth or falsity of the primary proposition.

Conventionalism, the philosophical concept according to which scientific theories and concepts are a product of arbitrary convention among scientists, rather than a reflection of objective reality, such convention being determined by considerations of utility and simplicity. The conventionalist point of view is typical of subjective idealism inasmuch as it denies the presence of objective content in the subject's knowledge. The founder of C. was Poincaré (q.v.). Elements of C. are found in positivism (q.v.), and especially in pragmatism and operationism (qq.v.). The epistemological basis of C. is the real possibility of varied interpretations of our theoretical propositions (especially in the field of mathematics), producing the temptation to regard a scientific theory as a purely logical construction in respect of which the concepts of truth or falsity lose validity. The viewpoint of C. is refuted by a historical analysis of the process of cognition. Our concepts and theories are formed in the process of man's activities and reflect particular aspects of the world. Once formed, however, they may be abstracted from their real base to become a tool or instrument for the description of totally different phenomena. Thus, geometrical propositions may be used to solve technical problems, construct diagrams, etc. However, the "artificial nature" of such use, based as it is on the analogy of non-identical objects, by no means proves the arbitrary nature of the theoretical constructions as such.

Co-ordination and Subordination of Categories, two distinct systems of concepts, categories, characterised by structurally different relationship of their elements. The elements of a co-ordinate system possess independent meaning and external interdependence. The elements of a subordinate system are not independent units, their meaning being determined by the meaning of the other elements and

implying an interrelationship among them, transitions, and mutual transformations. Seen as specific systems of knowledge, C. & S.C. are the results of different processes of cognition. C. is secured by breaking down the object into its components on the basis of the characteristic accepted for the purpose. This type of knowledge is essential for a survey of the functionally interdependent parts of a single whole, but is abstract and limited. It is mainly used by the metaphysical, non-dialectical schools. S. of categories is based on the movement of thought from the abstract to the concrete (see *The Abstract and the Concrete*), from the simple to the complex, in the dialectical reproduction of developing objects and phenomena. Unlike idealistic S. (see Hegel), according to which one thought conceives another and the transition from one to the other is determined only by thought, dialectical materialism provides a method of achieving subordination based on the investigation of the objective thing and a theoretical development of the knowledge thereof, of which Marx's *Capital* is a classic example. The result of the development of knowledge is given in it in the form of S. of categories. The dialectics of the object is reflected in the dialectics of concepts. An important criterion in the S. of dialectical logic is the unity of the historical and the logical (q.v.), the interpretation of the system of logical categories as a generalised history of knowledge.

Copenhagen School, the name given to a group of physicists (Bohr, Heisenberg, qq.v., Weizsäcker, Jordan, and others), exponents of a positivist approach to the philosophical problems of quantum mechanics. This group formed in the late 1920s at the Copenhagen Institute of Theoretical Physics headed by N. Bohr. Bohr and Heisenberg, together with several other physicists, exponents of the Copenhagen school, were largely responsible for creating and developing quantum mechanics and interpreting its mathematical structure and experimental data.

The philosophic views of this school, however, and its subjectivist opinions, especially those of its early period, fell under strong neo-positivist influence. Erroneously attributing to instruments the role of "uncontrolled disturbance" in the micro-universe, some of its exponents proclaimed "disappearance of causality" and "freedom of will" of the electron, etc. These views were criticised by some physicists (S. I. Vavilov, A. Einstein, P. Langevin, qq.v., V. A. Fok, D. I. Blokhintsev, and others). The adherents of the C.S. are no longer in complete accord. Jordan and Weizsäcker continue to support the old positivist views, whereas Heisenberg leans towards objective idealism. As for Bohr, he drew closer to the materialistic understanding of philosophical problems of quantum mechanics.

Copernicus, Nicolaus (1473-1543), Polish astronomer, founder of the heliocentric theory of the Universe. His theory of the Earth's revolution round the Sun and its diurnal rotation upon its own axis signalled the beginning of a break with the geocentric theory originated by Ptolemy and the religious views founded thereon of the special favour bestowed upon the Earth by God and man's privileged position in the Universe. In the history of science C.'s theory was a revolutionary act signifying that research in the realm of nature would hence be independent. It meant that the natural sciences were throwing off the yoke of theology. His theory further discarded the contraposition of the movement of heavenly bodies to earthly movements expounded by Aristotle (q.v.) and adopted by scholasticism (q.v.); undermined the church's story of the creation of the world by God; and prepared the ground for the later appearance of theories concerning the natural origin and development of the solar system. C.'s discoveries became the object of a violent struggle. Although they were condemned and combated by the church, the leading thinkers of his age and later times proclaimed their truth and developed them further. C.'s principal work is *De Revolution-*

ibus Orbium Coelestium, 1543. (See Heliocentrism and Geocentrism.)

Corporate State, the most reactionary fascist type of bourgeois dictatorship developed after the 1st World War amid the general crisis of capitalism (q.v.) and characterised by: dissolution of workers' organisations and enforced grouping of the population into corporations (e.g., capitalists', workers', and office employees' corporations); dissolution of the elective body, i.e., parliament, and substitution therefore of "corporate representation". This results in the workers' deprivation of all civil rights and in their exploitation by the monopolies with the aid of the corporations. Italy and Portugal were declared C.Ss. The principal purpose of the C.S. is to disguise the dictatorship of monopoly capital and to create the impression of "class partnership" and "harmony of interests" within the corporate framework in the fascist states.

Correctness and Truth, categories of logic and the theory of knowledge: C. (Logical) is a quality of logical operations and means their correspondence to the laws and rules of logic. As the forms of logical operations are common to processes and thoughts with different concrete content, the logical C. or non-C. of operations are not determined by the peculiarities of the concrete content of thought, but by the forms of thought. T. is a quality of thought and means its conformity to objective reality (see Truth). In the final analysis, the concepts of C. and T. characterise the relation of thought to the objective world, for the logical C. is conformity of the operations of thought to certain relations of reality, of which the laws of logic are the reflection. These concepts are closely interrelated in the process of cognition. Logical C. is a necessary (although not the only) condition of T. Idealistic logic and philosophy (particularly Kantianism, modern logical positivism, etc.), denying the objective origin of the laws of logic, also incorrectly interpret the logical C. of thought, considering its

basis to be laid a priori in the mind itself, in the consensus of people, etc.

Correspondence of Production Relations to Character of Productive Forces, Law of, an objective economic law discovered by Marx. This law determines the interaction of the productive forces (q.v.) and relations of production (q.v.) in all socio-economic formations (q.v.). The productive forces are the determining, the most revolutionary and mobile element of production. They are constantly developing, while relations of production are a more stable element. That is why at a certain stage in society's development a contradiction arises between the new productive forces and the obsolete relations of production. However much the relations of production lag behind the development of the productive forces, sooner or later they must come into correspondence with the level of development and the character of the productive forces, and they do, as is demonstrated by the history of society. In a society divided into antagonistic classes, the contradiction between the developed productive forces and the old relations of production always culminates in a conflict which is resolved through a social revolution (see Revolution, Social). Under socialism, the relations of production, owing to the social character of ownership, correspond to the state of the productive forces and afford them full scope for accelerated and crisis-free development. But in socialist society too, contradictions arise between the productive forces and the various aspects of the relations of production. Here, however, the contradiction does not reach the point of conflict, since social ownership prevails and there are no classes interested in preserving the obsolete production relations. The Communist Party and the socialist government notice in time the growing contradictions and take steps to eliminate them by improving the production relations. The law of correspondence of the relations of production to the character of the productive forces furnishes the key to understanding the laws govern-

ing the replacement of some socio-economic formations by others.

Correspondence Principle, one of the basic methodological principles governing the development of science. Philosophically, it expresses the movement of knowledge from relative to absolute truth, ever more complete truth. This principle was formulated by Bohr in 1913, at a time when concepts of classical physics were breaking down. According to the C.P., whenever scientific conceptions are broken down, the basic laws of a new theory, created as a result of this break-down, are such that in the extreme instance, given the appropriate value of some characteristic parameter of the new theory, they pass into the laws of the old theory. For example, the laws of quantum mechanics (q.v.) pass into the laws of classical mechanics provided it is possible to disregard the magnitude of a quantum of action (q.v.). The operation of the C.P. may be traced in the history of mathematics, physics and other sciences. It reflects the law-governed concatenation of old and new theories, following from the inner unity of qualitatively different levels of matter. This unity determines not only the integrity of science and its history, but also the vast heuristic role of the C.P. in the penetration of a qualitatively new realm of phenomena. A scientific understanding of the C.P. makes it possible to grasp the dialectics of the process of cognition, to demonstrate the insolvency of relativism (q.v.).

Cosmogony, a branch of astronomy (q.v.), treating of the origin and development of heavenly bodies and their systems. Theoretically, one may speak of astral C. and planetary C., though in practice they are mutually inter-related. The principles of C. are based on data furnished by other branches of astronomy, by physics, geology and other branches of science dealing with the Earth. Like cosmology (q.v.), C. is closely related to philosophy and has been the venue of a violent struggle between materialism and idealism, between science and religion. The difficulties of cosmogonic problems stem from the fact that the process of devel-

opment of the heavenly bodies has been going on for thousand millions of years, by comparison with which astronomical observations and even the entire history of astronomy embrace infinitesimal periods of time. The difficulties of planetary C. are further enhanced by the fact that we have thus far been able to observe but one planetary system. Scientific C. dates back some 200 years, when Kant (q.v.) advanced the hypothesis of the development of the stars from nebulae which at one time surrounded the Sun. The hypotheses of Kant (1755) and Laplace (1796) (see Nebular Hypothesis) failed to explain certain significant structural peculiarities of the solar system and were therefore abandoned. Several other hypotheses were advanced, that of Jeans' (q.v.), 1916, gaining the greatest popularity. Yet even Jeans' hypothesis met with insurmountable obstacles and was, essentially, a step backward in comparison with the traditional cosmogonic hypotheses. Factual data are being consistently accumulated and studied, but no solution of the problem has as yet been found. A very substantial contribution to planetary C. has been made by Soviet scientists (O. Schmidt, V. G. Fesenkov, and others). The nature and interior structure of stars were established only in the 20th century. The nature of stellar evolution is now known in its essentials, but the origin of stars can still only be surmised. The theory was for a long time current that they emerged simultaneously several milliard years ago. At present, thanks mainly to the research of Soviet scientists (V. A. Ambartsyanyan et. al.), there is no longer any doubt that the process of stellar formation in the solar system and other galaxies is still continuing. Recent research has yielded information on the development of star clusters and galaxies. The achievements of the Soviet cosmogonists are largely due to the fact that their research work is based on dialectical materialism, whereas idealism in philosophy frequently results in arbitrary cosmogonic notions, such as the birth of atoms, stars, and even

the metagalaxy (q.v.) out of nothing, which signifies a return to the fideistic ideas which have been refuted by natural science.

Cosmological Paradoxes, difficulties (contradictions) arising out of attempts to extend to the Universe as a whole the physical laws established for finite parts thereof. Within the framework of Newtonian physics (see Newton) the most important C.P. are the Neumann-Seeliger gravitational paradox and the Chéseaux-Olbers photometrical paradox. The first refers to the insurmountable difficulties of applying Newton's law of universal gravitation to the infinite static system of masses with non-zero mean density. The second refers to the fact that the same system of radiating masses (stars, galaxies) would produce a glaring luminance in the nocturnal sky, comparable with the surface luminance of the Sun, which, however, is not the case. Both these paradoxes are removed within the framework of traditional (pre-relativist) physics, if it is assumed that the distribution of matter in the Universe is strictly governed by laws in accordance with the so-called hierarchical pattern. In relativist cosmology (q.v.) these paradoxes are removed practically automatically, but other difficulties arise. The existing C.P. may be seen as a warning against any attempt at a simplified approach to the problems of the structure of the Universe.

Cosmology, a branch of astronomy (q.v.), a science which views the Universe as an integrated whole, and the part of the Universe which is under astronomical observation as a part of that whole. Modern C. has actually come to cover the area where astronomy merges with physics and philosophy. The first naive cosmological ideas appeared in antiquity as a result of man's efforts to discover his place in the Universe. Accumulated observation data and the certainty, suggested by ancient philosophy, that behind the apparently confused movement of the planets there must be a real law-governed pattern of movements, led to the geocentric conception of the Uni-

verse, which was superseded, as a result of a violent struggle against the church and scholasticism, by the conception of a heliocentric system (see Heliocentricism and Geocentricism). Following the discovery of the law of universal gravitation by Newton (q.v.); the cosmological problem could be treated as the physical problem of an infinite system of gravitating masses. This, it was discovered, gave rise to serious difficulties known as cosmological paradoxes (q.v.). These difficulties are resolved by modern relativist C., i.e., by cosmological theories based on the theory of relativity. This has bred new difficulties, however, which have been widely used by both the idealists and fideists to "rationalise" their theses concerning the "expansion" of the Universe and even its "creation", etc. The real value of modern cosmological models lies in the fact that they give an idea of the general laws that govern the structure and development of the metagalaxy (q.v.) and thus constitute a necessary link in the endless process of knowing the spatio-temporally infinite Universe.

Cosmopolitanism, a reactionary theory calling for a repudiation of patriotic sentiments and national culture and tradition in the name of the "unity of mankind". As an ideology C. reflects the ambition of imperialists to achieve world supremacy. The propaganda of C. (the idea of a world government, etc.) impedes the peoples' struggle for national independence and national sovereignty. C. is incompatible with proletarian internationalism (q.v.), which contains no contradiction between the common basic interests of the peoples, on the one hand, and love of country and national patriotism, on the other.

Cosmos, the Universe as a whole, the spatio-temporally infinite matter in motion in its entirety, including the Earth, the solar system, our galaxy, and all other galaxies (q.v.). In practice, however, C. is frequently understood to mean the part of the Universe adjacent to but not comprising the Earth (in this context the term "cosmic" refers to what is beyond the con-

finies of the Earth), in which case the dividing line between the Earth and the C. as well as that between the C. as part of the Universe and the rest of the Universe is generally indefinite (see Cosmology).

Cousin, Victor (1792-1867), French idealist philosopher, eclectic. C. maintained that any school of philosophy could be formed on the basis of the "truths" contained in various doctrines. C.'s philosophy is an eclectic combination of such "truths", drawn from the idealistic system of Hegel (q.v.), Schelling's (q.v.) "philosophy of revelation", the monadology of Leibniz (q.v.), and other idealistic doctrines. Being an opponent of materialism, C. shared the view that God was the creator of the Universe, believed in the existence of after-life, and urged a reconciliation of philosophy and religion. C.'s theories influenced the subsequent development of idealistic philosophy in France. His most important work is the *Cours d'histoire de la philosophie* (1815-29) in eight volumes.

Couturat, Louis (1868-1914), French philosopher and logician, exponent and populariser of Russell's and Whitehead's (qq.v.) logical rationalisation of the principles of mathematics; did research work on the preconditions of logical calculus contained in the logic of Leibniz (q.v.); published Leibniz's minor works and fragments dealing with the problems of logic. In his *Algebra of Logic* (1905) he was one of the first writers on logic to appreciate and use the results obtained in the algebra of logic (q.v.) by the Russian scholar Peiretsky (q.v.). In an appendix to his *Principles of Mathematics* (1905) C. developed further, from the standpoint of Russell's logical and mathematical formalism, the criticism of Kant's (q.v.) theory of mathematics and its logical and epistemological principles. In a series of articles C. challenged Poincaré's (q.v.) "semi-Kantian" theory of mathematics.

Creationism, a religious doctrine holding that the world and all nature, animate and inanimate, were brought into being by a single act of creation.

The biblical story of the creation of every existing thing in the space of six days by God is an example of C. The view of Linnaeus, Cuvier (qq.v.) and Agassiz (1807-73) concerning the supernatural origin of all species of animal and plant life is a modified version of C. in the field of biology. Modern science furnishes proof of the complete fallacy of C. (See Conservation of Energy, Law of; Darwin; Life.)

Creative Work, the process of human activity in which new material and spiritual values are created. C.W. is a human ability, which appeared in the process of labour, to create (from the material supplied by nature and on the strength of the knowledge of the laws of the objective world) new reality that satisfies the multiform requirements of society. Any kind of labour may become C.W. All types of C.W. are determined by the nature of creative activity: the C.W. of an inventor, organiser, scientist or artist, etc. Idealists regard artistic C.W. as divine obsession (Plato), as movement from the conscious to the subconscious (Schelling), as the life-giving breath of the unconscious (E. Hartmann), as a mystic intuition (Bergson), and as a manifestation of instincts (Freud). According to the Marxist-Leninist theory, C.W. is a process in which all the spiritual powers of man take part, including imagination (q.v.), and also the skill which is required to realise a creative design and is acquired by training and practice.

Criterion of Truth, any means of judging any assertion, hypothesis, theoretical proposition, etc., as to its truth or falsity. The C.T. is social experience (see Theory and Practice). Definitive verification of scientific theories is furnished by practice, i.e., in the field of industrial and agricultural production, in the revolutionary activities of the masses aimed at reorganising society. Successful application of a given theory in practice is proof of its correctness. Methods of verifying ideas by practice may vary. Thus, in the field of natural science a proposition may be verified by exper-

iment (q.v.) involving observation, measurement (qq.v.), and mathematical treatment of the results obtained. Practical verification frequently implies an indirect approach. Thus, the establishment of the truth of an assertion by logical proof (q.v.) depends basically on the practical verification of certain fundamental principles of some theory, which are not specifically proved within its framework. Verification in practice of scientific theories does not, nevertheless, transform them into absolute truths: they continue developing and become enriched, gaining in scope and exactitude, some of their propositions are dropped in favour of new ones (see Truth, Absolute and Relative). This is due to the fact that social practice is undergoing a process of continuous development, and therefore the methods of comparing scientific theories with reality through practice are being constantly perfected. Only the developing daily practice, or experience, of society is capable of fully confirming or completely refuting the ideas engendered by man. Both the C.T. and practice, or experience, were first included in the theory of knowledge by Marxism. Modern idealist philosophy either denies practice, or experience, as a C.T., or else puts a distorted construction on it (see Pragmatism).

Critical Realism (in art), a school and method which, since the middle of the 19th century, have attracted many progressive artists and writers of the capitalist epoch. Its main drive, directed towards revealing the viles of bourgeois society and overcoming its contradictions, played an important part in developing the idea of man's social and spiritual emancipation and in asserting democratic social ideals in the minds of men. Stendhal, Balzac, Dickens, Hogarth, Daumier, Courbet, Meunier, Gogol, Turgenyev, Goncharov, Saltykov-Shchedrin, Nekrasov, Lev Tolstoi, Repin, and others scoured the harsh rule of the landowners, the predatory instincts of the bourgeoisie, the bigotry of the clergy, the depravity of the bureaucratic officialdom, and portrayed, directly or indirectly, the

protest and struggle of the people, some in search of their heroes from among the working people, the revolutionary intelligentsia and those generally who voiced the interests of the people, others holding up these heroes as an example to be followed. In the present era the tradition of C.R. has been carried on by Charles Chaplin, Hemingway, G. Greene, Remarque, Feuchtwanger, Renato Guttuso, Eduardo de Filippo, Giuseppe de Santis, and others. The masterpieces of C.R. have been of great value to the school of socialist realism (q.v.).

Critical Realism (in philosophy), one of the schools of modern idealist philosophy which gained acceptance in the 1920s and 30s in some of the capitalist countries. C.R. combines elements of subjective and objective idealism. In the USA, C.R. (Santayana, q.v., Lovejoy, Pratt, and others) originated by way of a reaction to neo-realism (q.v.). The neo-realist thesis of the "immanence" of the object in consciousness, of the direct "interjection" of the object in consciousness is countered by the critical realists with the theory of the structure of the act of cognition, which comprises the three elements of subject, object and "datum" or "essence". It is this "essence" that is alleged to be the content of our consciousness. The "essences", according to C.R., unlike the object, are conveyed to us with direct certitude and unite within themselves all the products of our consciousness. C.R. attempts to present these essences as something objectively existing, like the universals (q.v.) of medieval realism. The "essence" possesses a reality of its own, different from physical reality; it is not to be measured by a spatio-temporal criterion. "Essences", according to C.R., are by no means images or copies of things. Like neo-realism, C.R. opposes the materialist theory of reflection. C.R. recognises the existence of reality, this recognition being founded on instinct and "animal faith" (Santayana) in reality. The epistemological source of this alleged "realism" lies in its false interpretation of the difference between the material

and ideal, the objective and subjective, and in regarding consciousness metaphysically as opposed to the objective world. The name "C.R." is also given to a school which formed towards the end of the 19th century in Germany (Driesch, q.v., E. Becher, A. Wenzl, and others). This school specialises in a theological interpretation of modern natural science, striving to reconcile knowledge with faith and to prove the "unsoundness" and "limitations" of science.

Criticism, the term used by Kant (q.v.) to designate his idealist philosophy, whose main purpose he saw in the criticism of man's cognitive abilities. As a result of his criticism Kant denied man's ability to get to know the essence of things. The term C. is applicable to other subjective-idealist doctrines which hold that man's knowledge is limited and that experience in the idealistic meaning of the word is the only source of knowledge. Seen objectively, C. was an attempt to overcome the limited nature of empiricism and rationalism (qq.v.) through an idealistic approach.

Criticism and Self-Criticism, a method of discovering and correcting errors and removing shortcomings in the activities of the Marxist parties and other workers' organisations. It was Marx who pointed out that the proletarian revolution engages in self-criticism in the interests of its own development, this being its peculiar characteristic. Lenin spoke of C. & S. as of a most important principle in the work of the Communist Party. With the victory of the socialist revolution C. & S. become one of the main-springs of social development. C. & S. are a special method of revealing and solving the non-antagonistic contradictions of socialism. The creative role of C. & S. is seen with particular clarity in socialist emulation (q.v.), which is a form of the people's active participation in building communism. In the period of full-scale communist construction C. & S. afford the people full scope for initiative in building the material and technical basis of communism, serve to draw the masses

into the work of government, and aid in developing men and women of communist society.

"Critique of the Gotha Programme", written by Marx in 1875, published in 1891, is a critical analysis of the programme of the German Social-Democratic Party. Marx called this programme the capitulation of the German Social-Democrats before the school of Lassalle (q.v.). Marx vigorously criticized the Lassallean assertion that in respect of the working class all the other classes are but "one reactionary mass", and demonstrated that such an assertion ignores the alliance of the proletariat and the peasantry. Marx further revealed the reactionary nature of the Lassallean "iron law of wages" according to which the proletariat was destined to perpetual poverty. The C.G.P. developed the main problems of scientific communism (q.v.). Marx developed the tenet of the inevitability of the socialist revolution and the establishment of the dictatorship of the proletariat, and presented a scientific analysis of the communist society of the future. The C.G.P. was the first to advance the tenet of the necessity of a transition period in the process of capitalism's development into communism and of a revolutionary dictatorship of the proletariat that was to be the state during that transition period. No less substantial a contribution to scientific communism was Marx's definition of socialism and communism as two phases of the communist formation, or two stages in the "economic maturity of communism". (Lenin.) Marx stated that only at the higher phase of communism society would be free from the "birthmarks" of capitalism; an end would be put to man's subjection to the enslaving system of division of labour; the antithesis between intellectual work and manual labour would disappear; work would be transformed from a means of livelihood into a prime necessity of life; productive forces would reach so high a level of development that there would be an abundance of products and society would be able to proclaim the principle "From each ac-

ording to his ability, to each according to his needs".

Croce, Benedetto (1866-1952), Italian philosopher of the Neo-Hegelian school (see Neo-Hegelianism), professor at Naples (1902-20). Towards the end of the 19th century C. came out with a criticism of the philosophic and economic theories of Marxism. C.'s philosophy is that of absolute idealism. His philosophic system establishes four steps in the "ascendance of the world spirit", i.e., aesthetic (incarnation of the spirit in the individual); logical (sphere of the general); economic (sphere of particular interest); and moral (sphere of universal interest). C.'s aesthetic theory has exercised a strong influence over bourgeois art criticism. He contrasted art as intuitive cognition of the singular embodied in sensory images with logical reasoning as a rational process of knowing the general. C.'s ethical doctrine strove to cover up the social basis and class character of morality. C.'s ethics propounded the principle of subordinating the individual to the "universal", that is, to the dominant exploiter system. C. was a prominent ideologist and a political leader of the Italian liberal bourgeoisie, and an opponent of fascism. His most important work is the *Philosophy of the Spirit* (1902-17).

Cubism, a school of art which had its origin in France. Its founders were G. Braque (1881-) and P. Picasso (1881-), who treated as absolute the formalistic theory that "everything in nature is modelled on the sphere, the cone, and the cylinder", formulated by P. Cézanne (1839-1906) towards the close of the 19th century. A. Derain (1880-1954), who developed Cézanne's theory of the priority of the inner structure and construction of objects in art, served as a link between them. The cubists' attempt to treat in a pseudo-scientific manner a purely subjectivist cognition of objects or the human body, which is also considered to be an object. During the first, "stereometric" period (1908-12), the cubist school was joined by such painters as J. Metzinger (author of the first cubist portrait), A. Gleizes, R. De-

launay, Le Fauconnier, F. Léger, J. Lipschitz, and others. Characteristic of this period, as well as of the following (so-called "scientific") period of C., is distortion of nature, reduction of objects to elementary geometric bodies, and schematisation of things. Refusal to recognise social ideas and to reproduce the beauty of the real world have brought the cubists to complete negation of reproduction of the objects visualised.

Cult of the Individual, unquestioning deference to the authority (q.v.) of a statesman or public figure, an exaggerated evaluation of his actual merits, fetishistic worship of the name of a historic personage. C.I. is theoretically based on an idealistic interpretation of history, according to which the course of history is determined by the desires, the will of great men (soldiers, heroes, outstanding ideologists, etc.), rather than by objective laws or the activity of the masses. The role of outstanding personalities in history is transformed into an absolute by the various schools of idealistic philosophy (see Voluntarism, Carlyle, Young Hegelians, Narodism). Marxism views the role of the individual, the leader, as closely linked with the objective course of class struggle, the history-making activity of the masses. The experience of no matter how great a leader cannot be substituted for the collective experience of millions. C.I. is completely alien to Marxism-Leninism, which is by its very nature the ideology of the millions and millions of working people who are transforming capitalist society into a communist society. It is for this reason that the CPSU continues so relentlessly to expose the C.I. which reigned during Stalin's life and did so much harm to the theory and practice of socialism. The cult of Stalin could not change the nature of socialism, but, nevertheless, it most seriously retarded the development of Soviet society. The struggle of the CPSU against the cult of Stalin and its consequences facilitated the restoration and further development of the Leninist principles and norms of the activities of the Party and

Soviet government as well as the further development of socialist democracy. The Communist Party considers that the theory and practice of C.I. obstructs the proper education of the masses, acts as a brake on their initiative, weakens men's sense of responsibility for the common cause (socialist revolution, building of communism), and is detrimental to the development of communist ideology. In the practical field, the C.I. undermines the democratic principles of the Communist Parties and socialist society. Success in the struggle against the C.I. within both socialist society and the Communist Parties requires the fullest possible development of democracy and the Leninist principles of government and Party activities.

Cultural Cycles, Theory of, a doctrine holding recurrence to be inevitable in the process of historic and cultural development, evolved out of the crisis of the comparative method (q.v.). At the turn of the century the problem of establishing criteria for comparative analysis required urgent solution. It was becoming increasingly clear that historical comparisons and analogies were generally concerned merely with the pattern of historical processes rather than their content. The T.C.C. offered an artificial way of overcoming these difficulties. The exponents of this theory (Spengler, Toynbee, qq.v.) maintained that the inner relationships of history were reflected precisely in the form of historic processes and in their "common cultural pattern". They held that historical analogies do not require rationalisation, being self-evident. Recourse to historical analogies was considered to be an intuitive insight into the fundamental ontological structure of history, rather than an auxiliary method. Recurrence, synchronism, and the cyclic nature of historico-cultural processes are regarded as the sole evidence of the existence of universal historical laws. The social bias of this theory is revealed in the doctrine of Spengler, who urges that historic action be based on conscientious imitation of the past. What this philosophy means in prac-

tice was seen in the ideology of fascism, which adopted the basic principles of Spengler's "historism".

Cultural-Historical Approach, a form of idealistic rationalisation of the internal indivisibility and unity of the historical process. It was suggested towards the close of the 19th century by K. Lamprecht (1856-1915), a German historian of liberal views. Lamprecht challenged the individualisation method prevalent in bourgeois historicity, i.e., the reduction of historiography to a description of the lives of outstanding personalities (Ranke and his school). According to Lamprecht, the concept of culture facilitates a synthesis of the various aspects of social life. Culture is seen as a spontaneous consciousness woven directly into material relationships and reflected in the folk ways of a community. C.H.A. is a half-hearted attempt at an idealistic solution of the crisis of bourgeois historicity—by a purely eclectic association of individual aspects of social life in the conception of culture and by recognition of material and economic relationships as merely one of the factors of spiritual evolution. Nevertheless, its insistence on regarding history as a study of the laws of social development was a distinct merit of the C.H.A. as compared with the other methods of bourgeois historiography. In contemporaneous Western literature on the philosophy of history the C.H.A. has been ousted by outright subjectivist theories.

Cultural Revolution, an essential element of the socialist revolution, implying the necessity of reconstructing the entire system of education within a reasonably short time and making the highest achievements of culture available to the masses, thereby assuring direct participation of the masses in managing economic, social, and political life, creating a socialist intelligentsia, and forming a new, socialist culture. These main objectives hold good for any C.R., whatever may be the specific features of socialist construction in any given country. The C.R. in the USSR ended the spiritual slavery and ignorance of the Russian

people: the land where most of the population were illiterate achieved a tremendous leap towards the summits of culture. The Soviet Union is now a land of complete literacy, with a high level of education, science, technique, and culture. During the period of gradual transition from socialism to communism, cultural development, according to the Programme of the CPSU, will constitute the closing stage of the cultural revolution. At this stage the highest priority is given to the communist education (q.v.) of the people in the spirit of high moral integrity and devotion to communism, a communist attitude towards work and public property; total elimination of the survivals of capitalism (q.v.) in people's consciousness; a universal, harmonious development of the individual; creation of a truly rich spiritual culture. Upon the solution of these problems largely depends the growth of the productive forces; the development of the technique and organisation of production; the increased public activity of the masses; the development of the democratic principles of public self-administration; and the reorganisation of daily life along communist lines.

Culture, all the material and spiritual values and the means of creating, utilising and passing them on, created by society in the course of history. More specifically, it is customary to distinguish material C. (i.e., machinery, experience in the field of production, and other material wealth), and spiritual C. (i.e., achievements in the realm of science, art, literature, philosophy, ethics, education, etc.). C. is a historic phenomenon, and its development is determined by the succession of socio-economic formations. Unlike idealistic theories, which deny the material basis of C. and consider it to be the spiritual product of the "élite", Marxism-Leninism sees production of material goods as the basis and source of spiritual C. Hence, C. is the product of the activities of the masses. Although basically determined by material circumstances, spiritual C. does not automatically follow changes

in material C., being characterised by relative independence and continuity of development and subject to the influence of the cultures of other peoples, etc. In any class society C. assumes a class character both as to its ideological content and its practical aims. Under capitalism every national C. is split into two cultures, comprising the dominant C. of the bourgeoisie and the more or less developed elements of democratic and socialist C. of the subjugated masses. This implies the necessity of distinguishing the two concepts—"C. of bourgeois society" and "bourgeois C." (i.e., the C. of the dominant class). Socialist C., assimilating as it does all the progressive achievements of the past, is radically different from the modern bourgeois C. from the standpoint of both ideology and social function. Socialist C. cannot be created without a socialist revolution, an essential element of which is a cultural revolution (q.v.). Characteristic of socialist C. are: its kinship with the people, communist ideology, scientific world outlook, socialist humanism, collectivism, socialist patriotism, and internationalism. The leading role in the creation and development of socialist C. belongs to the Communist Party, which influences the entire cultural and educational function of the socialist state. Socialism implies: the fullest development of Cc. which are national in form and socialist in content; an increasingly intensive interchange of material and spiritual values among nations; increasing enrichment of the cultural treasure-house of each nation with values of an international character; and the development of common communist cultural characteristics, which promotes the shaping of the common C. of the communist society of the future. "Absorbing and developing all the best that has been created by world culture,"—says the Programme of the CPSU,— "communist culture will be a new, higher stage in the cultural progress of mankind. It will embody the versatility and richness of the spiritual life of society, and the lofty ideals

and humanism of the new world. It will be the culture of a classless society, a culture of the entire people, of all mankind."

Cusa, Nicholas of, (1401-64) (his real name was Nicholas Crebs or Chrypffs; he is named after his birthplace), a German philosopher, scientist, and theologian of the transitional period between scholasticism and humanism and the new science of early capitalist society. Under the influence of Neo-Platonism (q.v.) he re-elaborated the concepts of Christian philosophy and the teaching of God as the maximum being, standing above the opposites in which man's limited reason thinks of the objects of nature. All opposites coincide in God: finite and infinite, smallest and greatest, single and multiple, etc. Despite its mystic idealist content, the teaching of N.C. with its basic thesis of the concordance of contraries in God (*coincidentia oppositorum*) contains a number of fruitful ideas. These are criticism of the limitations of speculative opposites; the methodological importance of mathematical concepts for the cognition of nature; anticipation of the subsequent concept of infinitesimals; formulation of the question concerning limits of applying the law of contradiction in mathematics, etc. Main works: *De Docta Ignorantia*, 1440; *De Genesi*, 1447.

Custom, stable rules of behaviour established over a long time which regulate the people's way of life in one sphere or another (for example, entertainment of a guest, marriage, festivities, and so on). The development of Cc. is influenced by the history of a people, economic activity, natural climatic conditions, social position, religious views, etc. Socialist society forms its own Cc. and preserves some old ones. Not all Cc. of the past are progressive. Socialist society, for example, has to combat Cc. degrading woman, which arose in the period of feudalism. C. has the force of a social habit and influences the behaviour of people. Inasmuch as Cc. are of a social character, they are subject to moral evaluation.

Cuvier, Georges (1769-1832), French naturalist, member of the Academy of Sciences in Paris. C. made a substantial contribution to the development of comparative anatomy and palaeontology. Supported a metaphysical approach to natural phenomena; his catastrophe "theory" ruled out the concept of the evolution of animals and plants (see Lamarck, Geoffroy Saint-Hilaire). According to Engels, "Cuvier's theory of the revolutions of the earth was revolutionary in phrase and reactionary in substance. In place of a *single* divine creation he put a whole series of repeated acts of creation, making the miracle an essential natural agent." (*Dialectics of Nature*, p. 240.)

Cybernetics, the science of the common features of processes and control systems in technological devices, living organisms and human organisations. The principles of C. were first set forth by Wiener (q.v.). The emergence of C. as a science was prepared by a number of technological and scientific achievements in the theory of automatic control; electronics, which made possible the construction of fast-action scanning and programme-controlled computing devices; the theory of probability (q.v.), notably its applications in investigating problems of transmission and processing of information (q.v.); mathematical logic (q.v.) and the theory of algorithms (see Algorithm); the physiology of nervous activity and homeostasis. As distinct from devices that transform energy or substance, cybernetic systems engage in processing information. In the study of control systems C. combines the macroscopic with the microscopic approach. The macroscopic approach is employed when the internal structure of the system is not known and the only observable is the movement of information at its inputs and outputs (the information entering the system and the reaction of the system). In this way the main flows of information and the ultimate functions of the control system are established. This type of problem is known as the "black box" problem. The microscopic ap-

proach assumes a certain knowledge of the internal structure of the control system and involves the determination of its basic elements in their inter-relationship, their algorithms of work and the possibility of synthesising a control system out of these elements. One of the central problems of C. is that of the structure of self-organising (self-adjusting) systems. These are complex control systems usually comprising hierarchies of interacting subsystems capable of maintaining or attaining certain states (or characteristics of their states) against external factors tending to disturb or hinder those states. The most perfect self-organising systems have developed as a result of evolutionary processes in animate nature. That is why C. makes use of analogies between control functions in living organisms and technological devices. The importance of C. is seen primarily in the light of the opportunities it opens up for the automation of production and all types of formalised human mental activity, the investigation of biological control and regulation systems (hormonal, neural, hereditary mechanisms) by the method of analogue simulation (q.v.), and the development of new types of medical apparatus. Another promising domain is the application of cybernetic methods to economic studies and other spheres of organised human activity. This great diversity of applications of cybernetic methods is not due to any subjective whims and wills; its objective foundation is the existence of certain common features in the functions and structures of living organisms and man-made devices capable of mathematical description and investigation. Being in this respect a synthetic discipline, C. offers a striking example of a new type of interaction of sciences and provides abundant material for the philosophical investigation of the forms of motion of matter and the classification of sciences. The development of C. sparked debates on a number of methodological problems, viz., the analogies between human thinking and the workings of cybernetic mechanisms, the nature of

information and its connection with the physical concept of entropy (q.v.), the essence of what is called organised, purposeful, and living, and other problems of an indubitably philosophical nature around which a struggle between dialectical materialism and idealism has developed. Thus, idealist philosophy, which rejects the possibility of objective investigation of mental activity, comes out against the findings of C. which contribute to an understanding of certain important aspects and mechanisms of such activity. While recognising the objective soundness of cybernetic analogies, dialectical materialism at the same time emphasises the erroneousness of completely identifying man with a machine and human intelligence with the functioning of cybernetic systems.

Cynicism, a trait of character marked by open scorn of moral rules. The school of cynics which existed in an-

cient Greece (4th century B.C.) held customs and culture in contempt. Their scorn for the rules of conduct led them to violations of decency. Subsequently, people who shamelessly ignored rules of morality and decency came to be called cynics. C. is associated with insufficient cultural development, selfishness, and other negative traits.

Cynics, a school of Greek philosophy (4th century B.C.), followers of Antisthenes (q.v.). Diogenes of Sinope was the most prominent C. The C. voiced the views of the democratic sections of slave society. They considered contempt for social standards, renunciation of wealth, glory, and all sensuous pleasures as the foundation of happiness and virtue.

Cyrenaics, a school of Greek philosophy (North Africa, 5th century B.C.) founded by Aristippus of Cyrene. C. expounded the ideology of the slave-owning aristocracy.

D

Dadaism, a trend initiated in 1915-16 in bourgeois art and literature by poets and artists who emigrated to Switzerland to escape the horrors of the 1st World War, specifically the poets Tristan Tsara, Richard Hülsenbeck and Jean Cocteau, and the artists Hans Arp, Marcel Duchamp, Joan Miro, Paul Klee, Max Ernst, Francis Picabia, and others. The anarchistic rebellion of the Dadaists against the inhumanity of war betokened the social helplessness of petty-bourgeois intellectuals, who attempted to explain class conflicts and people's suffering by the alleged animal nature of man. The aesthetic principles of the Dadaists were pathos, more precisely psychosis, of destruction, an absurd fortuity of images and plots, and cynicism. Hence such unartistic Dadaist devices as words printed upside down, senseless combinations of sounds, and shreds of paper and crushed glass pasted on canvas. In due course, most of the Dadaists became exponents of abstract art (q.v.) and surrealism (q.v.), of which they were the immediate forerunners.

Dalton, John (1766-1844), English chemist and physicist, largely instrumental in establishing a concrete relationship between the philosophical notion of atoms and rudimentary elements, on the one hand, and experimentally obtained facts, on the other. D. considered chemical elements to be varieties of atoms with a strictly defined quantitative characteristic, atomic weight, and determined the atomic weights of many chemical elements. D. assumed that atoms were chemically indivisible and that they combined as complete units only. He discovered the law of simple multiple relations, which is one of the main laws in chem-

istry. His discoveries helped to convert atomistic notions from a philosophical conjecture into a scientific theory and promoted the materialistic approach in natural science. Engels described D. as the father of modern chemistry.

Darwin, Charles Robert (1809-82), English natural scientist, educated at Cambridge University, founded the theory of the historical development of the organic world. He generalised contemporary biological knowledge and farming practices, augmented them with copious factual material obtained on his round-the-world voyage (1831-36), and deduced the evolution of living nature. In his *The Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (1859) he set forth the basic propositions of the theory of evolution (q.v.). In 1868 D. explained the origin of domestic animals and plants by artificial selection in *The Variation of Animals and Plants Under Domestication*. In *The Descent of Man and Selection in Relation to Sex* (1871) he offered a scientific exposition of the origination of man from animal ancestors. However, it was Engels who subsequently revealed the social causes which set man apart from the animal world, these being labour, coherent speech and the primitive herd. D.'s world outlook was materialistic; he was a spontaneous dialectician and atheist, but his way of thought had distinct bourgeois limitations. His works contributed greatly to the emergence of scientific biology, the struggle against idealism, theology and metaphysics, and helped to base natural science on dialectical materialism.

Davydov, Ivan Ivanovich (1794-1863), Russian idealist philosopher and linguist, finished Moscow University in 1812 and was professor there from 1822 to 1847. At first he eclectically combined different philosophical ideas, such as sensationalism (q.v.) and Schellingian idealism (see Schelling), as set out in his *Nachalniyĕ osnovaniya logiki* (*Rudimentary Basis of Logic*), 1819-20. His *Vstupitel'naya rech o vozmozhnosti filosofii kak nauki* (*Introductory Speech on the Possibilities of Philosophy as a Science*), 1826, also espoused Schellingian idealism. Subsequently, D. devoted his attention to literary criticism, linguistics and aesthetics. In his article "Could Russia Accept German Philosophy?", 1841, D. attacked Hegel from a Rightist's position and expounded the Slavophil (q.v.) notion of the national distinctiveness of Russian philosophy.

Decembrists, Russian revolutionaries, mostly aristocrats, who organised an uprising against tsarist autocracy and serfdom in December 1825. Lenin described the D. and Herzen (q.v.) as the most outstanding leaders of Russia's liberation movement in its aristocratic stage. The D. formed secret societies (the Northern Society in 1821, the Southern Society in 1821 and the Society of United Slavs in 1823). But the influence of the D. extended beyond these organisations and spread to the progressive sections of Russian society. The armed uprising of the D. was crushed. Its most prominent leaders and ideologists (P. Pestel, K. Ryleyev, S. Muravyov-Apostol, P. Kakhovsky and M. Bestuzhev-Ryumin) were executed, and more than 100 others were sentenced to hard labour. The movement of the D. was prompted by the discontent of the people, who languished under serfdom. The D. intended to destroy tsarist autocracy, abolish oppression and serfdom, and establish democratic freedoms. But owing to their aristocratic limitations they feared a popular revolution. Their tactics were hesitant. D. stood aloof from the people. Their plans for reorganising the Russian state were outlined chiefly in Pestel's *Russian Truth*, N. Murav-

yov's *Draft Constitution, Rules of the United Slavs*, and other documents. Lenin noted the republican tradition which the D. introduced in progressive Russian social thought. The projects and ideas of the D. testified to the bourgeois orientation of their movement. They defined the purpose of philosophy as "finding the truth", enlightening the mind, purifying it of prejudice, and animating love of country and humanity. The D. were influenced by the materialism of Lomonosov and Radishchev (qq.v.), and the ideas of the French materialist philosophers. The D. opposed the ideology of serfdom, religion, mysticism, and idealism. The materialists among the D. were I. Yakushkin, N. Kryukov, P. Borisov, I. Gorbachevsky, V. Rayevsky, etc. Their materialism was based on natural science. According to the D. the material world is governed by "immutable" laws, the chief being the law of causality. The D. held that thought is the special property of a material substance, the brain. However, they did not reduce the concept of thought to mere matter, but stressed its specific quality, failing, however, to grasp its social nature. The D. recognised that the world is cognisable and postulated two modes of cognition—experience (or the senses) and intelligence. Under the influence of objects the senses yield ideas and sensations, while intelligence reveals the common features, the connection between phenomena, the laws of the world. Validity of knowledge is verified by comparing new concepts with old and by removing the contradictions between the two. The materialists among the D. attacked Descartes' dualism (q.v.) and the idealist German philosophers, and opposed the idealists in their own ranks (Y. Obolensky, V. Kyukhelbeker, M. Lunin, and others). The materialist outlook and knowledge of natural science prompted some D. towards atheism. The D. considered religion to be rooted in the yearning of the oppressed to mitigate their misery and their hope of a better life in the next world. Although the philosophy of the D. was progressive for its

time, it was contemplative and tainted with metaphysics. D. approached social matters from an idealistic standpoint and attributed prime importance in the life of society to education. Many D. sided with the theories of natural law (q.v.) and social contract (q.v.). Their movement strongly influenced the succeeding generation of Russian revolutionaries, the revolutionary democrats.

Decidability (in logical semantics), the relation between propositional functions (q.v.) and the material objects substituted for variables. D. is closely associated with the concept of truth-value. Assuming that the latter is the undefinable (primary) concept, D. may be defined by it, provided its substitution for the variable in the given propositional function yields a true statement. The object decides the propositional function only. Thus, the object "sugar" decides the propositional function " x is sweet", while "salt" does not. On the other hand, D. may be assumed as an undefinable concept whereby we determine the concept of truth in formalised languages (see Truth, etc.), as first done by Alfred Tarski. In that case, the primary (i.e., the simplest and undefinable) propositional functions and the objects deciding them must be given. D. of any propositional function composed of premisses by means of logical propositional operations and by quantifiers (q.v.) depends on the decidability of the premisses. Thus, the compound propositional function " $(x$ is white) and $(x$ is sweet)" is decided for the object "sugar", inasmuch as this object decides each of the component propositional functions.

Decision Problem, one of the basic problems which arise in logic in connection with the construction of formal logical systems. A positive or negative decision for each concrete formal logical system is due to the existence or non-existence of some general method (or algorithm, q.v.), which makes it possible to establish by a finite number of operations whether a formula of the system in question is capable of proof or not in a given system. D.P.

has a positive solution, e.g., in the propositional calculus (q.v.) and in formalised Aristotelian syllogistic (q.v.). However in the functional calculus (q.v.) no general solution of this problem is possible. The impossibility of finding a general method of decision for a formal system does not exclude the search for solutions for separate classes of formulas in that system.

Deduction, the act of proving or inferring a conclusion (effect) with certainty and necessity from one or more premisses by the laws of logic. A deduced conclusion is a chain of propositions, each of which is either a premiss or proposition proceeding immediately by the laws of logic from earlier propositions in the chain. In a deduced conclusion the effects are concealed in the premisses and have to be inferred by methods of logical analysis. Examinations of the problems of mathematical logic in the 19th and 20th centuries have added precision to notions connected with D. and shown that the concept of D. as a deduction from the general to the particular is incomplete. The modern concept of D. is a far-reaching generalisation of the Aristotelian interpretation of a syllogistic deduction (from the general to the particular). Broadly, D. denotes any deduction or inference.

Deduction Theorem, a key theorem in metalogic (q.v.) saying that if proposition B is inferred (see Inference) from many premisses on the assumption that premiss A is also true, it is deducible without the assumption (A is valid) from the given number of premisses that if A exists, so does B. D.T. is applied to many important logical systems, such as classical and constructive calculi of propositions and predicates, formal arithmetic, etc. It is not valid for some systems, e.g. certain systems of modal logic. D.T. is used extensively in non-formalised reasoning. D.T. simplifies the process of proof. It was first defined (1928) and proved (1930) for a particular system by Jacques Herbrand, and formulated as a general methodological principle by Tarski (q.v.) in 1930.

Deductive Method, a method of scientific inference based exclusively on deductive techniques (see Deduction and Conclusion). Attempts have been made in philosophy to draw a line of distinction between the D.M. and other methods (such as the inductive) and to define deductive reasoning as excluding experience and laying excessive stress on deduction in science. However, deduction and induction (q.v.) are interconnected, and deductive reasoning is based on many centuries of man's practical and cognitive effort. D.M. is one of the valid methods of scientific inference, used, as a rule, to systematise empirical data after they have been accumulated and theoretically interpreted, in order to infer all pertinent effects more strictly and consistently. This yields new knowledge, among other things, an aggregate of possible interpretations of a deductively formulated theory. The general scheme of the deductive systems (theories) includes: (1) basic premisses, that is, the aggregate of basic terms and propositions; (2) the devices of logic (rules of deduction and definition) used; (3) the theory obtained from (1) by applying (2). Examination of such theories involves analysis of the interrelation of their specific components abstracted from the genesis and development of knowledge. It is, therefore, desirable to consider them as formalised languages (q.v.), which can analyse either syntactically or semantically—syntactically when examining the relation between symbols and expressions entering the language in isolation from their extra-lingual meaning, and semantically when the relations between symbols and expressions of the system are examined from the standpoint of their meaning and validity. Deductive systems are divided into axiomatic (see Axiomatic Method) and constructive (see Constructive, or Genetic, Method). When applied to knowledge based on experience and experiment, D.M. is more precisely termed as hypothetico-deductive (q.v.). Analysis of the D.M. of inferring scientific knowledge began in antique philosophy (see Aristotle, Euclid, Stoics), and

was dealt with at length in more recent times by Descartes, Pascal, Spinoza, Leibniz (q.v.), and others. However, the principles of the deductive organisation of knowledge were not formulated conclusively and definitely until the turn of the century (with extensive use of mathematical logic). Up to the end of the 19th century D.M. was applied almost exclusively in mathematics. It was not until the 20th century that attempts were made to apply D.M. (including the axiomatic method) to non-mathematical knowledge—physics, biology, linguistics, sociology, etc.

Definition, a logical method making it possible to distinguish, find or build some kind of object, formulate the significance of a newly introduced term or specify the significance of a term existing in science. The diversity of kinds of D. is determined by what is defined, the tasks, the logical structure of D., etc. With the help of real D. objects are singled out by their specific characteristics (properties and relations). Often they assume the form of D. through a genus and specific distinction. For example, "oxygen is an element (genus), whose atomic weight is equal to 16 (specific distinction)". With the help of nominal Dd. new terms are introduced in science, both for reducing the more complex expressions and explaining the importance of new terms, etc. In semantic Dd. the defined is some kind of expression in a language and the defining is some kind of object (for example, the word "pentagon" means a polygon with five sides). In syntactic Dd. the defined object differs from other objects by the rules for operating with it, the methods and purposes of its use (for example, pieces in chess are defined by indicating their initial positions on the chess board and rules for manipulating them in the course of the game). In genetic D. the defined object is singled out by indicating the mode of its formation, origin, or construction (e.g., "a circle is a closed curve formed by rotating in a plane a segment AB of a straight line around the fixed point A"). Dd. play a big role in science, being an essential part of any scientific theory. By means

of them new concepts are introduced into science, the results of research are recorded, intricate descriptions occurring in science are simplified, and so on. At the same time individual Dd. are limited because they cannot encompass the all-round connections of phenomena in their full development (see Operational Definitions, Inductive Definition).

Deism, belief in the existence of God as an impersonal prime cause of the world. From the deistic point of view, the world, having been created, was abandoned to the operation of its own laws. D. first appeared in England. Herbert of Cherbury (1583-1648) was "the Father of Deism". Where feudal religious concepts dominated, D. was often a surreptitious form of atheism and a convenient device of the materialists for eradicating religion. Exponents of D. in France were Voltaire and Rousseau (qq.v.), in England Locke, Newton, Toland (qq.v.) and Anthony Ashley Cooper Shaftesbury, and in Russia Radishchev (q.v.), I. Pnin, I. Yertov, and others. Idealists, such as Leibniz and Hume (qq.v.), and dualists also donned the garb of D. At present, D. represents efforts to justify religion.

Dembowski, Edward (1822-46), Polish philosopher, a leader of the revolutionary democratic group in the Cracow revolution of 1846. In the *Manifesto of the Communist Party* (q.v.) Marx and Engels described D.'s group as a party which considered agrarian revolution as a condition for Poland's national liberation and, therefore, deserved communist support. In a speech on the Polish question (1848) Engels noted the "near proletarian courage" of D.'s group. In his philosophical discourses, D. continued the finest traditions of the late 18th century Polish materialists, Hugo Kollataj and Stanislaw Staszic. He wrestled with Hegelian idealism and opposed the metaphysical materialism of the French enlighteners, calling for a "philosophy of creation" or "philosophy of the future" based on the needs of the people, on the facts of practice. He believed that dialectics should justify the overthrow by the peasants of landowner

oppression and the necessity for establishing a communist order. D. attacked Hegel for "reconciling himself to the existing evil", for trying to press the new into the service of the old. D. was an atheist and denounced religion and the Catholic Church as an instrument of feudal reaction. However, his view of society was distinctly idealistic. He rejected Feuerbach's naturalism and considered human reason the motive power of history. D. was a founder of the aesthetics of revolutionary democracy in Poland and a vigorous opponent of the theory of "art for art's sake". D.'s main philosophical works are *A Few Ideas About Eclecticism* (1843), *Creation as a Principle of Polish Philosophy* (1843) and *Ruminations on the Future of Philosophy* (1845).

Demiurge (Gk. *dēmiourgos*, lit. maker, artisan, spec., maker of the world, creator), with Plato (q.v.) and the Neo-Platonic mystics, the creator of the Universe, or deity. Hegel uses the term to denote the process of thought, which he deifies and describes as an independent power.

Democracy (Gk. *dēmocratia*, the people and power, rule), a form of power officially proclaiming subjection of the minority to the will of the majority and recognising the freedom and equality of citizens. Bourgeois science usually confines itself in its definition of D. to these merely formal attributes and considers them in isolation from the socio-economic conditions prevailing in society and from the actual state of affairs. As a result, there emerges the conception of so-called pure democracy, also propounded by opportunists and reformists. As a form of political organisation of society every D. "ultimately serves production and is ultimately determined by the relations of production in a given society". (Lenin, Vol. 32, p. 81.) It is, therefore, essential to weigh the historical development of D. and its immediate dependence on the change of socio-economic formations (q.v.) and on the character and acuteness of the class struggle. In the class formations, D. is a form of dictatorship exercised by the dominant class and is, therefore,

of a class nature, existing in fact solely for members of the dominant class. In bourgeois society, for example, D. is a form of class domination by the bourgeoisie. Up to a point, the bourgeoisie wants D. as an instrument of its political rule. It frames a constitution, forms a parliament and other representative bodies, and introduces (under pressure from the people) universal suffrage and formal political liberties. But the popular masses' possibilities for utilising all these democratic rights and institutions are curtailed in every way. The democratic machinery of a bourgeois republic is so patterned as to paralyse the political activity of the working people and keep them out of political affairs. The formally proclaimed political rights are not guaranteed. The parliamentary system, i.e., the separation of legislative and executive power, coupled with a distinct relative growth of the latter, is typical of bourgeois D. Socialist D. is the highest form of D., genuine D. for the majority of the people, for the working people. Economically, it is based on social ownership of the means of production. Truly universal, direct and equal suffrage by secret ballot was introduced for the first time in history in the Soviet Union without any of the restrictions stipulated in the constitutions of even the most "democratic" of bourgeois states. All citizens of the USSR irrespective of sex, nationality and race, enjoy equal rights in political, economic and cultural affairs, and participate equally in the government of the state. Socialist D. secures the rights of citizens legislatively with material guarantees. For example, in socialist society the right to labour is not simply proclaimed, but legislatively sanctioned and effectively secured by the abolition of exploitation, eradication of unemployment, absence of crises in production, etc. Therein lies the basic difference between socialist D. and bourgeois D. The further development of socialist D. entails the emergence in the USSR of the state of the whole people (see State of the Whole People). The Programme of the CPSU says that in the period of the gradual develop-

ment of socialist society into communist society there will be further all-round development of socialist D., leading in due course to the replacement of the state by communist public self-administration (see Communist Public Self-Administration).

Democratic Socialism, official ideology of modern reformism (q.v.) set out in the declaration of the Frankfurt Congress of the Socialist International, "Goals and Tasks of Democratic Socialism" (1951), in opposition to the ideology of Marxism-Leninism. The theoretical roots of D.S. go back to Neo-Kantianism (q.v.) and its notions of ethical socialism. Socialism, it says, is not a natural product of historical development, but a moral ideal equally acceptable to all sections of society. D.S. infers that the socialist reconstruction of society is basically a moral problem, a problem of the re-education and education of people in the socialist spirit. It rejects class struggle, socialist revolution, and dictatorship of the proletariat. Socialism, it contends, emerges "democratically", i.e., from an aggregate of social and, in particular, cultural and educational measures effected within the framework of the bourgeois state by bourgeois governments, and exists as a "democracy", i.e., as a harmonious unity of all social strata and groups, the capitalists included. Objectively, D.S. is designed to perpetuate the foundations of bourgeois society.

Democritus of Abdera (c. 460-370 B.C.), ancient Greek materialist philosopher, disciple of Leucippus (q.v.), "first encyclopaedian mind among the Greeks". (Marx.) Lenin described D. as the brightest exponent of materialism in antiquity. A founder of atomistics (q.v.), he believed in two prime beginnings: atoms and vacuum. The atoms, he contended, being indivisible particles of matter, were immutable, eternal and in continuous motion, differing only in shape, size, position, and order. They did not have other properties, such as sound, colour, taste, etc., and existed conditionally, "not by the nature of the things themselves". This point of view contains the embryo.

of the teaching on the primary and secondary properties (q.v.) of things. Combination of atoms produced bodies, while their dissolution brought about the end of bodies. An infinite multitude of atoms was eternally in motion in infinite vacuum. When moving in different directions the atoms sometimes collided, producing vortices of atoms. There was an infinite multitude of worlds "born and dying", created not by God, but arising and being destroyed of necessity, in a natural way. D. identified causality and necessity and denied accident, which he considered the outcome of ignorance. In his theory of knowledge he assumed that bodies emit thin shells (ideas, or images) of things which react on the senses. Sensory perception is the main source of cognition, but yields no more than a "dim" knowledge of things. It is transcended by another, "bright", more subtle knowledge, knowledge by reason, which leads to the cognition of the essence of the world—atoms and vacuum. Thereby D. raised the problem of the relation of the senses to reason in cognition. His political views gravitated towards antique democracy. He opposed the slave-owning aristocracy. D.'s materialism was continued by Epicurus and Lucretius (qq.v.).

Demonstration, see Proof.

De Morgan, Augustus (1806-71), English mathematician and logician; professor of mathematics, University College, London (1828-66); first president of the London Mathematical Society. Algebra was his main sphere of interest. He wrote several essays on logic, advocating mathematical methods and presenting the first results of their use. His name has been given in mathematical logic to the following fundamental laws of the algebra of logic (q.v.): denial of conjunction is equivalent to disjunction (q.v.) from the negations, q.v. ($\overline{A \cdot B}$ is equivalent to $\overline{A} \vee \overline{B}$); negation of disjunction is equivalent to conjunction from the negations ($\overline{A \vee B}$ is equivalent to $\overline{A} \cdot \overline{B}$). His main work is *Formal Logic, or the Calculus of Inference, Necessary and Probable* (1847).

Denotation and Designation, see Name.

Denotation and Sense 1. The meaning of a thing is its significance for society; it depends on the function that thing performs in the activity of people. It is determined by the real objective essence of the thing, which performs only the functions that are determined by its own nature. People convey to one another the significance of a thing by means of various language signs. In language, the practical significance of things is recorded, consolidated and preserved in the D. of words. S. is a specification of D. in relation to other words or an objective situation. The relationship and interconnection of Dd., which gives rise to their S., is determined either by objective factors of reality and the objective logic of reasoning or by subjective factors: the wishes, aspirations, social (also class) and personal aims and intentions of man, etc. Only social practice brings this or that S. of objective meanings into conformity with the essence of real things and phenomena. It casts aside subjective distortions and fixes the diversity of senses which reproduces the real diversity of concrete things or phenomena. 2. In linguistics, D. (lexical meaning) is understood as the sense of the word. Words as a rule have different denotations and also various senses. Hence, the D. of words greatly depends on the context and situation in which words are used. 3. The concepts of D. & S. in linguistic expressions which denote objects are elaborated in logical semantics. The D. of a linguistic expression is usually understood as the object or class of objects which denotes (names), the given expression (*nominatum*), and the sense of the expression is understood as its connotation, i.e., the information contained in it which makes it possible to assign the given expression to one object or another. Thus, "the Evening Star" and "the Morning Star" have as their meaning (*nominatum*) one and the same object, the planet Venus, but their connotation, their sense, differs. In contemporary logic, the differentiation between D. and S. dates to Frege (q.v.). Questions related to criteria of equality of sense (synonymics) of lin

guistic expressions are studied by logical semantics, q.v. (see Name).

Descartes, René, latinised as Renatus Cartesius (1596-1650), French philosopher, mathematician, physicist, and physiologist. Educated at the Jesuit College at La Flèche. After army service he settled in Holland, the foremost capitalist country of his time, where for twenty years he devoted himself to secluded scientific and philosophical research. Persecuted by Dutch theologians, he moved to Sweden (1649), where he died. D.'s philosophy is linked up with his mathematics, cosmogony, and physics. He is one of the founders of analytical geometry. In mechanics he noted the relativity of motion and rest, formulated the general law of action and counteraction and the law that the quantity of motion of two non-resilient bodies is the same during impact as before it. In cosmogony he postulated the novel idea of the natural development of the solar system. He contended that vortices of particles were the main form of motion of cosmic matter, and that they determined the structure of the world and the origin of the heavenly bodies. His hypothesis gave impetus to the advancement of dialectics, although with him development was still a mechanistic concept. D.'s teaching on matter, or the corporeal substance (q.v.), was based on his mathematical and physical investigations. D. identified matter with extension, or space. Extension, he conjectured, alone did not depend on any subjective element and was conditioned by the necessary properties of the corporeal substance. However, dualism (q.v.) invaded D.'s materialistic physics. The common cause of motion, he averred, is God. God created matter together with motion and rest, and maintained the same quantity of motion and rest in matter. D.'s doctrine on man was equally dualistic. He contended that a soulless and lifeless bodily mechanism combined in man with a volitional and rational soul. Body and soul, which are heterogeneous, interact by means of a special organ, the so-called pineal gland. In physiology D. established a

scheme of motor reactions, this being one of the earliest descriptions of reflex actions. However, D.'s materialistic physiology conflicted with his ideas of the immaterial soul. In contrast to the body, whose essence lies in extension, the essence of the soul lies in thought. D. considered animals to be no more than elaborate automata devoid of soul and mental capacity. Like Bacon (q.v.), D. defined the ultimate end of knowledge as man's mastery of the forces of nature, discovery and invention of technical devices, perception of causes and effects and improvement of the essence of man. To attain this end, one must refuse to believe anything until it is proved completely. This disbelief does not imply that all existence is not cognisable; it is a method of finding the unconditionally authentic beginning in knowledge, which D. defines as "*cogito ergo sum*". D. employed this formula to deduce the existence of God and then the reality of the outer world. In epistemology, D. was the founder of rationalism (q.v.), which sprang from his one-sided understanding of the logical nature of mathematics. D. believed that the universal and necessary character of mathematical knowledge derived from the nature of the brain. He, therefore, attributed exclusive power in the act of cognition to deduction based on valid intuitively comprehended axioms. D.'s doctrine of the immediate validity of self-consciousness, of innate ideas (among which he included the idea of God, and of the spiritual and corporeal substances), influenced subsequent idealistic schools and was strongly attacked by materialist philosophers. On the other hand, D.'s basically materialistic teaching on nature, his theory of the development of nature, his materialist physiology and his mechanistic method, which was inimical to theology, influenced the materialist world outlook. His main works are *Le Discours de la méthode* (1637) and *Principia philosophiae* (1644).

Deschamps, Léger-Marie (1716-74), French materialist philosopher, Benedictine monk. His main work, *La Vé-*

rité ou le vrai système, first appeared in Russian (1930). In his philosophical views D. combined a rationalistic tendency gravitating towards Spinozism with peculiar dialectical ideas. The pivotal concept of his system, the "universal whole", postulates unity of all physical bodies. He describes the "universal whole" as a hypersensual essence perceptible to reason, but not to the senses. D. contended that the concept of God is man-made and believed atheism to be the privilege of a limited circle of enlighteners.

Description, a stage of scientific study which consists in recording the data of an experiment or observation with the help of a definite system of designations accepted in science. D. is made both by means of the usual language and figures and by special means comprising the language of science (symbols, matrixes, diagrams, etc.). D. is a preparatory stage of transition to a theoretical study of an object (see Explanation) in science. D. and explanation are closely connected and dialectically pass one into the other. Without a D. of facts it is impossible to explain them; on the other hand, D. without an explanation is not enough for science. Interpreting the nature of scientific study from positions of extreme phenomenalism (q.v.), the positivists (see Comte, Mach, Pearson, and others) declared the only task of science to be "pure description of facts". In contemporary positivism (q.v.) this theory has assumed quite a veiled form.

Desnitsky, Semyon Yefimovich (d. 1789), Russian enlightener, law expert, sociologist; educated at Moscow and Petersburg universities, later at Glasgow University, where he took his master's degree (1767). On returning to Russia he was professor of law at Moscow University. His works, *Slovo o pryamom i blizhaishem sposobe k nauchenyu yurisprudentsii* (*About the Direct and Closest Method of Teaching Jurisprudence*), 1768, *Yuridicheskoye rassuzhdeniye o nachale i proiskhozhdenii supruzhestva* (*Legal Discourse on the Beginning and Origin of Marriage*), 1775, *Yuridicheskoye rassuzhdeniye o raznykh ponyatyakh, kakiye imeyut*

narody o sobstvennosti (*Legal Discourse of the Different Concepts of Nations on Property*), 1781, *Yuridicheskoye rassuzhdeniye o veshchakh soyashchennykh, soyatykh i prinyatykh v blagochestiye* (*Legal Discourse of Things Sacred, Saintly and Pious*), 1772, etc., were prominent in the development of Russian sociological thinking. D. referred to four stages (hunting, animal husbandry, land cultivation, and the "commercial state") in the development of mankind. He was one of the first men in Russia to speak of the historical origin and development of property and the family. He shared the views of Anichkov (q.v.) on the origin of religious beliefs, opposed serfdom and worked out a draft of a new Russian "legislative, juridical, and punitive authority", which was rejected by the tsarist government.

Determinism and Indeterminism, opposite philosophical concepts of the place and role of causality (q.v.). D. is a doctrine on the universal causative origin of all phenomena. Consistent D. postulates the objective character of causality. This distinguishes it from various pseudo-deterministic trends, which, though they profess to recognise universal causality, really curtail it by denying its objective nature (see Kant). I. denies the universal nature of causality, while its extreme variety goes to the length of denying causality as such. Deterministic notions first appeared in ancient philosophy and were most clearly postulated by the antique atomists. The concept of D. was substantiated and developed by natural science and materialist philosophy, by Bacon, Galileo, Descartes, Newton, Lomonosov, Laplace, Spinoza (qq. v.) and the French 18th century materialists (q.v.). Their D. was necessarily mechanistic and abstract in conformity with the level of contemporary natural science. They believed the forms of causality to be absolute and governed by the strictly dynamic laws of mechanics, identified causality and necessity, and denied the objective character of chance. Pierre Simon de Laplace defined this point of view more conclusively than other

philosophers (hence Laplacian D., the other name of mechanistic D.). Laplace held that the co-ordinates and impulses of all particles in the Universe at a given instant determine its state at any past or future instant. This brand of D. leads to fatalism (q.v.), possesses a mystical complexion and, in effect, merges with belief in divine predestination. Scientific developments refuted Laplacian D. not only with reference to organic nature and social life, but also to physics. The discovery of the correlation of uncertainties (q.v.) in quantum mechanics proved Laplacian D. puerile, but it was at once interpreted by idealist philosophers in the spirit of I. (conclusions about the "free will" of the electron, absence of causality in micro-processes, etc.). Dialectical materialism removed the limitations of mechanistic D. It recognises the objective and universal character of causality and does not identify it with necessity. Neither does it reduce its operation to the purely dynamic type of laws (see Statistical and Dynamic Laws). The continuous controversy between D. and I. has now become more acute in natural science and particularly in social science. In sociology, I. is presented as voluntarism (q.v.). Also, it wears the cloak of empirical sociology (q.v.) and opposes social science, which, it says, merely describes individual phenomena (ideographic sciences), to natural science, which establishes laws (nomothetic sciences). Though not rejecting D. as such, some sociologists view it in a crudely vulgar light (biological theories of social development, vulgar technicism, etc.). It was historical materialism which first introduced genuine D. in social research.

Development, the process of self-motion from the lower (simple) to the higher (complex), revealing the internal tendencies and the essence of phenomena, and leading to the appearance of the new (see the New and the Old). The D. of inorganic systems, the living world, human society, cognition is governed by the general laws of dialectics. D. proceeds in the form of a spiral. Each single process of D.

has a beginning and an end, the end being already contained in a tendency at the beginning, and the completion of one cycle marking the beginning of a new one, in which some features of the first may be repeated. D. is an immanent process: the transition from the lower to the higher takes place because the tendency to the higher is contained in the lower in a concealed form, and the higher is but the developed lower. However, it is only at a sufficiently high stage of D. that the signs of the higher contained in the lower are fully revealed. For instance, consciousness is the result of the D. of the objective world as a whole, and only from this point of view is it possible to discover the property of reflection underlying matter. The reproduction of D. in a theoretical form becomes possible once the methods and means of dialectical logic are used (see the Historical and the Logical).

"The Development of the Monist View of History", the work written by Plekhanov (q.v.) who published it in 1895 under the pseudonym of N. Bel'tov. Lenin described it as "a book which has helped to rear a whole generation of Russian Marxists". (Lenin, Vol. 16, p. 269.) It thoroughly analyses pre-Marxist philosophy and sociology, critically examines the views of the French 18th century materialists, French bourgeois historians of the Restoration period, utopian socialists, and idealist German philosophers. Plekhanov reveals the class limitations of these theories and demonstrates that it was Marx and Engels who created a scientific materialist philosophy, that only Marxism furnished a genuine science of society and discovered the material basis of social development. Besides an exposition of Marxist philosophy the book gives a profound critique of Narodism (q.v.). This criticism was especially important in Russia at that time. Today, too, it is one of the best works for studying the philosophy of Marxism.

Dewey, John (1859-1952), American idealist philosopher, who had a great influence on philosophy, sociology, aesthetics, and pedagogics in the United

States; founder of the Chicago school of pragmatism (q.v.). His new version of pragmatism is known as instrumentalism (q.v.), or "humanist naturalism". D. is at pains to conceal the subjective-idealist and agnostic essence of his philosophy, which is aimed against the materialist theory of reflection (q.v.). In his sociological works he is an advocate of bourgeois liberalism ("regulated freedom", "equal opportunity") and of individualism. To the class struggle and socialist revolution he counterposes class co-operation and improvement of society through educational reform. His "experimental method" of education stresses the inculcation of individual skill, initiative, and enterprise at the expense of scientific knowledge. Main works: *School and Society* (1899), *Experience and Nature* (1925), *Art as Experience* (1934), *Logic: The Theory of Inquiry* (1938), etc.

Dézami, Théodore (1803-50), French utopian socialist (q.v.), member of secret revolutionary societies (Société des Saisons, Société Républicaine Centrale, and others). In the 1848 revolution he championed the demands of the workers. D.'s utopian theory drew on the ideas of Morelly, Babeuf and Fourier (qq.v.). He opposed the "peaceful" brand of Etienne Cabet's (q.v.) communism and the Christian Socialism of Hugues Félicité Lamennais. Philosophically, D. was a materialist and atheist, and a follower of Helvétius (q.v.). Marx acclaimed D.'s theory as "realistic humanism" and a "logical basis of communism". D.'s main work is *Code de la Communauté* (1842).

Dialectical Theology, a trend in contemporary protestant theology which has spread chiefly in West Germany. Its ideological roots go back to the mystical religious teaching of Kierkegaard (q.v.) and to German existentialism (q.v.). Its founder, the West German theologian Karl Barth (b. 1886, now resident in Switzerland) called for a revival of the original reformation theology in the spirit of Calvinism (see Calvin), and opposed all rational demonstration of religious faith, wheth-

er philosophical proof of the existence of God in Catholic philosophy or the inference of faith from the "emotions of the pious soul" (see Schleiermacher). Barth and other exponents of D.T. make free use of Hegelian terminology in their writings. D.T. appeared in Germany after the 1st World War (the 1920s) as an attempt to explain the crisis of bourgeois society by the "spiritual crisis of man". Politically, the exponents of D.T. merge with the liberal groups among the West German bourgeoisie.

Dialectics, science of the most general laws governing the development of nature, society, and thought. The scientific conception of D. was preceded by a long history of development and the very concept of D. emerged through revision, even defeat, of the original meaning of the term. In antiquity philosophers strongly stressed the mutability of all existence and considered the world as a process, postulating change of every property into its opposite. Take Heraclitus (q.v.), some of the Miletus philosophers, and the Pythagoreans (q.v.). But the term D. was not as yet used. Originally, the term (*dialektikē téchnē*—art of dialectic) denoted the art of dispute and debate, i.e., a) the art of debate by means of questions and answers, and b) the art of classifying concepts, dividing things into genera and species. Aristotle (q.v.), who did not understand the D. of Heraclitus, believed that it had been invented by Zeno of Elea (q.v.), who analysed the conflicting aspects in the concepts of motion and plurality. Aristotle differentiated D., the science of probable opinions, from analytics, the science of proofs. On the heels of the Eleatics (q.v.), Plato (q.v.) defined true being as identical and immutable, yet gave credence in his dialogues *Sophist* and *Parmenides* to the dialectical conclusion that the higher genera of existence can each be conceived only as being and not being, as equal to themselves and not equal to themselves, as identical to themselves and as passing into "something else". Therefore, being contains contradictions: it is single and plural, eternal and tran-

sient, immutable and mutable, at rest and in motion. Contradiction is the necessary condition and prompts the soul to reflection. This art, according to Plato, is the art of D. The development of D. was continued by the Neo-Platonists (see Plotinus and Proclus). In scholasticism, the philosophy of feudal society, the term D. was used to denote formal logic as opposed to rhetoric. In the early stage of capitalist development, dialectical ideas on the "coincidence of opposites" were enunciated by Nicholas of Cusa and Bruno (qq.v.). Later, despite the prevalence of metaphysics (q.v.), Descartes (q.v.) and Spinoza (q.v.) produced specimens of dialectical thought, the former in his cosmogony and the latter in his teaching on substance as the self-cause. A wealth of dialectical ideas was produced by Rousseau and Diderot (qq.v.). Rousseau examines contradiction as a condition of historical development. Diderot goes a step further and investigates contradictions in the contemporary social consciousness in *Le Neveu de Rameau*. The most important pre-Marxian stage in the development of D. was German classical idealism which, in contrast to metaphysical materialism, considered reality not merely as an object of cognition, but also as an object of activity. However, ignorance of the true, material basis of cognition and activity of the subject limited and distorted the dialectical notions of the German idealists. The first to make a breach in metaphysics was Kant (q.v.). He noted the purport of opposite forces in the physical and cosmogonic processes and followed Descartes in introducing the idea of development into cognition of nature. In his epistemology, Kant developed dialectical ideas in his teaching of antinomies. Yet he described D. of reason as an illusion which evaporates as soon as thought recedes within itself, bounded by the cognition of phenomena proper. Later, Fichte (q.v.) developed his so-called antithetical method of inferring categories in his *Wissenschaftslehre*, and this method contained important dialectical ideas. After Kant, Schelling (q.v.), too, de-

veloped a dialectical appreciation of the phenomena of nature. The idealistic D. of Hegel (q.v.) was the summit in the development of pre-Marxian D. Notwithstanding Hegel's false concept, "for the first time the whole world, natural, historical, intellectual, is represented as a process, i.e., as in constant motion, change, transformation, development; and the attempt is made to trace out the internal connection that makes a continuous whole of all this movement and development" (Engels, *Anti-Dühring*, pp. 37-38). Hegel contended that D., in contrast to the various abstract definitions of reason, is the transition of one definition into another, revealing that these definitions are one-sided and limited, i.e., that they contain negation of themselves. For this reason, Hegel said, D. is "the life and soul of scientific progress, the dynamic which alone gives imminent connection and necessity to the body of science". The result of Hegel's D. transcended by far the significance which the author himself ascribed to it. Hegel's teaching on the necessity with which all things arrive at their own negation, contained an element which revolutionised life and thought, for which reason the foremost thinkers of the time regarded his D. as the "algebra of revolution" (Herzen). A truly scientific appreciation of D. was given by Marx and Engels. They discarded the idealistic content of Hegel's philosophy and based D. on their materialistic understanding of the historical process and the development of knowledge, on their generalisation of the real processes taking place in nature, society and thought. Scientific D. organically combines the laws governing the development of being and the laws of cognition, these two being identical and differing in form only. For this reason, materialist D. is not only an "ontological", but also an epistemological teaching, a logic which regards thought and cognition equally as being in a state of coming into being and development, inasmuch as things and phenomena are what they are becoming in the process of development and contain as a tendency their own future, or

what they will become. In this sense the theory of knowledge, too, is considered by materialist D. as a generalised history of cognition; and every concept, every category is, therefore, historical in nature, despite its extremely general character. Contradiction is the chief category of materialist D. In the teaching on contradiction it reveals the motive force and source of all development. It contains the key to all the other categories and principles of dialectical development—development by passage of quantitative changes into qualitative ones, interruption of gradualness, leaps, negation of the initial moment of development and negation of this very negation, and repetition at a higher level of some of the features and aspects of the original state. Materialist D. is a philosophical method of investigating nature and society. None but the correct dialectical approach will yield an understanding of the complex and contradictory emergence of objective truth, the connection, at every point in the development of science, between elements of the absolute and the relative, the stable and the changeable, and the transition from one set of forms of generalisation to other, deeper forms. The revolutionary substance of materialist D., which does not suffer the slightest stagnation or immobility, makes it an instrument for the practical reconstruction of society and helps to assess the objective historical requirements of social development, the discrepancy between old forms and new content, the necessity of transition to higher forms stimulating the progress of mankind. The strategy and tactics of the struggle for communism are framed to conform fully to the dialectico-materialistic world outlook (see *Logic, Dialectical*).

"*Dialectics of Nature*", a book by Frederick Engels first published in the USSR (1925), consists of notes (1873-86) treating the key problems of the dialectics of nature. Engels held that the philosophy of dialectical materialism should be based on exhaustive knowledge of the natural sciences and that the natural sciences, in turn, could not develop fruitfully, unless based on

dialectical materialism. D.N. contains a profound philosophical investigation of history and the most important questions in natural science, and criticises mechanistic materialism, the metaphysical method, and idealistic concepts in natural science. Deeply versed in contemporary science, Engels demonstrated how the metaphysical conception of nature is exploded from within by scientific progress and compelled to give place to the dialectical method. He showed, too, that natural scientists are forced to abandon the metaphysical approach and adopt the dialectical, with consequent beneficial effects on natural science. Engels produced an exhaustive substantiation of the dialectico-materialistic teaching on the forms of motion of matter. In keeping with this teaching, he worked out the principles for classifying the natural sciences, suggesting a concrete classification, on which he based his work. Engels made a detailed philosophical study of the basic laws of natural science and revealed their dialectical nature. He showed the true purport of the law of the preservation and conversion of energy, which he described as the absolute law of nature. He also dealt with the so-called second principle of thermodynamics and demonstrated the fallacy of the conclusion that the Universe was steadily approaching thermal death (q.v.). Engels made a thorough analysis of Darwin's (q.v.) teaching on the origin of species and showed that its main point, the theory of development, agreed in full with materialistic dialectics. At the same time, he revealed the flaws and gaps in Darwin's teaching. Engels delved into the role of labour in the emergence and development of man. He also showed how mathematical concepts and operations reflect the relation of things and processes in nature, where they have their real prototypes, and noted that the introduction of variables in higher mathematics signified the spread of dialectics. Engels investigated the relation between chance and necessity, and revealed with sparkling dialectical skill that the mechanistic and idealistic approaches

to this complex problem were both erroneous. He offered a Marxist solution and used Darwin's teaching to show how natural science confirmed and specified the propositions of dialectics. To be sure, some particulars related to special problems in natural science treated by Engels in his book, have grown obsolete as a result of the immense scientific progress since achieved, but his dialectico-materialistic approach to analysis of natural science and its philosophical generalisation is entirely valid to this day. Many propositions laid down in *D.N.* anticipated scientific developments by decades. The book is a model of dialectical thinking on complex problems of natural science. It was not prepared for print by Engels himself, and consists of separate articles, notes, and fragments. This should be borne in mind when studying it.

Dichotomy, see Division of the Volume of Concepts.

Dictatorship of the Proletariat, state power of the proletariat, established after abolition of the capitalist system and destruction of the bourgeois machinery of state. The D.P. is the main content of socialist revolution (q.v.) and a necessary condition and the chief result of its victory. For this reason, the D.P. is the key section of Marxist-Leninist theory. The proletariat uses its political power to suppress the resistance of the exploiters, to consolidate the victory of the revolution, to frustrate any attempts at restoring bourgeois rule, and to combat aggressive actions of international reaction. However, the D.P. is not only violence, and not chiefly violence. Its main function is creative and constructive. Dictatorship serves the proletariat to win over the mass of working people and to draw them into socialist construction for revolutionary reconstruction in all spheres of social life—the economy, culture, daily life, the communist education of working people, and the building of new, classless society. The D.P. is the chief instrument in the building of socialism and the necessary condition for its victory. The basis and supreme principle of the D.P. is

the alliance of the working class and the peasants under the leadership of the former. In the course of socialist construction the social basis of the D.P. expands and gains endurance, producing the socio-political and ideological unity (q.v.) of a nation. The Communist Party, the vanguard of the working class, is the main leader and guiding force in the system of the D.P. The system of the D.P. comprises various mass organisations: representative bodies of the people, trade unions, co-operatives, youth and other associations, which serve as the link between the socialist state and the masses. The Paris Commune (1871) was the first D.P. in history. It contributed most valuable experience to Marxism and enabled Marx to surmise the shape of the state in a future socialist society. The Soviets are a new form of the D.P., which Lenin discovered by studying the experience of the two bourgeois-democratic revolutions in Russia—that of 1905-07 and the February revolution of 1917. Lastly, the latest revolutionary experience gave rise to one more form of the D.P.—People's Democracy (q.v.). The D.P. is not a goal in itself. It is the only possible and historically necessary mode of transition to a society without dictatorship and without classes. "Having brought about the complete and final victory of socialism—the first phase of communism—and the transition of society to full-scale construction of communism," says the Programme of the CPSU, "the dictatorship of the proletariat has fulfilled its historic mission and has ceased to be indispensable in the USSR as far as the tasks of internal development are concerned." The conclusion that the dictatorship of the proletariat develops into a state of the whole people (q.v.) constitutes an important contribution to the creative development of Marxism-Leninism, the teaching on the laws of society's development from capitalism to communism.

Diderot, Denis (1713-84), French philosopher and Enlightener, editor and publisher of the *Encyclopaedia*, man of letters, art critic and theorist. Voltaire (q.v.) and D. exercised an

enormous influence on contemporary social thinking. In philosophy, D. quickly passed from deism and ethical idealism to materialism (in the teaching on nature, psychology, and the theory of knowledge) and atheism. To his mechanistic materialist outlook on nature, which he shared with La Mettrie and Holbach (qq.v.), D. imparted some elements of dialectics, such as ideas on the connection of matter and motion, connection of processes proceeding in nature, and the eternal change of forms in nature. D. dealt with the concept of the universal sensibility of matter to explain how mechanistic motion of material particles may give birth to the specific content of sensations. In developing this view, D. outlined a materialistic theory of the psychic functions, thus anticipating the later teaching on reflexes. According to his theory, men and animals are instruments endowed with an ability to feel and with memory. In epistemology, D. rejected the idealist notion of spontaneity (q.v.) of thought. All reasoning is rooted in nature, and all we do is register phenomena known to us from experience, between which there is either a necessary or conventional connection. It does not follow with D. that our sensations are mirror-perfect copies of things; the resemblance between most of the sensations and their external causes is never greater than between concepts and their denotations in language. D. accepted Locke's (q.v.) view of the primary and secondary qualities (q.v.), but stressed that the secondary qualities are also objective. He developed F. Bacon's (q.v.) belief that knowledge, which originates from experience, is not prompted by the sole urge of perceiving the truth, but by the aim of perfecting and increasing man's might. In so doing, D. noted the role of technology and industry in developing thought and cognition. According to him, experiment and observation were the methods and guides of cognition. It is through them that thought is able to acquire knowledge which, though not entirely authentic, is highly probable. Compilation of the Encyclopaedia (see

Encyclopaedists), designed to combat feudal religious ideology, became D.'s life-work. Progressive in content, the Encyclopaedia was militant in tone. Dissemination of new ideas went hand in hand in it with criticism of inert views, prejudices, and beliefs. Despite persecution, D. succeeded in completing the publication of the Encyclopaedia. He was the author of many works on art and art criticism, developed a new aesthetics of realism, defending the unity of the good and beauty. He attempted to embody the principles of his aesthetics in his novels and dramas. Marxists acclaimed the works and teachings of D. Engels noted "masterpieces of dialectics" in D.'s writing, referring specifically to *Le Neveu de Rameau* (1762-79). Lenin pointed out that D. "came very close to the standpoint of contemporary materialism" and that he "distinctly opposed the main philosophical trends" (Vol. 14, p. 35). But for all this, D. was an idealist in his views of social phenomena. In combating feudal despotism, he advocated the political system of enlightened monarchy. His main works are *Pensées sur l'interprétation de la nature* (1754), *Entretien entre d'Alembert et Diderot* (1769), *Principes philosophiques sur la matière et le mouvement* (1770) and *Eléments de physiologie* (1774-80).

Dietzgen, Joseph (1828-88), worker, tanner, "one of the most eminent German Social-Democratic philosophical writers". (Lenin, Vol. 19, p. 79.) A self-educated philosopher, D. was strongly influenced by Feuerbach's (q.v.) materialism and independently discovered materialist dialectics. He lived and worked in Germany, Russia, and the United States. His main works are *Das Wesen der menschlichen Kopfarbeit* (1869) and *Das Akquisit der Philosophie* (1887), which are devoted mainly to epistemology. According to D., consciousness is an ideal product of eternally existing and moving matter, the "universum". The brain, which is part of the "world whole" is the bearer of consciousness. Natural and social being is the content of consciousness: Cognition proceeds in sensory and

abstract forms. It is a process of motion from relative to absolute truth. D. rejected Kant's (q.v.) agnosticism and taught that in both sensory and abstract forms man's cognition is an image of the outer world verified by experience. He considered the "universum" in motion, and saw the source of development in contradiction. However, D. failed to mould dialectics into a scientific system; he did not succeed in making an exhaustive exposition of dialectics as a theory of knowledge. This led him to make concessions to relativism (q.v.) and vulgar materialism (q.v.), and to confuse the material and the ideal. The followers of Mach took advantage of D.'s erroneous propositions in their fight against dialectical materialism. Lenin noted D.'s inconsistencies, but stressed that on the whole his teaching developed within the Marxist framework. D. was a militant atheist, an ardent propagandist of the teaching of Marx and Engels, and championed the proletarian complexion of the Marxist philosophy.

Dilthey, Wilhelm (1833-1911), German idealist philosopher, professor at Berlin University, exponent of the so-called philosophy of life (q.v.). D.'s ideas pivoted on the notion of a living spirit, which develops in historical forms. D. rejected the knowability of the laws of the historical process, claiming that philosophy could not be cognition of super-sensory essences and could only be a "science of sciences", i.e., a "teaching on science". D. divides the world of science into sciences of nature and sciences of the spirit, the subject of the latter being social reality. Philosophy should set out to analyse consciousness, because consciousness alone offers the means by which we can proceed from the immediate experiences of the "ego" and arrive at the substance of natural and spiritual life. Psychology, D. averred, is the most fundamental of all the sciences of the spirit; he meant descriptive, not explanatory psychology, which is based on causality. In his study of the imaginative arts, D. stressed the role of fantasy, with whose assistance the

poet elevates the accidental to the level of the substantial and by which he depicts the typical as the basis of the individual. According to D., the "science of interpretation", or "hermeneutics", comprises the link between philosophy and the science of history.

Diogenes, Laertius, ancient Greek writer of the 3rd century. His voluminous work, *Lives and Opinions of Famous Philosophers* in ten books, is the only existing summary compilation of the antique epoch in the history of philosophy. It contains biographical information and the teachings of the Greek philosophers up to Sextus Empiricus. D. is noteworthy only as a compiler of various statements and information, often of a whimsical nature. The most interesting of his writings are devoted to the Stoics (q.v.) in Book VII and Epicurus (q.v.) in Book X. The last book contains the only extant works of Epicurus, three of his letters and a compendium of his doctrines.

Diogenes, The Cynic (404-323 B.C.), philosopher of Sinope in Pontus, disciple of Antisthenes (q.v.), founder of the Cynic school of philosophy (see Cynics); carried the notions of his teacher to their extreme. Like Antisthenes he rejected everything but the particular and criticised the teaching of Plato (q.v.) that ideas are general substances. He rejected all the accomplishments of civilisation and called on men to limit themselves to the necessary animal requirements. He also disavowed polytheism and all religious cults, which he described as superfluous, purely human contrivances. D. attacked class differences and advocated asceticism. He is said to have been bold and independent in confronting rulers and potentates and to have scorned the accepted standards of social behaviour, and is reputed to have lived in a barrel. However, this excessively colourful description of the outspoken cynic is doubtful, all available information being highly conflicting.

Dirac, Paul (1902-), English physicist, professor at Cambridge (1932), a foreign Corresponding Member of the Academy

of Sciences of the USSR, one of the founders of quantum mechanics (q.v.) and proponent of the relativist quantum theory which adduced the law of the intermutation of "elementary" particles and anticipated the existence of anti-particles (positron, anti-proton, anti-neutron). D.'s philosophical utterances, in which he professes adherence to the Copenhagen school (q.v.) and, particularly, the "principle of observance" (see Idealism, Physical), come into sharp conflict with his works in physics, in which he acquits himself as a brilliant master of mathematical hypothesis (q.v.) and introduces the most unusual "unobservable" entities, such as "negative energy", etc.

Discontinuity and Continuity, essential characteristics which reflect the antithetical but interconnected properties of material objects. D. is an attribute of the discrete conditions of matter (planets, bodies, crystals, molecules, atoms, nuclei, etc.), the degree of its differentiation in the form of separate, stable elements of different systems, qualitatively defined structures. It also expresses the leap-like nature of the process of development, of changes. C., on the other hand, is revealed in the entirety of the systems consisting of separate discrete elements, in the infinity of their relations, the gradualness of change of conditions, the smooth transition from one state to another. Isolated investigation of D. & C. is typical of metaphysical materialism. It is based partly on the postulates of classical mechanics, which considers D. inherent only in certain types of material elements (from planets to atoms), and C. only in the wave processes. Dialectical materialism stresses not only the antithesis, but also the connection, the unity of these signs, confirmed by contemporary physics, which has proved, for example, that light possesses both wave and corpuscular properties. Alongside with this it was experimentally discovered in quantum mechanics that elementary particles possess not only corpuscular but also wave properties. The dialectics of D. & C. affords the possibility of comprehending scientifically the

specific features of material objects, their properties and relations (space and time, motion, interconnection of field and matter, etc.).

Discreteness, see Discontinuity and Continuity.

Discursiveness, a property of reasoning, of mediate logical thought, cognition, as distinct from sensory, immediate, and intuitive. The differentiation between the immediate (intuitive) and mediate (based on proof) is made in Plato and Aristotle (qq.v.), and the term D. occurs in Thomas Aquinas (q.v.). Marxist philosophy recognises the importance of D. in cognition, for its analysis of forms and methods, provided chiefly by logic, gains in significance in this age of mathematical, technological, and scientific progress.

Disjunction, a logical operation forming a compound sentence by combining two sentences by means of the logical sentential connective "or". Symbolically, it is AVB (read A or B). Classical mathematical logic differentiates between two types of D.: the inclusive (conjunctive) and exclusive (disjunctive). An inclusive D. forms a complex sentence, judgement or proposition which is true if at least one of its predicates is true, and false if all its component predicates are false. In common speech it coincides with the non-disjunctive meaning of the connective "or". Exclusive D. forms a compound statement, judgement or proposition which is true only if one of its members is true. In common speech it coincides with the disjunctive meaning of the connective "or" (in the sense of "either ... or").

Disparate, unequal, dissimilar, separate, distinct. In 19th and 20th century logic the term D. is relatively seldom used, and only in relation to concepts. Concepts whose objects lack general properties, for which reason they cannot be further generalised, are termed distinct and incomparable (e.g., metal and lustre, square and ideology). Statements of difference, as in Leibniz, q.v. ("heat is not the same as colour", "man and animal are not identical, although every man is an animal"), are sometimes described as

D. Some psychologists, such as Herbart (q.v.), use the term D. to describe the sensations of different sense-organs, e.g., green and loud, sweet and warm.

Distinction 1. A necessary feature of every unity, the peculiarity of every thing, phenomenon, process, characterising the inherent contradictoriness of things, their development. D. necessarily follows from the self-movement of matter, the dialectical splitting of the single, the appearance of contradictions. The immanent origin of Dd. and their interaction are features of the internal objective logic of evolution. Internal Dd. should be differentiated from the external ones, not connected directly with the development of a given concrete thing. External D. simply means that the given thing is distinguished from all others and appears as something independent and relatively stable. Internal Dd. signify that in the process of its development the thing is, as it were, transformed into another, at the same time remaining itself: in this the unity of identity and D. is clearly revealed. D. is a feature of the initial stage of contradiction, it is a "contradiction in itself", a non-unfolding, undeveloped contradiction. At the same time it is impossible to isolate the external and internal Dd. from each other. In the process of development and isolation of the different aspects of a developing phenomenon, internal Dd. may be transformed into external ones. On the other hand, external Dd. serve as a necessary supplement to internal ones; they may serve as a kind of stimulus for the appearance of internal Dd. The insolency of the metaphysical alienation and opposition of external and internal Dd.; D. and identity are proved by the whole development of contemporary science. 2. Act of the consciousness reflecting the objective difference between things or the elements of consciousness itself (sensations, concepts, etc.). In logic, D. implies a method which replaces the definition of concepts, q.v. (e.g., hydrogen differs from oxygen in that it burns but does not sustain combustion). The term D. was introduced in the

Middle Ages. The scholastics used it to denote an objective difference or disparity (real D., essential D., causative D., etc.) and differences in thought (D. of reason, subjective, formal, etc.). The term D. is also used in our time.

Division of Labour, the process of disjunction and interdependent existence of different kinds of labour activities in a single system of social production. The character and forms of the D.L. are determined by the development of the productive forces. And the D.L. itself, characterising the degree of this development, calls forth the further growth of the productivity of labour, thereby promoting improvement and replacement of the types of relations of production. In primitive-communal society the D.L. appeared in the simplest form of division by sex and age; in slave-owning society cattle-breeding was singled out, handicrafts were separated from agriculture, trade became a separate branch; territorial, professional, and international D.L. appeared and was developed, a division was made between mental and physical labour. In the period of capitalist manufacture D.L. took place inside enterprises, taking the form of division according to parts or details. The latter was consolidated and deepened with the appearance of machines. In exploiter social formations the process of the D.L. bears a contradictory character, is interwoven with class antagonisms as is particularly evident in the example of capitalist D.L., which transforms the producer into a partial worker, riveted to one labour operation for life. Socialism utilises the inherited forms of D.L. purposefully and according to a plan, but begins at once to create the prerequisites for the subsequent liquidation of the old and the creation of the new, communist D.L. The liquidation of the old D.L. becomes a necessary condition for the further growth of social production and the all-round, harmonious development of the individual, for the victory of communism. The creation of the communist D.L. is based upon the rapid development

of the productive forces, on the achievement by society of an abundance of goods, freeing people from private interest in any single kind of occupation; it is inseparably linked up with the dying out of classes and all social inequalities. Combination of a high degree of specialisation with a broad outlook, versatile knowledge and capabilities with free choice and periodic change of activities—such is the essence of the communist D.L. (See also *Antithesis of Town and Country; Antithesis of Mental and Physical Labour.*)

Division of the Volume of Concepts, a logical operation which reveals the volume of concepts; the separation and enumeration of species forming the volume of a concept. The practical purpose of D.V.C. is a systematic survey of the objects brought together in a concept. D.V.C. is based on a specific feature (or aggregate of features) known as the basis of D.V.C. Choice of the basis depends on the purpose for which D.V.C. is made. E.g., the concept "triangle" may be divided according to the nature of the angles into right-angled, acute-angled and obtuse-angled. There are two basic types of D.V.C.: (1) division according to change of feature, wherein all species that differ with respect to the feature taken as the basis for division are listed (as in the above example) and (2) dichotomous division, wherein the volume of the concept is divided into two parts—the class of objects possessing the feature taken as the basis, and the class of objects not possessing that feature (e.g. juridical and non-juridical relations). This method of D.V.C. is used whenever objects possessing a common feature need to be singled out among objects not possessing that feature. The main rules of D.V.C. are: complete enumeration of species and separation of species in division according to one basis (the latter preventing intersection of species). Classification (q.v.) is a particular case of D.V.C.

Dobrolyubov, Nikolai Aleksandrovich (1836-61), Russian revolutionary thinker, materialist, critic, and publicist, associate of Chernyshevsky (q.v.). The son of a clergyman, he finished

a religious seminary in Nizhny Novgorod (1853) and the Principal Pedagogical Institute in St. Petersburg (1857). Joining the *Sovremennik* in 1856, he ran the department of criticism and bibliography from 1857 to 1861. His numerous articles over this period dealt with pedagogics, aesthetics, philosophy, and art, the most important being: "The Importance of Authority in Education" (1857), "The Organic Development of Man in Connection with His Mental and Moral Activities" (1858); "Russian Civilisation as Conceived by Mr. Zherebtsov" (1858); "Literary Trivia of the Past Year" (1859); "Robert Owen and His Attempts at Social Reform" (1859); "What Is Oblomovshchina?" (1859); "Realm of Darkness" (1859); "When Will the Day Come?" (1860); "Features for Characterisation of the Russian Common People" (1860); "A Ray of Light in the Realm of Darkness" (1860). In his treatment of various philosophical problems D. made use of the scientific knowledge available in his time, defended the principle of the genetic universality of nature and man, and the materialist idea of the unity of mental and physiological processes in the human organism, challenged the philosophy of dualism (q.v.), and opposed agnosticism (q.v.) and scepticism (q.v.) in epistemology. In this sphere he conducted a polemic against separation of "soul" from body, a dogma of the Christian religion, which the revolutionary Russian thinkers of the mid-19th century made one of their chief targets of criticism. D. considered Feuerbach (q.v.) to have originated the study of man as a whole and integral being. By referring to social problems and showing the social limitations of human actions, D. was in fact exposing the inadequacy of the anthropological principle. He strove to achieve historicity and defended the principle of development in nature and society. Though by comparison with Chernyshevsky he paid less attention to the elaboration of socialist theory, he adopted basically the same positions as his teacher and worked for the development of Russia along socialist lines. D. made an important

contribution to aesthetics. Following Belinsky (q.v.) he insisted that it was the social duty of literature and art to portray the "unnaturalness of social relations" in life as it was then, to define the "natural aspirations" of the people and to seek for an ideal in life. The writer's greatest virtue, according to D., is the truth with which he portrays life. While D. developed the proposition of "realist criticism" as a means of studying life and regarded it as his main purpose to awaken and develop Russian social awareness, he also assumed that only revolution, only revolutionary action by the common people themselves could radically change the existing system, break the autocratic machine, which was "rotten to the core", and put an end to the "dark reign" of serfdom. D. exposed the pseudo-radical character of liberal literary criticism. His ideal was a society in which "a man's worth would be judged by his personal qualities" and in which "each man would receive his share of material wealth in strict proportion to the amount and value of his labour".

Dogmatism, in philosophy and science, a term indicating a way of thinking based on unalterable concepts and formulae regardless of the specific conditions of space and time, i.e., ignoring the principle that truth must be concrete. The source of dogmatism is to be found in the development of religious conceptions, the demand for faith in church dogmas, which are asserted as indisputable truths, above criticism and sacred to all believers. The supporters of classical scepticism (q.v.) classed all positive doctrine concerning the world as D. Kant (q.v.) treated all rationalist philosophy from Descartes (q.v.) to Wolff (q.v.) as "dogmatic" and offered his criticism (q.v.) as the alternative. In contemporary philosophy D. is connected with anti-dialectical conceptions which deny the mutability and development of the world, and also with bourgeois sociology, which opposes the Marxist teaching on the development of society and the revolutionary transformation of reality. In the working-class movement

D. leads to sectarianism, the rejection of creative Marxism, to subjectivism, and to loss of contact with practical life. Under present-day conditions D., along with revisionism (q.v.), is a great danger to the international working-class movement. Instead of analysing the actual processes taking place in the socialist countries and in international life, the dogmatists use as arguments quotations from Marx, Engels, and Lenin, which they take out of context and misinterpret. They regard Marxism-Leninism not as a living, creative theory but as a compilation of immutable rules and principles laid down for all time. From this standpoint they attack Marxists who have enriched theory with new propositions, conclusions and generalisations that accord with the tasks advanced by the new age, such as the propositions on "peaceful coexistence", "peaceful competition", "peaceful transition", "dictatorship of the proletariat", "state of the whole people", etc., which define the foreign policy of the socialist countries and the nature of the state in the period of the transition from socialism to communism, and also the paths of social revolution. The dogmatic rejection of these new conclusions indicates not only theoretical stagnation but also a refusal to adopt new forms of struggle against imperialism, new ways of achieving the revolutionary transformation of the world.

Dostoyevsky, Fyodor Mikhailovich (1821-81), Russian writer, one of the most outstanding representatives of critical realism (q.v.). Of middle-class intellectual origin, he became associated with Belinsky (q.v.) in the forties and was influenced by utopian socialism (q.v.). For taking part in the Petrashevsky circle (q.v.) he was sentenced to death, the sentence afterwards being commuted to penal servitude with subsequent service as a private in the army (1849-59). From the outset D. was a humanist, a defender of the "humiliated and insulted". Love for the common people and hatred of social inequality and amorality were the distinctive features of his art. His world

outlook contained contradictions. The defeat of the revolution of 1848 in Europe and his own personal sufferings evoked a psychological crisis, and in the theory which he developed in the sixties and seventies he asserted (in the spirit of the Neo-Slavophiles, q.v.) the idea that it was the Russian people's messianic destiny to be saviours of humanity and point the way to the realisation of the "kingdom of heaven" on earth. In this period D. criticised materialism and atheism and attacked the revolutionary democrats and socialism (which he envisaged in the form of egalitarian petty-bourgeois socialism). Ethical problems became his main concern. Having restricted his humanism to the spiritual liberation of the personality, D. was unable to achieve any higher conception than that of moral perfection of the self. His enormous talent and sense of artistic truth enabled him to give a merciless critical analysis of Russian life and show the tragedy of the lower classes under the dual oppression of the autocracy and capitalist exploitation (*Poor People*, *The Insulted and Humiliated*, *The Karamazov Brothers*, etc.). As Marxist critics (Gorky, Lunacharsky, q.v., and others) have shown, this is where the objective significance of his work as a writer lies. The attempts of bourgeois philosophers (Berdyayev, Lossky, qq.v., A. Maceina, J. Bohatec, etc.) to present D. purely as a religious mystic, personalist, existentialist, and so on, amount to little more than a crude distortion of the great legacy which he left.

Driesch, Hans Adolf Eduard (1867-1941), German biologist, philosopher, founder of neo-vitalism (see Vitalism). In opposition to the mechanistic explanation of life D. put forward the thesis that the phenomena of life are based on a special immaterial "vital force", or entelechy (q.v.). According to D., entelechy determines the whole course of the vital processes and accounts for purpose in the Universe. Since the activity of entelechy is subject to no material laws, it cannot be explained by science. This teaching

reflected D.'s idealism and agnosticism.

Dualism, a philosophical doctrine which, in contrast to monism (q.v.), regards material and spiritual substances as equal principles. D. is often invoked in the attempt to reconcile materialism and idealism, and the dualistic separation of consciousness from matter leads ultimately to idealism. D. is a prominent feature of the philosophies of Descartes and Kant (qq.v.). It forms the philosophical basis of the theory of psycho-physical parallelism (q.v.).

Duhem, Pierre-Maurice-Marie (1861-1916), French physicist, professor at Bordeaux University, also studied history and the philosophy of science. In his physics he embraced energism (q.v.) and mathematical formalism. In his philosophical works he supported the Poincaré conventionalism (q.v.) and the principle of economy of thought advanced by Mach (q.v.), and claimed that the history of science consisted only of different, mutually exclusive theories possessing no inner continuity. His one-sided, metaphysical explanation of relativism, the relativity of knowledge, led him into idealism and agnosticism (see Idealism, Physical). Main work: *Le système du monde*, published in 10 vols., 1913-59, many of them posthumously.

Dürring, Eugen Karl (1833-1921), German philosopher and economist, professor of mechanics; son of a government official; Doctor of Berlin University (1863-74). In philosophy he was an eclectic, who tried to combine positivism (q.v.), metaphysical materialism, and outspoken idealism; in political economy and sociology he expressed the ideology of the petty bourgeoisie. He opposed Marx and Engels during the period when the German Social-Democratic Party, which had been formed out of two previously independent parties (Lassaleans and Eisenachers), was rallying its ranks, and when theoretical issues had acquired special importance. D.'s muddled and harmful views on philosophy, political economy, and socialism found support among some of the Social-Democrats.

Realising the danger D.'s writings represented for the as yet immature German working-class movement, Engels attacked them in his well-known book *Anti-Dühring* (q.v.). D. subsequently descended to anti-semitism and racism. Main works: *Kursus der Philosophie* (1875), *Kursus der National- und Sozial-Ökonomie* (1876), *Kritische Geschichte der National-Ökonomie und des Sozialismus* (1875).

Duns Scotus, John (c. 1265-1308), Franciscan monk, prominent representative of medieval scholasticism (q.v.). Born in Scotland; taught at Oxford and Paris universities. In the words of Marx, D.S. "... forced *theology* itself to preach *materialism*". (Marx and Engels, *Selected Works*, Vol. 2, p. 172.) An opponent of Thomas Aquinas, he strove to separate philosophy and theology, arguing that it is impossible to find rational grounds for the idea of creation from nothing and admitting that reason is dependent on the will. In his view God is absolute freedom. In the medieval controversy over the universals (q.v.) he advocated nominalism (q.v.). To stress the primacy of singulars he invented the term "*haecceitas*" ("thisness"), that which constitutes individual difference. He introduced the concept of "intention" and "species intelligibiles" and was the first to contrast concrete meaning (the term is his) with abstract meaning. He also established the well-known postulate of modern mathematics "From falsehood anything may follow". In logic, he defined two universal quantifiers: (1) "*omnis*" in the sense of "each", all taken one after the other and (2) "*unusquisque*" in the sense of "any", whichever one takes (a higher form of abstraction).

Durkheim, Emile (1858-1917), French sociologist and positivist philosopher, disciple of Comte (q.v.), professor at the Sorbonne. D. maintained that sociology should study society as a particular kind of spiritual reality whose laws differed from those of the individual psychology. Every society, according to D., is based on commonly understood collective ideas; the scientist is concerned with social facts, col-

lective ideas (law, morality, religion, sentiment, habit, etc.), which are forced upon the human consciousness by the social environment. D. attributed social development to three factors: density of population, development of means of communication, and collective consciousness. Every society is characterised by social solidarity. In primitive society, solidarity was "mechanical", since it was based on ties of blood. In the modern world, solidarity is "organic", since it is based on the division of labour, i.e., on class co-operation for acquisition of the necessities of life. D. considered religion to be an important factor in the life of society. Changing its forms according to the stage of development reached by society, religion would exist as long as man exists, because in religion society deified itself. Main works: *De la division du travail social* (1893), *Les règles de la méthode sociologique* (1895), *Les formes élémentaires de la vie religieuse* (1912).

Duty, an ethical category denoting the moral necessity to perform certain obligations. Unlike idealism, which seeks the source of D. in the "absolute idea" (Hegel), in autonomous "practical reason" (Kant), and so on, Marxist ethics considers that obligations have an objective character. They are determined by man's place in the system of social relations, and proceed from the course of history and the demands of social progress. This accounts for various forms of D.: D. to humanity as a whole, to the Party, military D., civic and family D., etc. By entering into certain relations a person assumes obligations. His awareness of them is his understanding and sense of D. In a society divided into antagonistic classes D. is closely connected with class interests. In socialist society civic D. is based on the interests of the struggle for communism. The moral code of the builder of communism (see Moral Code, etc.) includes a high awareness of social D. and refusal to tolerate any breach of this D. The performance of D. gives meaning to the life and work of the individual, and provides the highest satisfaction

of conscience (q.v.). Individualist and philistine aspirations impoverish the personality. The spiritual richness of the personality depends on the richness of its actual relations, thus it depends on obligations. The fulfilment of real (not imaginary) D. is good (see Good and Evil). A characteristic feature of many modern ethical systems is that they are divorced from the needs of social development, from the interests, the good of society.

Dynamic Stereotype, a concept in the teaching of Pavlov (q.v.) on higher nervous activity, denoting the mobile, recurrent, complex system of conditioned reflexes developed by the body in the process of life. D.S. takes shape under the influence of enduring conditions of life which succeed each other in a definite order (wakefulness succeeds sleep, one action succeeds another, etc.). As a result, a balanced

system of interconnected conditioned reflexes is formed. The stereotyped succession of conditioned reflexes systematises and thus eases the work of the cerebral cortex, ensuring economy in the expenditure of nervous energy and facilitating the formation of new conditioned reflexes on the basis of the already developed D.S. Any sharp change in the way of life and in activities disarranges the established D.S. and adversely affects higher nervous activity, leading frequently to the development of neuroses. Balanced operation of the D.S. is accompanied by positive emotions, such as a sense of satisfaction, joy, vigour, while violation of the D.S. causes reverse emotions of distress, anxiety, despair, etc. From this point of view, success in an undertaking depends to a considerable extent on the organisation, regularity and rhythm of the work.

E

Eclecticism, a systemless confusion of different, very often diametrically opposed points of view, philosophical views, theoretical premises, political assessments, etc. It is exemplified by various attempts to marry materialism to idealism, to combine Marxism and empirio-criticism, dialectical materialism and Kantianism, and so on. E. is also typical of modern revisionism. The chief methodological mistake of E. is its inability to single out the principal connections of an object, or of a phenomenon, with its environment at a given moment, the mechanical combination of different qualities and aspects of objects or phenomena out of the sum total of connections and relations of the objective world. In practice and politics E. leads to errors and miscalculations, because it hinders the search for the main link in the chain of events and the adoption of appropriate measures in deciding the most urgent problems of a concrete historical period.

Economism, an opportunist trend in Russian Social-Democracy at the end of the 19th and beginning of the 20th century. The Economists endeavoured to limit the tasks of the working-class movement to economic struggle (improving conditions of labour, raising wages, etc.). They believed that political struggle should be conducted by the liberal bourgeoisie. They denied the role of the Party of the working class and its revolutionary theory. They preached spontaneity in the labour movement. Being a variety of revisionism, E. served as a vehicle of bourgeois influence upon the proletariat. The dissemination of E. hampered the creation of a centralised proletarian party.

Lenin's newspaper, *Iskra*, was greatly responsible for exposing the unsoundness of E., and Lenin's *What Is to Be Done?* (1902) routed it ideologically.

Economics and Politics (their interaction) P. is the most important component part of the superstructure, the reflection of the economic system dominant in a given society. The interests of this or that class find their concentrated expression in politics. P., being a reflection of E., in its turn exerts great influence upon the latter. P. has precedence over E., because the given class can neither establish nor maintain its economic rule without political power. In the building of socialism a correct policy of the Marxist-Leninist Party is an indispensable condition for success. Given this condition, i.e., the correct policy having been worked out and being implemented, the centre of gravity in the building of the new society is shifted to the organisation of economy, and the problems of account and control and production management come into the foreground. In the rough copy of his article "The Immediate Tasks of the Soviet Power", Lenin wrote: "The task of administering the state which has come to the forefront in the activity of the Soviet power is yet another feature which means that at present and perhaps for the first time in recent history we have such administration in which economics, and not politics, acquires priority." The development of economy in socialist society does not proceed spontaneously as in capitalist society, but in a planned way, based on the conscious application of economic laws. This gives the socialist state new func-

tions, those of economic organisation and cultural development and education. The importance of these functions steadily grows in the course of communist construction.

Economy of Thought, Principle of, a subjective-idealist proposition, according to which the criterion of the truth of any knowledge consists in achieving the maximum knowledge with the minimum means of cognition. The term was introduced by E. Mach (*Das Prinzip herhaltung der Arbeit*, 1872) and by R. Avenarius (*Philosophie als Denken der Welt gemäß dem Prinzip des kleinsten Kraftmaßes*, 1876). It spread among modern philosophers under the names of "principle of simplicity", "principle of economy", and others. Lenin in his *Materialism and Empirio-Criticism* severely criticised P.E.T. as idealistic, because the truth of scientific propositions is not determined by the economy of thought but by the correspondence of concepts with the objective world.

Eddington, Arthur Stanley (1882-1944), British physicist and astrophysicist; science populariser; in philosophy he was a prominent representative of modern "physical" idealism. His main interest was the problem of the structure and movement of stars, the theory of relativity and cosmology (q.v.). E. called his philosophical views, which developed under the influence of Kant, Russell (qq.v.) and logical positivism (q.v.), "selective subjectivism" or "structuralism". He held that the laws and constants of physics could be deduced from a priori epistemological ideas without recourse to experiment. This led him to Pythagorean (see Pythagoreans) numeral mystics.

Effect, see Causality.

Effectivism (or semi-intuitionism), one of the trends in mathematical philosophy that tries to limit modern mathematics to what has received effective mathematical proof. All that which can be understood without any ambiguity by all mathematicians is considered by the effectivists as belonging to mathematics. All the rest they regard as being, for the present, outside mathematics (as distinguished

from intuitionism, q.v., whose exponents completely discard all this material as extraneous to mathematics). The effectivists hold subjective-idealistic views on the subject of mathematics and on the criterion of the truth-value of its concepts, arguments, and theories. The noted French mathematicians E. Borel, H. Lebesgue, and others, shared their views.

Ego (in philosophy), the central notion of idealistic systems declaring the subject to be the primary active and regulating factor. In such systems E. is understood to be an absolutely independent bearer of spiritual abilities. Beginning with Descartes (q.v.), the notion of E. was associated with the problem of the "origin" in the construction of philosophical systems. According to Descartes, E., the intuitive principle of rational thought, belongs to the thinking substance, Hume (q.v.), rejecting any substance, reduced it to a bundle of perceptions. Kant (q.v.) counterposed the pure E. to the individual empirical E., considering it as the transcendental unity of apperception and the vehicle of the categorical imperative (q.v.). Fichte (q.v.) considered E. to be the absolutely creative principle which posits itself and all existence as its "non-E.". Hegel (q.v.), as an objective idealist, refuted all these attempts at taking E. as the beginning and tried to explain E. as a pure unity of objective self-consciousness. The absolutisation of E. finds its expression in the latest subjective-idealist trends (e.g., empirio-criticism, q.v., neo-positivism, q.v., existentialism, q.v.). The extreme form of the subjective-idealistic view of E. is solipcism (q.v.). Freud (see Freudism) biologises man and divides him into "E." and "super-E.". Marxism opposes the materialistic notion of man to the irrationalist explanation of E. Marxism sees the essence of the human E. exclusively in social relations and proves that man (the individual) crowns the development of nature as a whole, precisely because he is the only creator of his social relations, of the entire material and spiritual culture.

Egoism, a mode of behaviour, centring on personal interest, but not on that of others, or of society. E. is intimately connected with individualism (q.v.). The German philosopher Stirner (q.v.), among others, attempted to justify E. scientifically. In socialist society E. is a vice and a survival of capitalism.

Einstein, Albert (1879-1955), German physicist, founder of the theory of relativity and a number of other physical theories, which led to new notions of space, time, motion, substance, light, gravity. In 1905, he formulated the theory of Brownian motion, i.e., the movement of small bodies floating in liquid under the influence of bombardment by molecules. This theory was a convincing proof of the reality of molecules and their movement. In the same year E. arrived at the notion of particles of light, quanta of light or photons. E.'s first work on the special theory of relativity (q.v.) was also published in 1905. In 1916, E. formulated the idea of the general theory of relativity. The fascist terror forced him to quit Germany. He settled in Princeton (USA). In the 30s and 40s, E. tried to create a unified theory of field, explaining the nature of not only gravitational but also of other fields. E.'s philosophical views were very close to those of Spinoza's. Absolute denial of the existence of God, denial of any non-material substance, conviction of the objectivity and knowability of the world and the causal interdependence of all processes of nature—these were the main principles of his world outlook. E. opposed Kant's apriorism and the views of Poincaré (q.v.) and others concerning the "conditionality" of scientific truth. Initially E. sympathised with Mach (q.v.), but later completely rejected Machism, and in 1920, he called Mach a "poor philosopher". Although E. made idealistic mistakes in some problems of cognition, he nevertheless definitely rejected logical positivism (q.v.) and the attempts at a positivist treatment of quantum mechanics. In his socio-political views E. opposed social op-

pression, militarism, and reaction and resolutely denounced the use of atomic energy for war purposes.

Eleatics, exponents of an ancient Greek philosophical school which shaped in the town of Elea (Southern Italy), 6th and 5th centuries B.C. The idealistic trend inherent in the philosophy of E. developed with the school. Its main representatives were Xenophanes, Parmenides, Zeno of Elea (qq.v.), and Melissus of Samos (5th century B.C.). The Eleatic school put forward the teaching on the immutable essence of true being and the illusoriness of all visible changes and differences to counter the spontaneous dialectical views of the Milesian school (q.v.) and Heraclitus (q.v.), on the changeable primary basis of things. This position involved a certain belittling of sensual experience as a basis of knowledge and served later as one of the sources of Plato's (q.v.) idealism. The arguments of the E. against dialectics (particularly the aporia, q.v., of Zeno), notwithstanding their metaphysical conclusions, played a positive role in the subsequent development of dialectics. They posed the problem of expressing in logical concepts the contradictoriness of motion.

Element, a concept denoting primary particles of matter, combinations of which form the diversity of objects of the material world. The concept E. inevitably arises in the process of historical cognition of nature, and it reflects the level of human knowledge on the structure of matter. With the development of science this concept changes and enriches its content. The ancient Greek materialists considered that the single cosmic element was either water (Thales, q.v.) or air (Anaximenes, q.v.), or fire (Heraclitus, q.v.). Democritus (q.v.) and later Epicurus (q.v.) put forward the teaching on atoms as the tiniest indivisible particles of matter. In the development of the science of matter there has always been a contradiction between the desire of natural scientists to find the simplest elements of matter and the absence of such particles in nature because of the infiniteness and inexhaustibility

of matter. The great natural science discoveries at the end of the 19th century undermined the prevalent idea on the existence of primary and structureless particles of matter. Modern physics has shown the intricacy of the structure of electrons, neutrons, and other elementary particles, and thus confirmed the dialectical-materialistic view, according to which there are no absolutely simple and indivisible elements in nature (matter). "The electron is as *inexhaustible* as the atom, nature is infinite...." (Lenin, Vol. 14, p. 262.)

Elementary Particles, the simplest microobjects known at present, which interact as an integral entity in all known processes. The stable E.P. include gravitons (hypothetical quanta of the gravitational field), photons, neutrinos, anti-neutrinos, electrons, positrons, protons, and anti-protons. The mesons of different masses, the neutrons, anti-neutrons, hyperons, anti-hyperons disintegrate into stable particles when they are in a free state. At present over 30 E.P. are known. Almost every particle has its corresponding anti-particle, possessing the same mass, spin and lifetime, but it has an opposite electric charge, magnetic momentum, strangeness, and other qualities. E.P. are not the ultimate "bricks" of the Universe; matter is inexhaustible, all levels of its organisation possess a complicated structure and none of them can be considered as the simplest, indivisible elements of the world. Inexhaustible varieties of qualities and interactions are inherent in E.P. They are inseparable from various material fields which are part and parcel of their structure. Owing to their inseparable connection with the fields E.P. possess at the same time corpuscular and wave properties. The most important characteristics of E.P. are their interconvertibility; the decay of unstable particles, the transformation of particles and anti-particles into photons and other elementary particles. All these prove their extraordinarily complicated structure. The processes of the decay of particles must not be considered as a disintegration of a mechanical system

into its component elements, as if they were included in the system ready-made. They are qualitative transformations of E.P. from one form into another, giving rise to new particles possessing the same degree of complication. Owing to their interactions among themselves and with different fields, E.P. undergo uninterrupted inner transformations and their properties are statistically average in time. Contemporary theoretical and experimental studies in the physics of E.P. have as their object to elucidate their specific structure, to reveal the laws by which the values of their properties, their interactions and types of transformation are explained.

Elida-Eretrean School, one of the Socratic schools which existed during the 4th and 3rd centuries B.C., founded, according to Plato, by Phaedo of Elida, Socrates' favourite. Later the school was transferred by Menedemus (disciple of Stilpo) to Eretrea. No original works of this school are extant. We know about it mostly from the works of Cicero and Diogenes Laertius. The E.E.S. was very close to the Megarian school (q.v.). Followers of the E.E.S. studied mainly ethical problems. Menedemus declared that all the different virtues are one in their foundation and, therefore, can all be reduced to one single good, which is truth, comprehended by reason. Menedemus is also credited with the view that the general properties of things do not exist independently, but only appear in individual concrete things. Other exponents of this school were Anchipil and Asclepiades.

Elimination (Ger. *Aufhebung*), a term widely used in Hegel's philosophy, denoting the simultaneous destruction and preservation of something. Hegel uses the term E. to characterise the movement of the abstract categories in logic. According to the triad (q.v.), the highest category, synthesis, eliminates, i.e., destroys the antithesis in the movement of thought. However, the higher category preserves all the positive content of the preceding categories, but in a transformed state. With Hegel E. is abstract and logical

and serves as a means for building a system of categories. It acts as a formal means of resolving contradictions and in fact reconciling them. In dialectical materialism the term E. is used in describing successive continuity (q.v.) in development and in characterising the relation of a lower phenomenon to a higher one. For instance, mechanical movement is said to be included in the biological form of the motion of matter in an "eliminated" form.

Emergent Evolution, an idealistic theory of development; it spread in modern Anglo-American philosophy, particularly among the representatives of neo-realism (q.v.). Chief exponents of E.E. are: S. Alexander (q.v.), S. Lloyd Morgan, C.D. Broad. E.E. appeared in the 1920s to counter materialistic dialectics. It aims to "explain" development by leaps and bounds, the emergence of the new, etc. The theoreticians of E.E. interpret the processes of change as irrational acts, logically incomprehensible, and finally admit the existence of a deity. This theory leads to a denial of natural and historical laws. For Lloyd Morgan all nature is sublimated: there is no physical without psychical. Samuel Alexander declares that immaterial "space-time" is the prime foundation of nature and that matter is its product. According to him, immaterial "point-moments" serve as the primary elements of nature. Broad openly defends vitalism (q.v.) and transmigration of souls.

Emerson, Ralph Waldo (1803-82), American philosopher, journalist and poet, leader of the transcendentalists (q.v.). Born into a family of a unitarian minister; in 1821, he graduated from Harvard College, prepared to take holy orders, but broke with the church. From 1835, he lived in Concord. His views were contradictory. He was greatly influenced by Plato, Carlyle (qq.v.) and the English Romantic poet W. Wordsworth. According to E., the "eternal problem" of philosophy consists in the relation of spirit and matter. He decides this problem as an objective idealist: "Nature is the symbol of the

soul." (*Works*, Vol. I, 1901, p. 27.) The highest synthetical principle of being is the oversoul. In epistemology, E. is close to intuitionism (q.v.); contemplation, intuition and ecstasy are the best means to penetrate to the essence of things. Beauty is everywhere in the world; its fundamental features are harmony, perfection, and spirituality. "The creation of beauty is an art." (*Ibid.*, p. 26.) Great men play the decisive role in history; they promote social progress, which consists in the moral perfection of the individual. E. remarked that the struggle and antagonism of interests between the rich and the poor on Earth is eternal. His sympathies were for the poor. He severely criticised the bourgeois regime and opposed slavery in the USA and predatory wars. Towards the end of his life E. turned to mysticism. Main works: *Nature* (1835), *Essays* (1841, 1844), *Representative Men* (1850).

Emotions, man's feelings, expressing his attitude towards the surrounding world (towards people, their actions, phenomena) and towards himself. Brief feelings (joy, sorrow, etc.) are at times called E. in the narrow sense of the word as distinct from stable and lasting feelings of love, hatred, etc. E. are a specific form of reflection of reality; they mirror the relations of people to one another and also to the objective world. Man's E. are shaped by society and play a tremendous part in his behaviour and his practical and cognitive activity. Without human emotions, Lenin said, there has never been, cannot be, and will not be any human search for truth. E. are indications of the success or failure of man's activity, the conformity or non-conformity of objects or phenomena to his needs and interests (q.v.). Hence E. have an essential role in regulating the activity of people. E. can be active (sthenic), with a positive emotional tone—satisfaction (joy, etc.) or passive (asthenic), with a negative emotional tone—dissatisfaction (sorrow, etc.). Sthenic E. stimulate man's vital activity, asthenic E. reduce it. E. are divided

introspecific types: mood, affection (q.v.), and passion. A mood is an emotional state (joyous, depressive, etc.) which lasts longer than an affect and imparts a definite emotional tone and colouring to all feelings and also to man's thoughts and actions. Passion is a strong and long-lasting E. A special group of E. consists of elevated feelings: moral (feeling of collectivism, sense of duty, sense of honour), aesthetic (feeling for the beautiful), and intellectual (E. associated with the satisfaction of cognitive interests or with the solution of intellectual problems).

Emotivism, a subjective theory of morality, in which the influence of logical positivism (q.v.) in ethics is most pronounced. The main exponents of E. are Ayer, Carnap, Reichenbach (qq.v.), and Charles Stevenson. Studying moral judgements containing mere appreciations and demands, the emotivists conclude that these judgements "describe" nothing in reality, that they are but an expression of the speaker's moral emotions, of his approval or disapproval of a given act. The emotivists hold that moral judgements can neither be substantiated nor proved, that they are "arbitrary". They consider everybody to be free to choose any point of view in morals. Moreover, they declare that contradictory moral estimates do not logically contradict each other, because it is impossible to refute estimates which seem to be incorrect. E. is an extreme nihilistic and sceptical theory of morality. It justifies arbitrariness in behaviour and in moral convictions.

Empedocles of Agrigento (c. 483-423 B.C.), Greek materialist philosopher from Sicily, ideologist of slave-holding democracy. In his philosophical poem *On Nature* he reduced the whole diversity of things to four elements: earth, water, air, and fire. This doctrine of the four elements of nature was retained for many years in ancient and medieval philosophy. The union and division of the elements were explained by the action of two opposing forces: attraction and repulsion ("amity and enmity"). E.A. explains the

different stages of the development of the Universe by the prevalence of one or the other of these forces. E.'s assumption that the law-governed evolution of living beings is brought about by natural selection of the more viable combinations had great historic significance.

Empiricism, a teaching on the theory of knowledge which holds that sensory experience (q.v.) is the only source of knowledge and affirms that all knowledge is founded on experience and is obtained through experience. Idealistic E. (Berkeley, Hume, Mach, Avenarius, Bogdanov, qq.v., modern logical empiricism, q.v. etc.), limits experience to the sum total of sensations or notions, denying that experience is based on the objective world. Materialistic E. (Francis Bacon, Hobbes, Locke, qq.v., the 18th century French materialists) holds that the objectively existing outer world is the origin of sensory experience. However, the basic antithesis between E. and rationalism does not follow from the origin or source of knowledge: some rationalists agree that nothing exists in reason which has been lacking previously in the senses. The main point of disagreement is that E. deduces the general and necessary character of knowledge not from reason, but from experience. Under the influence of rationalism, some empiricists (like Hobbes and Hume) arrived at the conclusion that experience cannot impart to knowledge any necessary and general meaning. E.'s shortcomings are: metaphysical exaggeration of the role of experience, underestimation of the role of scientific abstractions and theories in knowledge, and denial of the active role and relative independence of thought. Marxist philosophy overcame these shortcomings by studying all problems of the theory of knowledge from the standpoint of the dialectics of practice (see Knowledge; Theory and Practice; Contemplation).

Empirio-Criticism ("criticism of experience"), or Machism, a subjective-idealistic trend, founded by Avenarius and Mach (qq.v.). Considering "economy of thought" (see Economy of

Thought, Principle of) as the basic law of knowledge, E.C. "purifies" the understanding of experience from the concepts of matter (substance), necessity, causality, etc., as "a priori apperceptions" (rational concepts) which, according to E.C. are wrongly introduced into experience. As a result, E.C. advances the concept of the world as the sum total of "neutral elements", or sensations. By introducing the doctrine of the "principal co-ordination" (q.v.), i.e., the inseverable connection between subject and object, E.C. was transformed into a system of subjective idealism. E.C. is a revival of the doctrines of Berkeley and Hume, disguised by the demand for neutrality in philosophy. E.C. was also connected with the crisis in physics, with the school of "physical" idealism. Criticising E.C. in his *Materialism and Empirio-Criticism* (q.v.), Lenin showed the connection of this philosophical trend with fideism (q.v.). E.C. appears as a variety of positivism, q.v. ("second positivism"). Proponents of E.C., besides Avenarius and Mach, were V. Petzoldt, F. Carstanjen, R. Willy, F. Adler, A. Bogdanov (q.v.), V. Bazarov, etc. The "anti-metaphysical" doctrine of E.C. was continued by neopositivism (q.v.).

Empirio-Monism, the name given by Bogdanov (q.v.) to his philosophy, which was a variety of empirio-criticism (q.v.), or Machism. E.M. is built upon Mach's subjective-idealistic views on the neutrality of the elements of experience (i.e., sensations) in regard to the physical and the psychical. In Bogdanov's view, the philosophy of Avenarius and Mach is dualistic (see Dualism), because it admits that the psychical and physical elements of experience are independent of each other, and experience must be interpreted monistically. This explains the name of his theory, "empirio-monism". To E.M. everything is organised experience (understood as "neutral" sensory data, i.e., idealistically). The physical world is experience organised socially and collectively, and the psychical world is experience organised individually. From these definitions

follows the solution of other problems: objectivity, according to E.M., is identified with general meaning; causality, space and time express the social organisation of experience; truth (in the understanding of which Bogdanov leaned to relativism, q.v.) is the "living, organising form of experience"; man is a complex of direct experiences, etc. Analysing psyche from the standpoint of energism (q.v.), E.M. attributed essential significance to psychic selection (biological adaptation of the organism to its surroundings) and the method of substitution. The latter means that it is always possible to substitute a psychical fact for an unknown physical or physiological one, or vice versa, i.e., to reduce the material to the ideal. E.M. puts the sign of equality between social being and social consciousness and defends idealism in history. E.M. was criticised by Lenin in *Materialism and Empirio-Criticism*, and by Plekhanov.

Empirio-Symbolism, a term used by the idealist Yushkevich (q.v.) to denote his variety of empirio-criticism (q.v.). The main idea in E.S. is that concepts (truth, being, essence, etc.) are only symbols, they do not reflect anything real. This idea was taken from Poincaré (q.v.) and Mach (q.v.), who considered, for example, that matter is only a logical symbol. In his article, "Contemporary Energism", published in the Machist collection *Ocherki po filosofii marksizma (Essays on the Philosophy of Marxism)*, 1908, and in the book *Materialism i kritichesky realism (Materialism and Critical Realism)*, 1908, Yushkevich tried to prove that the world is but an aggregate of empirio-symbols (i.e., symbols of experience), the purpose of which is to systematise the data of collective human consciousness. In *Materialism and Empirio-Criticism*, Lenin showed that E.S. is subjective idealism, in which the outside world and its laws are regarded only as symbols of man's capacity for knowledge.

Encyclopaedists, compilers and authors of the *Encyclopédie, ou Dictionnaire Raisonné des Sciences, des Arts et des Métiers* (1751-80). This work played

a great role in the ideological preparation of the French bourgeois revolution. It gave a systematic summary of the scientific knowledge of the time. Up to 1772, Diderot (q.v.), assisted by D'Alambert (q.v.), was at the head of the *Encyclopédie*. Other E. were Montesquieu, Rousseau, Voltaire, Helvétius, Holbach (qq.v.). The materialists of the *Encyclopédie* were the most consistent fighters against feudal ideology; the moderate members of E. came out against non-interference of the Church in science, declaring themselves to be the defenders of social progress, criticised despotism and advocated emancipation of man from class oppression.

Energism, a philosophical conception which appeared at the end of the 19th century among some natural scientists. The followers of E. explain all phenomena of nature by changes in energy which is devoid of materiality. W. Ostwald, Mach, and other followers of E. developed the energetical interpretation of natural science, denied the scientific value of the atomistic theory. Later, influenced by the success of the atomistic theory of the 20th century, they had to recognise the existence of the atoms. The ideas of atomism penetrated even the physical doctrine of energy. It was discovered that energy could be converted into small portions—quanta. The ideas of E., however, reappeared but in a less systematic form in connection with the new data provided by nuclear physics and the physics of elementary particles. In particular, the discoveries of the mass defect, and of the possibility of transforming pairs of particles into a field, and vice versa, were interpreted as mere transformations of matter into energy and vice versa. These "energetical" arguments were supported by references to the law of the interconnection of mass and energy ($E=mc^2$), which was explained as a theoretical foundation of this possibility. The epistemological roots of E. are found, on the one hand, in the successes achieved by the energetical method in natural science and, on the other, in the difficulties facing

the contemporary theory on the structure of matter. E., as a philosophical trend, revives whenever science is confronted with the task of penetrating deeper into the structural level of matter. Ostwald's E. reflected the vacillations of scientific thought in the search for the then unknown ways of cognising the atomic structure of matter. Contemporary E. is beset by the difficulties which physics encounters in cognising the structure of the elementary particles.

Energy, the common measure of the various forms of the motion of matter. Qualitatively different forms of the physical motion of matter have the property of being convertible into each other, this process of conversion being controlled by strictly defined quantitative equivalents. This makes it possible to establish the common measure of motion—E. as such. In the system of physical theory E. is expressed in various forms: mechanical, thermal, electromagnetic, nuclear, gravitational, etc. Each form of E. determines the essential characteristics of a given physical form of motion in terms of its convertibility into any other form of motion, the quantity of motion remaining invariable.

Engels, Frederick (1820-95), leader of the proletariat, who, together with Marx, created the Marxist doctrine, the theory of scientific communism, the theory of dialectical and historical materialism. He was born in the town of Barmen (Germany). From his youth E. strove to take part in the struggle for transforming the existing social relations. From the autumn of 1841, E. did his military service in Berlin, attending the lectures at the university in his free time. Then he joined the Left wing of the Young Hegelians. It was at this time that E. wrote his brilliant and profound criticism of Schelling's reactionary-mystical views (*Schelling und die Offenbarung*, 1842, and others). At the same time he criticised Hegel for his conservative conclusions and the contradictions in his idealistic dialectics. In England, where he went in deference to his father's wish to study commerce, Engels' views

took a radical turn. There, in the then most developed capitalist country, he came in contact with the life of the working class. This made him think deeply on the causes of the unbearable economic conditions of the proletarians, and their deprivation of political rights. He began to study the shortcomings which the Chartist movement revealed in its ideology and its utopian ideas about the capitalists voluntarily abdicating their power. The result of this study were his works: *A Contribution to the Critique of Political Economy* (1844), which Marx called a brilliant contribution to the critique of economic categories and *The Condition of the Working Class in England* (1845). In these works E. demonstrated the great future of the proletariat and the historic mission it would fulfil. He was the first to show that the proletariat was not only a suffering class but also a class struggling for its emancipation. In England he became a socialist. Soon he left England, and in 1844, he met Marx in Paris. This meeting marked the beginning of their deep friendship, which was based on their common ideas and joint struggle for the emancipation of the proletariat from capitalist enslavement. During the years 1844-46 they jointly wrote *The Holy Family* (q.v.) and *The German Ideology* (q.v.). The aim of these works was a new critical approach to the then dominant philosophical views of Hegel, Feuerbach, and their followers. Marx and Engels elaborated the foundations of dialectical and historical materialism. At the same time they worked intensely for the practical organisation of the Communist League which later developed into a revolutionary party of the proletariat. In 1847, E. wrote the draft programme of this League—*Principles of Communism*. On the basis of this they wrote the *Manifesto of the Communist Party* (1848), proclaiming the birth of the integrate teaching of Marxism, the scientific ideology of the working class. The journalistic activity of E. played an important role in disseminating the theory of the proletarian struggle and consolidating the democratic forces. E. got his baptism

of fire fighting on the side of the revolutionary forces in Germany during the events of 1848-49. After the defeat of the revolution he left Germany. The following years, living in emigration, he generalised the experiences of the German revolution in the works *Peasant War in Germany* and *Revolution and Counter-Revolution in Germany*. These works disclosed the role of the peasantry as the proletariat's ally and exposed the treachery of the bourgeoisie. Having moved to England, where Marx had also settled, E. actively joined the workers' movement in the creation of the First International and the struggle against petty-bourgeois opportunistic and anarchistic views. For the next forty years E. helped Marx in every way with the latter's work on *Capital*. E. himself edited the second and the third volumes, after the death of his friend. For this editing work he did a great deal of research. While Marx was completely occupied with his work on *Capital* E. continued to work hard on the development of dialectical and historical materialism. Such works of E. as *Ludwig Feuerbach and the End of Classical German Philosophy* (q.v.), *Anti-Dühring* (q.v.), *The Origin of the Family, Private Property and the State* (q.v.), etc., are a classical presentation of the essence and significance of Marxist philosophy. E. rendered particularly great service in applying the ideas of dialectical materialism to natural science (see *Dialectics of Nature*, *Ludwig Feuerbach*, *Anti-Dühring*). E. foresighted the many scientific discoveries of the 20th century (for instance, the notion of the indivisibility of matter and motion, and the consequent teaching on the unity of time and space; the inexhaustibility of the forms of matter and the complex structure of atoms; criticism of the theory of "thermal death" of the Universe; of life as a form of the motion of matter arising at a given stage of development of inorganic nature; etc.). E.'s versatility enabled him to work out a harmonious system for classifying the sciences, basing the distinctions between disciplines on the objective

forms of motion of matter. Proceeding from this, E. categorically refused to impose upon philosophy the inappropriate role of science of sciences and emphasised its methodological value. E. provided philosophy with a means of orientation among the innumerable schools and systems of the past, formulated the fundamental problem of philosophy, and disclosed its class character. His contribution to the development of the theory of knowledge and his criticism of agnosticism are of great importance. He raised and elaborated a number of problems of dialectical logic. In substantiating the fundamental problems of historical materialism he devoted much attention to the criticism of vulgar conceptions of the materialistic understanding of history. E. proved that the decisive role of the economic conditions in which people live does not in any way detract from the role of ideas or the role of the individual in history. He fought against the mechanistic views of the connections and interrelation between the basis and the ideological superstructure, etc. E. took a great interest in the revolutionary movement in Russia, foretelling the imminent Russian revolution and placing great hopes in it. To the very end of his life he participated in the political life of Europe and, together with Marx, was a recognised leader of the working-class movement.

Enlightenment, a socio-political trend, the representatives of which tried to correct the shortcomings of the existing society, to change its morals and manners, politics and mode of life by spreading the ideas of goodness, justice, and scientific knowledge. At the base of E. lay the idealistic assumption that consciousness plays the decisive role in the development of society, the desire to account for social vices by men's ignorance and lack of understanding of their own nature. The Enlighteners did not take into account the decisive significance of the economic conditions of development and hence could not reveal the objective laws of society. The Enlighteners addressed their preachings to all classes

and strata of society, but mainly to those in power. E. was widespread in the period of the preparation of bourgeois revolutions. Among the Enlighteners were Voltaire, Rousseau, Montesquieu, Herder, Lessing, Schiller, Goethe, Desnitsky, Kozelsky (qq. v.), and many others. Their activities considerably helped to undermine the influence of the clerical and feudal ideology. The Enlighteners struggled resolutely not only against the church, but also against religious dogmatics, against the scholastic methods of thinking. E. exerted considerable influence upon the formation of the sociological outlook of the 18th century. The ideas of E. influenced the utopian socialists, Russian Narodniks. At the present time E. is not an influential trend of social thought; its ideas, however, are still current among the non-Marxist intelligentsia.

Entelechy, in Aristotle's (q.v.) philosophy and scholasticism (q.v.) a realised aim (see Teleology) or the active principle of converting possibility into actuality. The idealistic explanation of biological phenomena rests on the notion of E. (see Driesch; Vitalism).

Enthymeme, in traditional formal logic, a deductive conclusion (syllogisms, conditional and disjunctive conclusions), in which one of the parts, either a premiss or the conclusion, is not explicitly stated. For example, in the E. "all Marxists are materialists, therefore this man is also a materialist", the minor premiss of the syllogism ("this man is a Marxist") is left out.

Entropy, one of the main notions of classical physics, introduced into science by R. Clausius. According to the macroscopic point of view, E. expresses the convertibility of energy: the greater the E. of a system the less its energy is able to convert. It is the notion of E. that allows us to formulate one of the fundamental laws of physics, the law of the increase of E., or the second principle of thermodynamics (q.v.), which determines the direction of the conversion of energy. E. cannot decrease in a closed system. The achievement of maximum E. is marked by a state of balance, in which

no further conversion of energy is possible—all the energy has been transformed into heat and a state of thermal balance has set in. The authors of the second principle, R. Clausius and W. Thomson, applied it to the Universe as a whole and arrived at the erroneous conclusion that “thermal death” of the Universe (q.v.) is inevitable. Subsequent development in physics deepened the content of E. and disclosed its statistical nature. In terms of statistical physics, E. expresses the probability of a state of a system and the growth of E. implies the transition of a system from less probable states to more probable ones. The growth of E. is not absolute, it only expresses the most probable development of processes. For macroscopic systems consisting of a great number of particles, the growth of E. is indispensable; but for microscopic processes (e.g., for the Brownian movement), the second principle is no longer valid. The statistical explanation of E. limits the sphere of the second principle to macroscopic processes, showing that it is inapplicable not only to systems with a small number of particles (microsystems), but also to systems with an infinitely large number of particles (the Universe as a whole). For such systems the concept of the most probable state loses its meaning (in infinitely large systems all states are equally probable), and therefore the law of the transition of a system from a less probable state to a more probable one loses its meaning. Modern science shows the complete groundlessness of the conclusions on the allegedly inevitable thermal balance and “thermal death” of the Universe.

Epicheirema, a syllogistic conclusion whose premisses are enthymemes (q.v.). E. is a variety of the complex abbreviated syllogism. E. may be exemplified by the following reasoning: P is inherent in all M, because N is inherent in all M (it is implied that P is inherent in all N). M is inherent in some S, because R is inherent in some S (it is implied that M is inherent in all R). Consequently, P is inherent in some S.

Epictetus (c. 50-138 A.D.), an exponent of Roman stoicism (q.v.). His teaching was written down by Arrian Flavius, his learned disciple. The *Discourses of Epictetus* and other works have come down to us. E.'s teaching is divided into physics, logic, and ethics. The whole pathos of his teaching lies in his ethics, particularly his preaching of inner freedom. He argues that the master can be a slave to his passion, and the slave is free in his inner spiritual independence; this freedom, however, cannot be obtained by changing the world. Not things themselves but the notions a man has of them make him happy; the good and the bad are not inherent in things, but lie in our attitudes toward them. That is why to be happy is a matter of will. The philosophy of E. expressed the passive protest of the oppressed against the system of slavery. This philosophy influenced Christianity (q.v.). In Russia it was preached by the Tolstoians.

Epicurus (341-270 B.C.), Greek materialist philosopher and atheist of the Hellenic period. E. denied the interference of the gods in the affairs of the world and proceeded from recognition of the eternity of matter, which possesses an inner source of motion. E. revived the atomism of Leucippus (q.v.) and Democritus (q.v.), adding his own changes. He introduced the idea of spontaneous (internally conditioned) “deviation” of atoms from their course to explain the possibility of collisions between atoms moving in empty space with equal speed. This is the basis of a deeper view of the interrelation of necessity and chance, a step forward, compared with Democritus' mechanistic determinism. In the theory of knowledge E. is a sensualist. Sensations are true by themselves, because they proceed from objective reality; mistakes arise from the interpretation of sensations. The origin of sensations is explained by E. in a naively materialistic manner: a continuous flow of minute particles is emitted from the surface of bodies to penetrate the sense-organs and produce images of things. The object of knowledge

is to free man from ignorance and superstitions, from the fear of gods and death, without which happiness is impossible. In ethics E. justifies joys of the mind based on the individualistic ideal of evading suffering and attaining a quiet and joyful state of the soul. The most rational state for man is not activity but complete peace, ataraxia (q.v.). The materialistic doctrine of E. was distorted in idealistic philosophy (e.g., by Hegel).

Epigenesis, a conception of embryonic development of organisms. In contradistinction to preformation (q.v.), E. considers the development of the organism to be only a new formation, absolutely excluding any kind of preformation, i.e., the possibility of a mature organism's development being predetermined in the embryo.

Epiphenomenon, a term used to describe consciousness as a passive reflection of the material (or ideal) contents of the world. It is used by the exponents of natural-scientific materialism (A. Huxley, F. Le Dantec) and by some idealist philosophers (E. Hartmann, F. Nietzsche, G. Santayana).

Epistemological and Class Roots of Idealism, the causes and conditions explaining the origin and existence of idealist philosophy. Metaphysical one-sidedness and subjective bias in explaining human cognition are the epistemological (theoretico-cognitive) roots of idealism. Idealism derives from living human knowledge owing to the complex and controversial nature of the latter. In the process of cognition there is always the possibility that man's sensations and concepts may become dissociated from real things and that fantasy may transcend objective reality. This possibility becomes reality whenever one of the minor features, aspects or facets of cognition is deified or inflated to the proportions of an absolute divorced from matter and from nature. "Rectilinearity and one-sidedness, woodenness and petrification, subjectivism and subjective blindness—voilà the epistemological roots of idealism." (Lenin, Vol. 38, p. 363.) Objective idealism exaggerates, and makes an absolute of, the role

of concepts and abstract reasoning, while subjective idealism exaggerates the role of perceptions and sensations, counterposing them to the objective world. The class roots of idealism lie in the division of society into antagonistic classes, the domination of the exploiting classes and the isolation and counterposition of mental and physical labour. This gives rise to the rift between knowledge and the practical activity of the working people, and to monopolisation of ideological activity by the ruling classes, leading to the appearance and spread of illusions about the absolute independence and special creative role of the intellectual, ideal side of human activity. All this lies behind the incorrect notion that ideas and concepts are primary, and also behind the idealist approach to matter, nature and being. The theoretico-cognitive roots of idealism are closely associated with its class roots, which not only give birth to the idealist world outlook, but also assert it in the interests of the exploiting classes.

Epistemology, a term used in English, American and, more rarely, in French and in some trends of German bourgeois philosophy. The introduction of this term is attributed to the Scottish philosopher J. F. Ferrier (*Institutes of Metaphysics*, 1854), who divided philosophy into ontology (q.v.) and E. E. is the theory of knowledge, an important province of philosophical theory, the doctrine on man's ability to cognise reality, on the sources, forms and methods of cognition, the truth and the ways of attaining it. The approach to the fundamental question of philosophy (q.v.) is the point of departure in E. Materialist E. recognises that the world is objective and cognisable. However, pre-Marxist materialism was contemplative; it did not grasp the decisive role played by the socio-productive activities of people in the development of cognition and regarded cognition from a metaphysical standpoint. Idealist E. asserts that cognition is a reflection of a mystical idea (see Idealism, Objective) or that the world is created in the process

of perception, because things are "complexes of sensations" (see Idealism, Subjective), or else it denies altogether that the world is cognisable (see Agnosticism). Marxist philosophy has produced a genuinely scientific E. Materialist dialectics, which goes to the root of the most general laws governing the development of nature, society and thought, offers the only scientific theory of knowledge. It "includes what is now called the theory of knowledge, or epistemology, which, too, must regard its subject-matter historically, studying and generalising the origin and development of knowledge, the transition from non-knowledge to knowledge". (Lenin, Vol. 21, p. 54.) (Also see Cognition; Theory and Practice; Reflection, Theory of.)

Episylogism, see Polysylogism.

Equality 1. A concept denoting the identical condition of people in society, but having different contents in different historical epochs and among different classes. In bourgeois understanding E. means the equality of the citizens before the law, while the exploitation and political inequality of the working people remain intact. Petty-bourgeois theories of E. proceed from the right of every man to own private property, though on more or less equalitarian principles. In either case, the main thing—relation to the means of production—is not taken into account. Marxism proceeds from the fact that economic (in the sphere of production, distribution, and consumption of material wealth), political (in the sphere of class, national and interstate relations) and cultural (in the sphere of production and distribution of spiritual values) E. is impossible without abolition of private ownership of the means of production and liquidation of exploiting classes. Hence, real E. appears only as a result of the victory of socialism. In view of the fact that the socialist system retains some elements of social inequality owing to the surviving distinctions between mental and physical labour, the principle of distribution according to the quantity and quality of the work done, etc., complete E., complete social homogeneity is created only under

communism. The Programme of the Communist Party of the Soviet Union points out the concrete ways of achieving such E. However communism does not signify any equalisation of all men, but, on the contrary, opens up unlimited possibilities for every man freely to develop his capabilities and needs, according to his individual qualities and tastes. 2. In logic E. coincides with identity (q.v.). Any E. possesses the properties of symmetrical, transitive, and reflective relation. From these properties of E. follows, in particular, the well-known axiom: two quantities, each equal to a third quantity, are equal to each other.

Equilibrium, Theory of, a vulgar mechanistic and anti-dialectical theory which holds that equilibrium is a natural and "normal" condition, while movement, development is a temporary, transient condition. This theory sees the source of movement in external contradictions, denying the existence of inner contradictions in general and in particular their being the source of development. T. E. proceeds from the fact that the development of society depends chiefly on its relation with the surroundings, with nature; that society's external contradictions with nature, not the class struggle, are the motive force of development of an antagonistic society. T.E. was propounded by Comte, Kautsky, Bogdanov, Bukharin, and others. Now it is shared by many idealists, Right-wing Socialists, and revisionists. On the strength of T. E. the ideologists of opportunism build their anti-Marxist dogmas concerning the "peaceful growth" of capitalism into socialism, the "harmony" of class interests, ultra-imperialism, etc. The CPSU severely criticised this theory in the period of building socialism in the Soviet Union, when it was used as a philosophical justification of the practice of Right opportunism. Defenders of capitalism make use of the false assertions of T.E. that opposites (for instance, classes) must mutually neutralise and balance each other, that this is the only way of making society stable. In reality, however, the opposites are in a

state of conflict, and this conflict inevitably leads to the removal of the antithesis, to the resolution of concrete contradictions in society and to the transformation of society (see Revolution, Socialist).

Equivalence (identical value), in logic, a relation between two propositions wherein these propositions are either both true or both false. The symbolic notation is shown by the signs $\Leftrightarrow \equiv \sim$. For example, the propositions "the number is divisible by 6" (A) and "the number is divisible by 2 and by 3" (B) are equivalent ($A \equiv B$). This can also be expressed by "a number is divisible by 6 if and only if it is divisible by 2 and by 3". The negation of equivalence is synonymous of exclusive disjunction (q.v.).

Erigena, Johannes Scotus (815-877), philosopher of Irish birth and of early education; lived in France. On the basis of Neo-Platonism (q.v.), E. created his mystic doctrine, the essence of which is expounded in his work *De Divisione naturae*. E. divides being into four natures: (1) a non-created but creating, God being the source of all things; it is shapeless and inexpressible and can be known only through the existence of things; (2) created and creating—divine ideas, existing as the primary cause; the ideal world was created by God, out of himself, and exists eternally; (3) created but not creating—the world perceptible by the senses, manifesting a single ideal world in the multiplicity of different things; (4) uncreated and uncreating—God, perceived as the ultimate end of all things. E. associated the creation of things with original sin, when man fell away from God. After a while, however, came the redemption and all things returned to God. In its essence E.'s system was pantheistic and was condemned by the Catholic Church.

Eschatology, a religious doctrine on the ultimate fate of the world, mankind, the end of the world, and doomsday. It is based on the ancient notions of occult, active powers in nature, of the struggle between good and evil, of the punishment of sinners and the reward of the righteous after death. The

E. ideas are found in their developed form in Christianity (Apocalypse) and in Judaism. Since class conflicts gave rise to eschatologic moods, the latter spread widely during social and political crises, as in Judea in the 1st century A.D., in Germany in the 15th and 16th centuries, in England in the 16th and 17th centuries, in Russia at the end of the 17th and beginning of the 18th centuries. Even at present churchmen make use of E. Contemporary theologians avail themselves of the data of the natural sciences interpreted idealistically to strengthen the position of E.

Esoteric and Exoteric (Gk. inner and external) The term "esoteric" is used to qualify an idea or a theory meant only for the initiates, comprehensible only by experts. The term "exoteric" is used in the meaning of "popular", "understandable even to non-experts". These terms are used also to designate inner essential (esoteric) and outward (exoteric) connections of phenomena.

Essence, the meaning of a given thing, that which is in itself, in contradistinction from all other things and in contrast to the mutable states of a thing under the influence of various circumstances. The concept of E. is of great importance for any philosophical system, and for drawing a distinction between systems from the standpoint of how they view the E. and being relationship and the connection between E. and consciousness and thought. Objective idealism takes being, reality, and existence as dependent on the E. of things, which is regarded as something independent, immutable, and absolute. In that case, the E. of things constitutes a specific ideal reality which produces all things and guides them (Plato, Hegel). Subjective idealists take E. to be the product of the subject, who projects E. beyond himself and conceives it in the form of things. The only correct view is in recognising the reality of the objective E. of things and its reflection in the mind. E. does not exist outside of things, but in and through them, as their common chief property, as their law. Human knowledge gradually

delves deeper and deeper into the E. of the objective world. This knowledge is used for reciprocal action on the objective world for the purpose of its practical transformation (see Reality, Actuality, Essence and Appearance).

Essence and Appearance, philosophical categories reflecting aspects necessarily inherent in each object of reality. E. is the aggregate of the deepest, most stable properties and relationships of an object which determine its origin, character and trends in development. A. is the aggregate of the diverse external, mobile properties and relationships of an object which are immediately revealed to the senses. A. is the mode in which the E. reveals itself. The idealists take a distorted view of these categories, taking either E. to be ideal (the "ideas" of Plato, Hegel's "absolute idea") or A. to be subjective and E., objective and uncognisable (Kant, agnosticism, qq.v.); or declaring as subjective the very act of distinguishing E. & A. in an object (Dewey, q.v., Lewis); or, finally, denying E. altogether and identifying A. with sensation (Mach, phenomenalism, qq.v.). E. & A. are a unity: just as there can be no "pure" unmanifested Ee., so there can be no Aa. divested of E.; "the essence appears. The appearance is essential". (Lenin, Vol. 38, p. 253.) The unity of E. & A. is also evident in the fact that they pass into each other. That which at one time (or in one respect) is E., may at another time (or in another respect) become A., and vice versa. But the unity of E. and A. is internally contradictory, and the two are sides of the contradiction. E. is the determining element, and A. the determinant; A. is given immediately, whereas E. is concealed, A. has more aspects than E., but E. is deeper than A. The E. of an object is always one, but is manifested in a variety of Aa.; A. is more mobile than E., so that one and the same A. may be a manifestation of different and even opposite Ee.; A. may express E. in a distorted and inadequate manner (see Semblance). But there is a contradiction not only between E. and A. but in the essence itself, and these contradictions are the principal ones in the

object and determine its development as a whole. In contrast to metaphysics, dialectical materialism recognises that E. is mutable. The E.-A. contradiction determines the complex, contradictory nature of the process of cognition, for "all science would be superfluous if the outward appearance and the essence of things directly coincided". (Karl Marx, *Capital*, Vol. III, p. 797.) The aim of cognition is infinite penetration from A. to E., discovery of the E. of things beneath their A. and proof of why E. is manifested in one way and not in another. Immediate contemplation gives man a knowledge of what lies on the surface, Aa. A knowledge of E. is attained by means of abstract thought. In science, the transition from the cognition of A. to that of E. assumes the specific form of transition from experiment (observation) through description (q.v.) to explanation (q.v.).

Essential and Inessential Properties, the properties of things or phenomena distinguished according to the part they play in these things and phenomena. No thing can exist without its E.P., but it can exist without some I.P. The E.P. are determined by the essence of the object. In philosophy, E.P. were known as attributes (q.v.), and I.P., as accidents (q.v.). Drawing a distinction between properties is important for a characteristic of the knowledge of things as a definite evaluation flowing from the objective existence of objects. By contrast, subjective idealism explains the distinction between the E.P. and the I.P. from the standpoint of the subject, and fails to find any such distinction in nature itself. The difficulty of making a distinction between the two lies in the fact that in the initial stages of cognition both are brought out by means of the same logical method, namely, comparison. The actual distinction is arrived at later by tracing the properties to the essence, and when the essential reveals itself as the universal. Human practice, in which a thing appears in its E.P., is a decisive condition for drawing the distinction.

Eternal Truth, a term denoting the irrefutability of certain truths through-

out the development of knowledge. It may be regarded as analogous to absolute truth. In the process of cognition, however, man is mainly concerned with relative truths, which contain only a grain of absolute truth. Metaphysics and dogmatism, which consider truth without relation to conditions, place a vastly exaggerated importance on the absolute factor in truth, thus providing an epistemological justification for elevating all truths to the rank of the eternal and irrefutable. Such was the view held by Dühring (q.v.) and it was effectively criticised by Engels in his *Anti-Dühring* (q.v.). Religion, as a form of extreme dogmatism, regards all its postulates as irrefutable and eternal truths.

Eternity, infinite duration of the existence of the world resulting from the uncreatability and indestructibility of matter. Eternity is inherent only in nature as a whole. Every specific form of matter is transient in time. E. should not be taken to imply the unchanging infinite existence of matter in one and the same state but presupposes incessant qualitative transformations.

Ether, a hypothetical material medium, filling up the space. The concept of E. already existed with the ancients who considered it as some "prime matter" and identified it with space. In classical physics E. was understood to be a homogeneous, mechanical elastic medium which fills Newton's absolute space. This metaphysical concept did not stand experimental verification and was discarded in the theory of relativity (q.v.). The concept of E. has been replaced in modern physics by the concept of a material field, irreducible to a mechanical medium. The field theory has retained the rational kernel of the hypothesis of E., i.e., the idea that an absolute vacuum is impossible and that space and matter are inseparable.

Ethical Relativism, the view that the standards of morality are mere conventions, that it is not obligatory to conform to the general principles of behaviour, that it is impossible to provide a correct moral explanation of

an action. E.R. is a product of the metaphysical over-estimation of the relativity of moral standards, which are supposed to lack any element of absoluteness. Relativism leads to the negation of the possibility of creating scientific ethics. Among the ancients, E.R. was prominent in the doctrine of the sceptics (Pyrrho, q.v., and others). It is also inherent in certain modern trends in philosophy: neo-positivism, existentialism, and pragmatism (qq.v.). Ayer and Carnap (qq.v.) considered it impossible even to raise the question of the correctness or incorrectness of a moral judgement. E.R. logically results in justifying amorality.

Ethical Socialism, a Neo-Kantian interpretation of socialism on the basis of Kant's ethics. The theorists of E.S. (Cohen, q.v.; P. Natorp, R. Stammler, K. Vorländer, and others) rejected the philosophy of Marxism—dialectical materialism and tried to combine scientific socialism with the Kantian moral philosophy. They regarded ethics as a science whose object is to remove contradictions in social relations. For them, it was Kant who founded this science. They claimed that he was the first to formulate, in the categorical imperative, q.v. (act so that mankind, either in your place or in the place of anybody else, be always regarded as a goal and never as one of the means only), the basic idea of socialism, the idea of solidarity. The substantiation of the doctrine of socialist transformation of society through the "extra-class" Kantian theory of morality meant that this doctrine was a purely moral concept. The cardinal problems of Marxism (classes and class struggle, social revolution, the dictatorship of the proletariat, etc.) were discarded, and moral relations and the idea of man's gradual moral perfection were given first consideration. In practice, the propositions of E.S. were given a concrete form in Bernstein's (q.v.) formula: "movement is everything; the final goal—nothing", which meant renunciation of the fight for socialism. E.S. was propagated by M. Adler (Austria), by M. Tugan-Baranovsky (Russia), and

others. A detailed exposition of E.S. is given in Vorländer's books, *Kant und der Sozialismus* (1900) and *Kant und Marx* (1911).

Ethics, the science of morals (q.v.). E. includes normative E. and the theory of morals. The first studies the questions of benefit (q.v.), good (q.v.), evil (q.v.), etc., elaborating a moral code of behaviour, showing what is worth striving for, what behaviour is good, what gives meaning to life. The theory of morals deals with the essence of morality, its origin and development, the laws which determine moral standards and their historical character. Normative E. and the theory of morals are inseparable. Recent times have seen the development of metaethics (q.v.), which deals with ethical statements, their relation to truth, the structure and origin of ethical theories. Metaethics is a product of the modern epoch, when the sciences have turned to a logical analysis in their methods. E. is not to be identified with the current "practical" morality, moral behaviour. E. is a science, the doctrine of morality and moral behaviour. Morals arose before E. The former already existed at the time of the primitive-communal system, whereas E. appeared only in the period of the slave-owning society. E. was an element of philosophical teachings, it was a philosophical theory. As soon as it appeared the struggle ensued between the materialistic and the idealistic understanding of morality. The materialists fought against the theological views in E. They criticised the theological and idealistic interpretation of the meaning of life, upholding the idea of "earthly" origin and source of moral standards. A contribution to the ethical explanation of reality in ancient times was made by the Charvakas (India), Yang Chu and Lao-tsu (China), Democritus, Epicurus, Aristotle (Greece), etc. A considerable contribution to the development of ethical ideas was made in the period when the capitalist system was taking roots. The ideologists of the then revolutionary bourgeoisie—Spinoza, Rousseau, Helvétius, Holbach, Diderot,

and Feuerbach—considered the solution of ethical problems most important. Although such philosophers as Kant and Hegel were the adherents of the idealistic understanding of morality, they enunciated a number of valuable ethical views. The Russian revolutionary democrats, particularly Belinsky, Herzen, Dobrolyubov, and Chernyshevsky, made important contributions to E. Together with the Western utopian socialists (Fourier, Saint-Simon, Owen, and others) they dreamt of a just society and tried to foresee and portray new moral relations among people. Marxist E. imbibed all that was valuable in the ethical theories of the past, and became a new stage in the development of E. The pre-Marxian ethical doctrines were idealistic. The old philosophers thought that it was enough to raise the level of man's consciousness, enlighten him or to change a form of government to have the morality they preached to be disseminated. Marx and Engels have shown that morality is determined by a nation's economic and social system, that it is a historical product. In their teaching of communism Marx and Engels charted the true path to happiness, justice, and freedom. The next stage in the development of E. is associated with the name of Lenin. G. Plekhanov, P. Lafargue, A. Bebel, N. Krupskaya, A. Makarenko, and others also helped to enrich Marxist E. The building of communism has placed new problems before E., which is being more and more transformed into an independent science. The moral code of the builders of communism formulated in the CPSU Programme is very important for the further development of Marxist E. (see Morality, Communist). As distinct from Marxist E., bourgeois E. is based on metaphysical and idealistic theories. The Neo-Thomists and existentialists write much about ethical problems. The neo-positivists depart from the ethical problems proper and go back to logical semantics. In capitalist countries, the main trend of E. is to raise problems of humanism, justice, and good in an abstract and metaphysical way, looking for "absolute"

ethical values without considering real life. The preaching of individualism (q.v.), the struggle against collectivism (q.v.) are peculiar to this E. Moral relativism, which tries to prove the impossibility of scientific E., develops alongside the spread of Neo-Thomistic moral dogmatism.

Ethics, Autonomous and Heteronomous A.E. proceeds from the proposition that moral law has its foundation in the morally acting subject. Man creates his own moral law and is completely free of all outside influence. A.E. derives morality from the idealist conception that moral duty is a priori, is internally inherent. The claim that morality is absolutely independent, autonomous, is unscientific, since it involves the denial of a link between morality and a definite historical system of social relations. Kant (q.v.) opposed the ethics of the French 18th century materialists and developed the idea of A.E. in his *Critique of Practical Reason*, where he propounded the principle that moral behaviour is autonomous. H.E., as opposed to A.E., derives ethics from causes independent of the will of the subject involved. These external causes are the laws of the state, religious precepts, and such motives as personal interest, or wishing other people well. Variants of H.E., therefore, are hedonism (q.v.) which bases its moral principles on the urge to enjoy life, utilitarianism (q.v.) based on the idea that worth is determined by utility, and a number of other systems. The differentiation of A. E. from H.E. is unscientific and is based on the denial of the fact that morality is determined by objective social laws, on the idealist principle of the autonomy of the will and on ignoring the active role of the subject in society.

Ethics, Evolutionary, a vulgar, mechanistic trend in ethics founded by Spencer (q.v.). In the 20th century, E.E. was upheld by J. Huxley, Waddington (England), Edwin Holt, Ralph Gerard (USA), Teilhard de Chardin (France), etc. The main principles of E.E. are as follows: the moral behaviour of man should be a function of nat-

ural surroundings and be adapted to them; the biological process (evolution) is the criterion of morality; everything that promotes it is good, everything that opposes it is evil. Moral notions and ideas are worked out by man for his orientation among the facts of nature. Society itself is but the highest form of the natural association of the organisms of the same species. Holt even calls for the animal and the biological in man to be released from social limitations. The other evolutionists (Huxley and Chardin) do not preach such openly anti-social and amoral ideas; they are more circumspect in their biological interpretation of society. E.E. limits society and morality to biology, which makes its trend anti-social and, therefore, reactionary and unscientific.

Ethics, Theological, ethics founded on some theological system. The most influential trends of T.E. were and still are the ethical doctrines of the three main religions: Christianity (q.v.), Islam (q.v.), and Buddhism (q.v.). The source of morals in T.E. is God. God is the embodiment of moral good and virtue, while the evil and the amorality in society are due to the "original sin". Moreover, God is the only criterion of what is moral. An action is either good or bad depending on whether it conforms or does not conform to the "essence" or will of God. And, finally, God gives a moral sanction, i.e., is the only authority in evaluating the morality of an action. Thus T.E. is anti-social in its aim, since it negates the right of society to produce moral evaluations. A great place in it belongs to the doctrine of the reward of the righteous and the punishment of sinners, which theologians associate with the end of the world (see Eschatology). The complete triumph of the good and the just is ascribed either to life-after-death or to the advent of the "kingdom of God". In other words, submission, humility, non-resistance to evil are elevated to the rank of virtues. T.E. becomes a moral apology for the society of exploitation.

Euclid (4th century-beginning of the 3rd century B.C.), Greek mathematician,

author of the famous *Elements*, in which ancient geometry and the theory of numbers are given systematically, according to the axiomatic method. The famous (fifth) postulate of E. is logically equivalent to the statement: through a given point P not on a given line L there passes at most one line, in the plane of P and L , which does not intersect L . Geometry, based on this postulate, is called Euclidean geometry. Attempts to prove the parallel postulate led in the 19th century to the discovery of non-Euclidean geometries (see Lobachevsky). E. was strongly influenced by Plato's (q.v.) and Aristotle's (q.v.) philosophy. His *Elements* were a pattern for deductive science (see Axiomatic Method, Spinoza). Euclidean geometry was the basis of the philosophical conclusions on the nature of space and our notions of real space. For instance, Kant declared the apriority (see A priori) of space, referring to Euclidean geometry. The discovery of non-Euclidean geometries showed that the a priori concept of space was groundless.

Eudemonism (Gk. happiness, wellbeing), a trend in ethics created and fully developed in antiquity (Democritus, Socrates, Aristotle, qq.v.). The desire for happiness, either personal (individual E.) or public (social E.), is considered as the chief motive of human behaviour. The French materialists of the 18th century (Helvétius, Diderot, qq.v.), exponents of utilitarianism (q.v.), were also followers of E. By virtue of its activity and humaneness and insofar as it calls for happiness on Earth and not in the hereafter eudemonistic ethics stands incomparably higher than Christian ethics. E., however, preaches its standards as common to all mankind, extra-historical in a society of antagonistic classes, where there is not and cannot be any single morality.

Eugenics (Gk. well-born), a false doctrine concerning the improvement of the human race. The term was first used by the British biologist Francis Galton (1869). It is based on the idea that social inequality is due to the psychological and physiological dis-

parities among human beings. In *The Facts of Life* (1953), Cyril Darlington maintains that classes differ from one another not economically but genetically. Distorting Darwin's (q.v.) teaching, the eugenists assert that human progress ceased with the disappearance of natural selection, and advocate the introduction of artificial selection by means of sterilisation, prohibiting marriage between people with physical or psychological disabilities, etc. A man's "inferiority" may be measured by such factors as social position, financial ability, etc. E. is associated with racialism (q.v.) and Malthusianism (q.v.). It was widespread in Nazi Germany and has a considerable following in the United States today.

Event, the basic concept in the theory of probability (q.v.) and statistics, denoting the realisation of some potentiality in a certain set of conditions. If, given the set of conditions in question, the E. happens of necessity, it is called *authentic*. If it is known that, given the same conditions, the E. cannot happen, it is called impossible. An event which may or may not happen is called chance. Single chance events can be characterised only qualitatively. Mass chance events may be characterised qualitatively and also quantitatively by calculating the probability of a given event in a definite set of conditions. Thus the probability P of an event A is equal to the ratio of the number of tests, favourable to the event A (m), to the total number of tests n : $P(A) = m/n$.

Evolution and Revolution, inseparably connected aspects of development. E. represents quantitative changes accumulated in the development of a phenomenon; R. represents a more or less quick qualitative change. The dialectic-materialistic understanding of E. & R. overcame the metaphysical one-sidedness of plain evolutionism (see Spencer), which limited development to gradual quantitative changes, did not help in understanding self-motion and "catastrophism", denied that quantitative changes prepare R. and put faith in the will of a great personality

(see Voluntarism), in chance or in the creator of nature (see Cuvier). Motion includes both quantitative gradualness (E.) and its interruption (R.). R. is not produced by anything arbitrary but is an objective process, in which the old contradictions, having come to the boil, are overcome, and a new phenomenon, arising on this basis, develops by virtue of new contradictions. Hence the theory of emergent evolution (q.v.) is untenable. It recognises in words the emergence of the qualitatively new in the process of development, but in the last analysis it denies dialectical self-development. This theory does not take into account the premises of R. in the preceding E. The representatives of other trends in modern philosophy, as well as the revisionists, distort the essence of E. & R., because they fear the inevitability of social R. The concept of E. is also used to qualify development in the broad sense of the word (for instance, the E. of the organic world). In this case E. is understood to mean movement, including both quantitative and qualitative changes.

Evolution Theory, the doctrine of living nature, elaborated mainly by Darwin (q.v.). Darwin summed up the results of many centuries of selective practice, the achievements of biology, geology, and paleontology, and his own observations in a round-the-world trip. According to Darwin, the main factors in the evolution of living beings are mutation, heredity (q.v.), and selection (artificial in domestic conditions, natural in nature). In the struggle for existence, under the impact of the outer environment, only the fittest of living beings survive and procreate. Natural selection is continuously improving the structure and functions of organisms, evolving their adaptability to the outside surroundings. E.T. first provided a scientific explanation of the multiplicity of biological species, their development, and was made the basis of modern biology. E.T., together with the natural-scientific theories of Kant, Lamarck, and Lyell (qq.v.), proved the insolventy of the metaphysical way of thinking.

It also dealt a blow to the idealistic views of living nature, and became the natural-scientific basis of the dialectical-materialist world outlook. Among the adherents and continuers of E.T. were Huxley, Haeckel, Timiryazev, Michurin (qq.v.).

Excluded Middle, Law of, a law of logic, according to which of the two propositions, one of which denies what the other affirms, one is necessarily true. It was first formulated by Aristotle (q.v.). In symbolic notation $A\bar{A}$ (where A is any proposition, V a sign of disjunction, and the line over the symbol a sign of negation, q.v.). Thus, of the two sentences: "The sun is a star" (A is B) and "The sun is not a star" (A is not B) one is necessarily true. Having in view such statements, traditional formal logic formulated the L.E.M. as follows: either A is B or it is not B. No third is possible (*tertium non datur*). The formulation given earlier applies to propositions of any form. L.E.M. is often used in the process of proof, for example, by rule of contraries. In modern constructive logic (q.v.) the proposition $A \vee \bar{A}$ is not regarded as a law of logic or a constructively universal statement.

Existence 1. The whole diversity of mutable things in their concatenation and interaction. The E. of things cannot be reduced either to their inner essence or to their being. Philosophical theories are wrong to rate the essence, foundation of things above their E., regarding the latter as something base, accidental, and short-lived. But it is just as wrong to rate the E. of things above their essence, regarding the latter either as non-existent, or as something unfathomable and beyond human cognition and practice. The correct view is that just as essence is inconceivable without E. (in which case there is a realm of immobility, which has nothing in common with real life in nature and society), so E. is inconceivable without essence (in which case, only the external, the restless, and the accidental are registered). An understanding of all existing phenomena can be gained only from a unity of E. and essence, being and becoming.

2. The main category of existentialism (q.v.) introduced into philosophy by Kierkegaard (q.v.). E. is understood to be the unrealised inner "being" of man as distinguished from his empirical existence, which is not the real existence. E. as the potential of being is determined by man himself, by his will, but it has its roots (for example, according to Jaspers, q.v.) in a mysterious "transcendence", i.e., in God. E. cannot be cognised; it can only be "illuminated" at "critical moments" (ataraxia, q.v., heroic deed, death, etc.). The existentialists use this category to justify irrationalism and moral relativism.

Existential Aesthetics, a subjective idealist theory of art and art creation. It is expounded in the views of German, French, and other existentialists (K. Jaspers, *Strindberg und van Gogh*, 1922; G. Marcel, *Existence and Human Freedom* by J. P. Sartre, 1946; A. Camus, *Speech in Sweden*, 1957). The Austrian poet Rilke (1875-1926) was the first to express existentialist views in his sonnets and elegies; later these views penetrated the arts and literature of many capitalist countries. They appear most clearly of all in Camus' works (*L'Étranger*, *La Peste*), in S. de Beauvoir's *Tous les Hommes sont mortels*, *Le Sang des Autres*, in J.P. Sartre's *Les Chemins de la Liberté*, *Le Diable et le Bon Dieu*, *La Nausée*, etc. According to E.A., the object of artistic portrayal should be the "existential illumination" (i.e., irrational individual experience) and the phenomena leading to this "illumination". The "aesthetics" of atheistic existentialists merges with naturalism (q.v.) when it requires artists to picture man's vile motives and the dark sides of human existence. The "religious" existentialists maintain that art is a "cipher", a sign of supernatural powers, the "intermediate kingdom" between the world and "divine unity", the coincidence of "religious and aesthetic experience". The existentialists measure the talent of the artist according to "how he expresses in ciphers the existence, the originality of the individual, and his border-line situations" (q.v.). To

them, the main purpose of art is to awaken the unconscious emotions of the individual. The aesthetics of existentialism reflects the spiritual degeneration of contemporary capitalist society.

Existentialism, the philosophy of existence, an irrationalistic trend in modern philosophy which attempted to create a new world outlook corresponding to the frame of mind of some strata of the intellectuals. It appeared after the 1st World War in Germany and later in France; after the 2nd World War in other countries, including the USA. The term "E." was introduced by the Neo-Kantian F. Heine mann in 1929. E. has its sources in the philosophy of life (q.v.), Husserl's phenomenology (q.v.), the mystico-religious teachings of Kierkegaard (q.v.). There are two forms of existentialism, the religious one (Marcel, Jaspers, Berdyayev, qq.v., M. Buber of Israel) and the atheistic one (Heidegger, Sartre, Camus, qq.v.). E. reflects the crisis of liberalism, which is not in a position to answer the questions posed by contemporary socio-historical practice, or to explain the ups and downs of life in capitalist society, the feelings of fear, desperation, and hopelessness inherent in the members of that society. E. is an irrational reaction to the rationalism of Enlightenment and German classical philosophy. The existentialists maintain that the essential defect of rational thought is that it proceeded from the principle of antithesis of subject and object, i.e., it divided the world into two spheres: the objective and the subjective. Rational thought considers all reality, including man, only as an object, as a "substance", something alien to man. Genuine philosophy, E. maintains, must proceed from the unity of subject and object. This unity is incarnated in existence (q.v.), i.e., in a certain irrational reality. According to E., in order to be aware of himself as "existence", man must find himself in a "border-line situation" (q.v.), for example, in face of death. As a result the world becomes "intimately near" to man. The true means

of knowledge. or, according to E., of penetration of the world of "existence", is declared to be intuition ("existential experience" in the case of Marcel; "understanding" in the case of Heidegger; "elucidation of existence" in the case of Jaspers). This intuition is the phenomenological method of Husserl, irrationally interpreted. E. devotes much attention to the question of freedom, which is defined as the "choice" by the individual of one possibility among an infinite number of possibilities. The voluntarism of the explanation of freedom by E. has its source in the divorce of "choice" from circumstances, i.e., in the isolation of the individual from objective necessity, from laws. In the final analysis, the existentialists convert the problem of freedom into a purely ethical problem, and they regard freedom as extreme individualism, as the individual's freedom from society. E. has greatly influenced the modern art and literature of capitalist society, and thereby the frame of mind of a large section of the intellectuals.

Experience In the traditional philosophical sense, sensuous empirical reflection of the external world. According to empiricism (q.v.) and sensationalism (q.v.) E. is the source of all knowledge. Materialism recognises the external, objective source of E., independent of consciousness. Pre-Marxist materialism regarded E. merely as a result of passive perception of the external world. But sensuous E. does not by itself give universal and necessary knowledge; it merely grasps the outward, superficial side of phenomena of the objective world. As a reaction to the shortcomings of contemplative materialism in interpreting the concept of E. there arose rationalism (q.v.), on the one hand, and the subjective idealist and agnostic understanding of E., on the other. The latter reduces E. to various states of the subject's consciousness (emotions, sensations, perceptions, verbal statements, theoretical constructions of thinking), while its source is either ignored or declared to be unknowable in principle. Kant (q.v.) held a special posi-

tion on this question, considering that the chaotic influence of the object (thing-in-itself) on consciousness becomes E. only when systematised by a priori forms of reason. But in Kant's presentation of the question, notwithstanding its idealism, there is rational meaning, namely, the idea of active thinking by the subject engaged in cognition. Contemporary positivism, reducing E. to sensations, to sensory emotions of man, etc., in effect denies the possibility and necessity for raising and solving the question of what stands behind this E., i.e., the existence of a real world, independent of consciousness, considering this to be a "pseudo-question". Utilising the achievements of preceding philosophy and continuing the traditions of materialism, Marxism overcame contemplativeness in interpreting E. Acknowledging experience to be secondary, derivative, in relation to objective reality, Marxism defines it not as the passive content of consciousness but as man's practical action on the external world. In the process of this action the necessary connections, properties and laws of phenomena are discovered, rational methods and means of activity are explored and tested, etc. E. is thus understood both as an interaction of the social subject with the external world and as the result of such interaction. In such an understanding E. merges with the sum total of society's practical activity. E. is a primary means of enriching science and developing theory and practice.

Experiment, an investigation of phenomena by actively influencing them, by creating new conditions meeting the aims pursued, or by altering the process in the required direction. E. is an aspect of human socio-historical practice and is, therefore, a source of knowledge and a criterion of the truth of hypotheses and theories. A distinction must be made between simple observation and real E. Simple observation does not imply active influence upon the object. Real E. must also be distinguished from what is called "mental E.", which is a logical argument on the course this or

that phenomenon would take if it were possible to create certain conditions, which cannot be created at the given moment owing to technical or other reasons. E. includes the creation of necessary conditions, the removal of interfering influences and factors, the fixation of the object by different means. It also includes artificially giving rise to a phenomenon, observing and measuring it with technical instruments. Any E. is based upon the analogue simulation (q.v.) of the phenomena under study. As science and technology develop, the sphere of E. widens, embracing increasingly complicated phenomena of the material world. Dialectical materialism, in contradistinction to apriorism, sees in E. and in observation the source of theoretical concepts. Their connection with E. can be direct, if they are deduced immediately from E., or indirect, if these theoretical concepts are deduced on the basis of analysing the effect of laws and propositions previously deduced by direct E. But a theory is not only the sum of the data of E.; it is a qualitatively new step of knowledge, movement from the phenomena reflected in E. to the essence, to the knowledge of more deep-reaching laws.

Explanation, a stage or form of scientific study which consists in revealing the essence of the object studied. According to its epistemological significance E. is divided into a number of types: E. through the general (analogy, model), causal E., E. through law, etc. E. is directly connected with description (q.v.) and is based on it. Scientific prevision (q.v.) of events is possible only on the basis of E. The prediction of communism and the process of its practical building are founded on a deep scientific E. of the laws of social development given by Marxism-Leninism.

Explication 1. Explanation (q.v.). 2. Unfolding, a process as a result of which the contents of a certain unity are discovered, and its components become independent and may be differentiated from one another. The term E. in this meaning is widely employed in idealist philosophy. For

example, Neo-Platonism (q.v.) regarded the world and individual things as E., "self-unfolding" of God, in whom originally they exist in unity. Hegel (q.v.) held reality to be the self-unfolding of a concept into the plurality of its definitions. 3. Logico-methodological method consisting in substituting an exact scientific notion for a well-known but inexact notion or idea. E. is usually employed in working out concepts essential to the development of scientific theory, as distinct from pre-scientific or not yet definitely scientific knowledge of the subject. It is widely used in logical semantics (q.v.) where the term "E." assumes the latter meaning.

Expressionism, a trend in the arts and literature. It appeared at the beginning of the 20th century (a group of German artists united in 1905 around the journal *Die Brücke*) and spread after the 1st World War. Exponents of E. are M. Pechstein, F. Marc, E. Kirchner, P. Klee (Germany), O. Kokoschka (Austria), M. Chagall (Russia), and others. E. was influenced by P. Cézanne, V. Van Gogh, E. Munch, F. Hodler, J. Ensor. As an aesthetic concept E. is extreme subjectivism. "We must forget all laws...only our soul is the true reflection of the world" (Kokoschka); "The expressionist believes only the reality created by himself, disregarding any other reality of life." (K. Edschmid.) The primacy of form over content, of the personal over the social, of the irrational over the logical characterises E. as a decadent formalistic trend. In their works the expressionists completely distort the real world, regarding it only as an occasion for the embodiment and objectivisation of their unbalanced emotions. This is the basis for their inclination towards excessive grotesque, displacement of planes in images, distortion of objects, etc. E. also made its appearance in literature (W. Hasenclever, K. Edschmid, to some extent L. Andreyev, A. Strindberg, and others) and in sculpture (A. Arkhipenko, W. Lehmbruck, in the theatre (L. Jessner), in the cinema (R. Wiene), in music (A. Schönberg).

E. was not homogeneous. The left representatives of E. (G. Kaiser, G. Grosz, and others) criticised capitalism and came out against war. J. Becher, B. Brecht, O. Nagel joined E. at the beginning of their artistic work. Today the term "abstract E." is used to denote abstract art (q.v.).

Extent, one of the main characteristics of space, expressing its dimensions. In the concept "E." is reflected the relative stability and constancy of a definite type of relations between objects and phenomena. It is precisely this stability that makes it possible to compare the dimensions of bodies. Metaphysical materialism, divorcing space from matter in motion, regarded it as pure E. Thus, the ancient atomists, assuming the existence of void as a necessary condition of the movement of atoms, attributed to space the only property—that of E. In the philosophy of modern times the view of space as pure E. was more prominently expressed by Descartes (q.v.). Leibniz (q.v.), criticising the Cartesian conception of space, correctly showed that from E. one may conclude only the geometrical properties of space. To explain E. we need a body, without it E. would be vain abstraction. Further step in the critique of the metaphysical identity of space with E. was made by Toland (q.v.), who stressed that the idea of space being a void and pure E. proceeds from the definition of matter only in terms of E., from the mistaken conception that it has no inherent activity. By defining space as a form of the existence of matter, dialectical materialism at the same time affirms that the spatial properties of bodies, in particular their E., depend upon the properties of matter in motion.

External and Internal 1. Aspects of an object or process distinguished by their place and role in the structure of the whole. The category of the external reflects the superficial aspect of any object immediately perceived by the senses, or the existing reality outside an object. The category of the internal expresses the essential aspect of an object. This internal aspect cannot be immediately perceived and is known through the external, through its manifestations. The external aspects of an object are determined by its internal aspects, by law, by the essence, through which they are revealed and known. Investigation of the internal nature of an object leads to an understanding of its contradictions, the source of its development, and the external forms in which it manifests itself. 2. Aspects of reality, which are defined as the external and internal worlds. In this sense, the internal is the spiritual world, while the external is the world of nature. The actual connection between the external and the internal, the objective and the subjective was gradually elucidated in the history of science and philosophy through the struggle of materialism against idealism and agnosticism.

External World, the totality of the material objects, phenomena and their relations and interrelations existing outside and independently of man and his consciousness. The external world is the source of knowledge. Man gets to know the external world—nature and society—in the process of social life and production. From the standpoint of idealism the E.W. is either created by a non-temporal spiritual being (objective idealism) or else is a product of the individual consciousness (subjective idealism).

F

Fa Chia (legalists, philosophers of law), a leading ideological trend in ancient China. Shang Chūn (4th century B.C.) and Han Fei Tzū (died c. 233 B.C.) were its most eminent exponents. The followers of F.C., expressing the interests of the new nobility which had become rich with the development of exchange relations, resolutely fought against the survivals of the gentile system and the communal-patriarchal traditions and stood for the unification of the country and historical progress. Han Fei Tzū provided the philosophical basis for the economic and political views of F.C. He held that natural laws (*tao*), determine the development of things. Human society must also have its own laws (*fa*) which would serve as the criterion of men's actions. These laws are the chief instrument of the state in the struggle against conservative socio-political forces, for the consolidation of the country's might and prosperity. Han Fei Tzū and other proponents of F.C. were opposed to religious mysticism and superstition.

Factors, Theory of, a positivist sociological conception which gained wide currency in the West and in Russia at the end of the 19th century (Max Weber, q.v., Gaetano Mosca, M. Kovalevsky, q.v., and N.I. Kareyev). Its principal feature is denial of monism (q.v.) in sociology, denial of a single basis of history and society and recognition of the mechanical interaction of many diverse equal factors (economy, religion, morality, technology, culture, and others). Being an expression of pluralism (q.v.) in sociology, T.F. denies the unity of the historical process and society, the ob-

jective laws of social development, and the internal necessary links between social phenomena. T.F. claims to stand above materialism and idealism, but in reality frequently slides to positions of subjective idealism, exaggerating the role of subjective factors in history. The proponents of this theory considered the main task of the social and historical sciences to be the description of social factors in their interaction. Pointing to some positive elements in this theory (the attempt at a concrete analysis of the facts of social reality), Lenin, Plekhanov, and Labriola demonstrated its complete theoretical bankruptcy, its mechanistic nature, and its inability to grasp the essence of social phenomena.

Faith, recognition of something as true without proof. Blind faith in the supernatural (God, angels, devils, etc.) is an essential part of any religion (q.v.). In this sense there is no difference between F. and superstition (q.v.). Religious F. stands at the opposite pole to knowledge (q.v.). Nevertheless many idealist philosophers try to reconcile F. with knowledge or to pass it off as knowledge (see Fideism).

Falsehood, a statement distorting the actual state of affairs. Epistemologically, F. was defined by Aristotle (q.v.) as that which is contradictory to reality; if a statement connects what is disconnected in reality, or disconnects what in reality is connected, it is false. A distinction must be made between F. and absurdity. From the psychological and ethical point of view the deliberate F. must be distinguished from the unintentional F.

Family, a nucleus of society based on marriage and consanguinity, i.e., relations between husband and wife, parents and children, brothers and sisters, etc. Life of the F. is characterised both by material and spiritual processes. The first include biological and economic-consumer relations and the second, legal, moral, and psychological relations. F. is a historical category. Its life and forms are determined by the socio-economic order in society and the nature of social relations as a whole. In ancient times sexual relations were of a haphazard nature and no F. existed. F. arises in the period of the gentile system on the basis of the sex and age division of labour and the settled mode of life when economic ties and interests supplemented the natural liaison of persons of different sex. During the matriarchy (q.v.) a large maternal F. existed—the commune and the group and then paired marriage. In the period of the patriarchy (q.v.) a large paternal F. arose, the commune, which, as military democracy was established, turned into a small paternal family based on monogamy. Simultaneously woman became property, the slave of her husband. Accumulation of wealth and its transfer to legitimate heirs was the main purpose of the F. In bourgeois society, private property laid a particularly big imprint on the F. Here crude material considerations and the commercial advantage of marriage play a tremendous part. The victory of socialism opens wide scope for the equality of men and women in all spheres of social life, in production and the family. Love, mutual respect, and upbringing the children are the primary moral principles of the Soviet F. Family relations will improve in the period of building communism, as the living standard of the people rises and the rules of communist morality strike deep root in the life of society.

Fantasy, imagination (q.v.) distinguished for the power, vividness and exceptionality of the ideas and images it conceives.

Fascism "is an overt terroristic dictatorship of the most reactionary, most

chauvinistic and most imperialist elements of finance capital". (Programme of the CPSU.) The establishment of F. reflects the inability of the ruling bourgeoisie to maintain its power by the usual "democratic" methods. F. heads the forces of anti-communism and strikes its main blow against the Communist and Workers' Parties and other progressive organisations. The fascist system was established for the first time in Italy (1922) and then in Germany (1933) and in other countries. In Germany F. was masked under the name of National-Socialism. F. was the striking force of international reaction; fascist states, Hitlerite Germany in the first place, unleashed the 2nd World War. Notwithstanding the complete rout of the fascist states in the 2nd World War, reactionary elements in some imperialist countries are trying to revive F. The ideology of F. is irrationalism (q.v.), extreme chauvinism and racialism (q.v.), obscurantism, and inhumanity.

Fatalism, a philosophical conception, according to which everything in the world and human life is predetermined by fate (q.v.). The idea that fate governs man and even the gods was widespread in ancient mythology. In the history of philosophy, the conception of F. was interpreted differently, depending on how the question of freedom of will was treated. In the theory of predestination (see Occasionalism, Pre-Established Harmony), man was regarded as a plaything in the hands of God or nature and unable to change the preordained course of events. This variety of F., fully denying freedom of will, was opposed by another extreme—voluntarism (q.v.). Religious F. (see Islam, St. Augustine, Luther, Calvin, and others) admitted, with some reservations, that man enjoys freedom of will, but fails to reconcile the "good" will of God with man's "evil" will. F. finds its most complete expression in philosophical teachings which profess the absolute repetition of all events in every cosmic cycle: "eternal return" of the Pythagoreans, Nietzsche (qq.v.), and others. This conception regards chance and

human freedom (see Necessity and Chance, Freedom and Necessity) as an instrument and prerequisite of fate, and thereby recognises that man is the maker of his own destiny. For example, in Nietzsche's philosophy which is thoroughly fatalistic and at the same time voluntaristic, "will to power" followed from "love for fate". Historically, F. has played a reactionary role. On the one hand, the view of destiny as a timetable of man's life given from above develops passivity and slavish submission to circumstances. On the other, confidence in the omnipotence of the supreme will, which leads those chosen by fate to inevitable victory and domination, engenders religious fanaticism.

Fate, the religious, idealist concept of a supernatural force predetermining all the events in the life of men. In ancient Greek mythology, the fate of men and even of gods depended on the Moerae (the Parcae among the Romans). As time went on, fate came to be regarded as a supreme justice ruling the world (Dike, Nemesis among the Greeks). In Christianity (q.v.), F. is a divine providence, a supreme being. All modern religions regard F. as divine predestination. In Protestantism (q.v.) it takes a clearly expressed fatalistic character (see Fatalism). Some religions (like Catholicism and the Orthodoxy, qq.v.) try to reduce the fatalism of the F. idea through an eclectic combination of the idea of divine predestination and free will. F. is sometimes used to denote the concurrence of circumstances in the life of individuals or nations.

Fauvism (Fr. *fauve*—wild), a trend of bourgeois art which was given its name after an exhibition in 1904 in which H. Matisse, R. Dufy, A. Derain, A. Marquet, G. Rouault, M. de Vlaminck, G. Braque, and Van Dongen took part. They were united by a negative attitude not only to academic and naturalist art, but also to art traditions and laws in general. The fauvists tried to express their discontent with capitalist reality by asserting the right of the artist to distort and give a primitive picture

of objects and phenomena, laying excessive stress on compositional constructions, angles, etc. The fauvists saw the purpose of art in distracting man from life's contradictions, in bringing alleviation to people despite the bitter class struggle proceeding in the world. At the beginning of the 1920s, F. was replaced by other trends (expressionism, surrealism, qq.v.).

Feedback, a fundamental characteristic of diverse control systems employed in automatic regulation, communications and computer technology, and also in animate nature and society. A control system, in which information about the actual state of the effector units of the regulated system, or the result of their action on an object, is continuously transmitted, is called a closed-loop system, or feedback. F. may be negative, when the value of the control signal and the value of the signal about the state of the regulated object or effector unit are subtracted in a special device; and positive, when the two values are added. Negative F. is employed in various automatic devices designed to maintain a constant state in the regulated system. Positive F. is employed in radio engineering (amplifiers, generators), automation, and in animate nature (the interrelationship of organs in the growth of an organism). The concept of F. is essential for analysing the mechanism of development processes in animate nature and in society (e.g., extended reproduction diagrams) and is helpful in revealing the structure of the material unity of the world and the dialectics of its development.

Fetishism, worship of objects and phenomena of nature; an early form of religion in primitive society. The term "F." was proposed in 1760 by Charles de Brosses, a French historian and linguist. Not knowing the essence of material objects, people attributed to them supernatural properties and believed that these objects (fetishes) satisfied their wishes. F. is connected with totemism (q.v.) and magic (q.v.). F. forms part of many contemporary religions (worship of images and the cross). (See Fetishism of Commodities.)

Fetishism of Commodities, a distorted, false, and illusory notion held by people in respect of things, commodities, production relations, which arises in conditions of commodity production based on private ownership, especially under capitalism. The emergence of F.C. is due to the fact that production ties between people in society based on private property are effected not directly but through the exchange of things on the market, through the purchase and sale of commodities and, hence, take the form of commodities, in consequence of which they acquire the nature of relations between things and become, in a manner of speaking, properties of things, of commodities. People begin to be dominated by the things and commodities they produce. This material form of production relations, the dependence of people on the spontaneous movement of things and commodities constitutes the objective basis of F.C. People harbour illusions that things, commodities by their nature possess some secret properties, which in actual fact they do not have. F.C. conceals the actual situation: the subordination of labour to capital, the exploitation of the working class. On the surface of phenomena the relations between the capitalist and the worker appear to be relations between equal commodity holders. All the illusions of equality and freedom engendered by capitalism rest on this transmuted form of the manifestation of economic categories which are inevitable in this society. Bourgeois vulgar economics utilises F.C. to camouflage the real nature of capital and conceal the true cause of the exploitation of the working class. Marx was the first to reveal the secret of F.C., its roots and its objective basis. F.C. is historical by nature; with the downfall of the capitalist mode of production it disappears.

Feudalism, a socio-economic formation (q.v.) which came into being after the disintegration and fall of the slave-owning or primitive-communal systems (qq.v.) and existed almost in all countries. The feudal

lords and the peasants were the main classes of feudal society. The ruling and exploiting feudal class included the nobility and the higher clergy. Within the ruling class there was a hierarchic division into social estates (q.v.) and the subordination of the smaller feudals to the bigger ones. The church was among the biggest feudals. The exploited peasantry was deprived of all political rights. In the towns the bulk of the population consisted of masters, journeymen, apprentices, and unskilled workers. The prevailing production relations were based on the feudal lord's ownership of the means of production, on the land in the first place, and the workers' incomplete ownership expressed in different forms of personal dependence of the peasant on the lord. Under F. the productive forces were developed only by the labour of the dependent peasants who had their own household, minor implements, and a certain material interest in their work. The feudal mode of production was characterised by three successive forms of ground rent: labour, service, natural rent, and money rent. Ground rent was a specific form of exploitation in feudal society. Very frequently rent extended to the product of the serfs' surplus labour and also to part of their necessary labour. The feudal system was marked by natural economy and a stagnant, low level of technology. The superstructure of feudal society had a number of distinctive features: the feudal state as a rule took the form of an absolute monarchy; religious ideology prevailed in society's spiritual life. Social thought developed mainly in a religious form. The entire history of feudal society was pervaded by the class struggle. Peasant uprisings, though taking place mostly under a religious banner, undermined the feudal system and hastened its fall. F. was replaced by capitalism (q.v.), the third and last exploiting form of society.

Feuerbach, Ludwig (1804-72), German materialist philosopher and atheist, taught at Erlangen University. His book *Gedanken über Tod und Un-*

sterblichkeit, published anonymously in 1830, led to his dismissal from the university. F. spent the last years of his life in a village. He did not understand the nature of the revolution of 1848 and did not accept Marxism, although he joined the Social-Democratic Party towards the end of his life. In his struggle against religion F.'s views evolved from the ideas of the Young Hegelians (q.v.) to materialism. His proclamation and defence of materialism greatly influenced his contemporaries. Engels wrote about the impact of his writings: "Enthusiasm was general and we all became Feuerbachians at once." (Marx, Engels, *Selected Works*, Vol. 2, p. 368.) Anthropologism (q.v.) was a characteristic feature of F.'s materialism, which was the consequence of the historical conditions in pre-revolutionary Germany and expressed the ideals of revolutionary bourgeois democracy. Criticism of Hegel's idealistic understanding of man's essence and his reducing it to self-consciousness was the initial point of F.'s philosophical evolution. Renunciation of this view inevitably led to renunciation of idealism in general. One of F.'s services was that he emphasised the connection between idealism and religion. He sharply criticised the idealist nature of Hegelian dialectics. This opened the way to utilising the rational content of Hegelian philosophy and in this respect facilitated the shaping of Marxism. But F. himself in fact simply cast aside Hegel's philosophy and that is why he failed to notice its main achievement, dialectics. The basic content of F.'s philosophy was the proclamation and defence of materialism. Anthropologism made itself felt here in the problem of man's essence and his place in the world being placed in the foreground. But F. did not pursue a consistently materialist line on this question because he took man as an abstract individual, as a purely biological being. In the theory of knowledge F. consistently applied the viewpoint of empiricism (q.v.) and sensationalism (q.v.), resolutely opposing agnosticism (q.v.). At the same

time he did not deny the importance of thought in cognition, tried to examine the object in connection with the activity of the subject and voiced suppositions about the social nature of human knowledge and consciousness, etc. But on the whole F. did not overcome the contemplative nature of pre-Marxian materialism. In his understanding of history F. remained entirely on idealist positions. Idealist views of social phenomena followed from his desire to apply anthropology as a universal science to the study of social life. F.'s idealism was especially evident in the study of religion and morality. He regarded religion as the alienation and objectification of human traits, which are ascribed a supernatural substance. Man, as it were, is doubled and contemplates his own essence in God. Thus religion is man's "unconscious self-consciousness". F. sees the reason for such doubling in man's feeling of dependence on the spontaneous forces of nature and society. Of special interest are F.'s surmises about the social and historical roots of religion. But, owing to his anthropologism, F. did not go beyond surmises on this question and was unable to find effective means of combating religion. He sought them in replacing unconscious by conscious self-consciousness, that is, ultimately, in education, and even advocated the need for a new religion. Not understanding the real world in which man lives, F. deduced the principles of morality from man's intrinsic striving for happiness. Its achievement is possible, provided every man rationally limits his requirements and loves other men. The morality constructed by F. is abstract, eternal, and the same for all times and peoples. Notwithstanding the limitations of his views, F. was a direct predecessor of Marxism. Some present-day idealists reproduce F.'s ideas of anthropologism in a frankly idealist interpretation. Main works: *Zur Kritik der Hegelschen Philosophie*, 1839; *Das Wesen des Christenthums*, 1841; *Vorläufige Thesen zur Reform der Philosophie*, 1842; *Grundsätze der Philosophie der Zukunft*, 1843.

Fichte, Johann Gottlieb (1762-1814), German philosopher; leader of German classical idealism, second after Kant (q.v.), professor of Jena (dismissed on being accused of atheism) and Berlin universities. He criticised the estate privileges and advocated the unity of Germany and abolition of her feudal division; he emphasised the importance of "practical" philosophy, of justifying morality, the state and the legal system, but reduced "practice" to the mere activity of moral consciousness; considered a scientifically based system, namely, the science of knowledge, a prerequisite for "practical" philosophy. Subjective idealism (q.v.) underlies his *Wissenschaftslehre* published in 1794. F. discarded Kant's doctrine of the "thing-in-itself" and sought to deduce all the diversity of forms of knowledge from only one, subjective-idealist element. F. posits the existence of some kind of absolute subject with boundless activity which creates the world. His initial Ego is neither an individual Ego nor a substance like the substance of Spinoza (q.v.), but the moral activity of consciousness. From this mystical absolute Ego F. deduces the individual Ego. The latter is not an absolute but only a limited human subject or empirical Ego, to which is counterposed a likewise empirical nature. From this F. concludes that theoretical philosophy, positing Ego and non-Ego, necessarily counterposes them to each other within the bounds of the same initial absolute Ego, as a result of its limitation or division. Following this peculiar method of "positing", "contraposing" and "synthesising", F. elaborated a system of categories of being and thinking, both theoretical and practical. This method, in which some features of idealist dialectics are developed, is called "antithetical", because the antithesis as such is not deduced by F. from the thesis but is placed alongside it as its opposite. F. regarded direct contemplation of truth by the mind, i.e., "intellectual intuition", as the organ of rational knowledge. Besides subjective idealism, which was basic to F.'s doctrine,

his philosophy also evinced a leaning towards objective idealism (q.v.) which increased in the last years of his life. The question of freedom became central for F. in ethics. Interest in it was heightened by the French bourgeois revolution. Like Spinoza, F. sees in freedom not a causeless act, but an action based on the understanding of inescapable necessity. In contrast to Spinoza, however, F. makes the degree of freedom accessible to people dependent not on individual wisdom but on the historical epoch to which an individual belongs. Unable to overcome the illusions engendered by Germany's backwardness in his day, F. elaborated a utopian project of a German bourgeois society in the form of *der geschlossene Handelsstaat* (closed merchant state). The project reflected specific elements of Germany's bourgeois development and was marked by a number of reactionary features, including nationalist German exceptionalism. The founders of Marxism-Leninism made a profound assessment of the progressive and reactionary features of F.'s doctrine. Engels named F. among the philosophers whom German Communists highly respect.

Fideism, a doctrine which replaces knowledge by faith (q.v.) or in general assigns definite importance to faith. F. is inherent to some extent in all idealist theories and expresses the subordination of science to religion.

Finite, see Infinite and Finite.

Finitism 1. A philosophical conception which denies the objectively real content of the category of the infinite (see Infinite and Finite) and proceeds from the assumption that there can be no infinity in the Universe, in the microcosm, or in man's thinking. F. sees the grounds for this in the fact that in his experience man always deals with finite things and their properties. Metaphysically counterposing the finite and the infinite, F. ignores their dialectics and interconnection in knowledge. 2. In one of the trends of formalising mathematics (see Formalism) F. bans the use of infinity in metamathematics (q.v.).

Fluids, hypothetical weightless substances (light, thermogen, magnetic, electric, positive and negative fluids, phlogiston, etc.), which were considered integral elements of bodies that determine their corresponding properties. The concept of F. was especially widespread in the 18th and first half of the 19th centuries. At that time the structure and properties of bodies were not yet perceived in their unity and the diverse properties of an object were often considered as attributes of special external active elements passing from one body to another. The doctrine of F. was a development of the ancient natural philosophical concepts of elements (q.v.), of active form and passive matter (see Aristotle) and was associated with the formation of concepts of chemical elements. The abstraction of properties, qualities, motion, and forces from the things in which they are objectively inherent, the fact that they were considered as something independent, was also reflected in dynamism, energism (q.v.), and vitalism (q.v.). For all its erroneousness and naiveness, the doctrine of F. played an important part in natural science by making it possible to systematise diverse physical and chemical phenomena, providing a general basis for their study.

Flux, a philosophical category denoting the substantive mutability of things and phenomena, and their ceaseless conversion into something else. Heraclitus, the classical proponent of F., expressed his conception of reality in his famous formula "all things flow". The category of F. is associated organically with the dialectical world outlook: it is based on the concept that all things and phenomena are unities of opposites—of being and non-being. It is incompatible with the metaphysical notion of inception and development as simple quantitative increase or decrease. The dialectical substance of F. was conclusively developed by Hegel (q.v.). In his philosophy, F. is the "primary truth", constituting the "element" of all subsequent development of the logical definitions of the idea (category). F. as the unity

of being and nothing expresses the universal abstract form of the origination, inception and existence of all things and phenomena: "there exists nothing that is not a mean condition between Being and Nothing" (Hegel). Lenin stressed the importance of Hegel's proposition in his *Philosophical Notebooks* (q.v.).

Force, Theory of, an idealist theory claiming that social inequality is a result of the use of force by some people against others. It gained the greatest currency among bourgeois ideologists. Dühring (q.v.) associated the appearance of classes with the employment of force by one part of society against another (internal force). Gumpowicz, an Austrian sociologist (1838-1909), Kautsky (q.v.), and others regarded the enslavement of a weaker tribe by a stronger one (external force) as the decisive cause of the appearance of classes and the state. Marxism, without denying the role of force, at the same time asserts that force is rooted in economic conditions. T.F. is utilised by the ideologists of the imperialist bourgeoisie to defend neo-colonialism, justify the policy "from strength", and the cold war.

Form and Content, philosophical categories which serve to bring out the internal sources of the unity, integrity, and development of material objects. C. is the sum total of elements and processes which make up the basis of objects and determine the existence, development, and succession of their forms. The category of F. expresses the internal connection and method of organisation, the interaction of a phenomenon's elements and processes both among themselves and with the environment. The development of F. & C. is the development of the two sides of the same phenomenon, the bifurcation of the whole which gives rise to contradictions and conflicts and leads to the discarding of F. and reshaping of C. The unity of F. & C. is relative and transient and is upset by changes, conflicts, and struggle between them. The source of contradictions between F. & C. lies in the difference between their functions in development: C. is

the basis of development, F. is the mode of existence of a thing; C. possesses its own motion, F. depends on it; C. contains the intrinsic possibility of boundless development, F. limits it; C. plays the leading role in development. F. possesses relative independence, for it is able both to promote and hamper development, and so on. A change of F. occurs as a result of a change in C. itself, which determines its leading role in development. F. as such never remains unchanged. But the change, the discarding of F. does not always proceed at once, but most frequently as a result of the gradual sharpening of contradictions between F. & C. Moreover, external conditions, factors, and connections not related directly to C. also exert a certain influence on the change of F. F. possesses a relative independence which is all the greater as F. is older. The stability of F. is a factor which ensures progressive development of C. But this stability, which at the first stages stimulates development, becomes in time a source of conservatism. Contradictions between F. & C. are not contradictions between passive and active sides. The actual process takes place as a result of their interaction as opposites actively influencing development. The non-conformity of F. to C. caused by the lag of F. behind C., though of great significance for development, characterises only one of its contradictions. The resolution of the contradictions between F. & C. depends on their nature, the degree of their development, and the conditions in which they develop. This resolution can be brought about through a change of F. in conformity with the changes in C., a change of C. in conformity with the new F., the discarding of F., subordination of the old F. to the new C., and so on. In transition from one qualitative state to another, the old form is either abolished or transformed. Moreover, the old F. cannot be abolished before the prerequisites and elements for transition to a more improved F. have been prepared within it. This is a dialectical process of "elimination" (q.v.), in

which the old F. is seldom discarded completely or absolutely and the new F. does not always at once dominate but begins to prevail gradually; the old F. ensure development to a lesser degree than the new F., and, therefore, the latter assume an ever greater place in time. This feature of the "elimination" of the old F. also creates the possibility for regressive development, the restoration of the old F. The dialectics of C. & F. is strikingly displayed in the constant renewal and progressive development of society.

Formal Conclusion, in the formal (logical) system S with axioms $A_1... A_n$ and rules of inference $R_1... R_m$, F.C. of a proposition (formula) D from a multitude of initial premisses is the sequence of formulas, each of which is either an axiom or a premiss of G, or is immediately inferable by one of the rules of inference $R_1 ... R_m$ from the formulas preceding it. The last formula of this sequence is D. Proposition D is said to be the conclusion or finite formula inferred from the given premisses G. The inference of D is valid in the given system only. This is a syntactical conception of conclusion. The inferential relation may also be considered semantically: D is logically inferable from $A_1... A_n$ and G, provided it is decided for each interpretation (see Interpretation and Model) for which $A_1... A_n$ and G are decided.

Formalisation, a method of ascertaining more precisely the content of knowledge: objects, phenomena, and processes in the given sphere of reality are compared in a definite way with material constructions of a relatively stable nature; this makes it possible to bring out and fix the essential and natural aspects of the examined objects. As an epistemological method F. helps to establish and specify content by ascertaining and fixing its form. That is why every F. necessarily gives a rough picture of living, developing reality. But this "rough picture" is an essential aspect of the process of cognition. Historically, F. arose together with thought and language. An important step in the development of F. is associated with the appearance

of written language. Subsequently, as science, especially mathematics, developed, signs of a special nature were added to the natural languages. Together with formal logic the method of logical F. appeared. It consists in bringing out a logical form for conclusions and proof. The creation of calculi in mathematics and the idea of universal calculus (Leibniz) was an important stage in developing F. methods. The construction of logical calculi, which began in mathematical logic in the mid-19th century, made it possible to apply its methods to formalising entire branches of science. Spheres of knowledge formalised by means of mathematical logic acquire the character of formal systems. F. of knowledge does not eliminate the dialectically contradictory relationship between content and form, characteristic of knowledge as a whole. The results of modern logic show that if a theory of sufficiently rich content is formalised it cannot be fully reflected in this formal system: an unascertained and unformalised residue always remains in a theory. This non-conformity between F. and the formalised content acts as the internal source for developing the formal logical means of science and is usually manifested in the discovery of propositions which cannot be solved in the given formal system (see Decision Problem). Another form in which this contradiction is manifested is the antinomy (q.v.). This situation is remedied by constructing new formal systems in which the part not covered in the preceding F. is formalised. Thus, ever deeper F. of content is effected but absolute completeness is never achieved.

Formalised Language, a calculus (q.v.) to which interpretation is ascribed (see Interpretation and Model). The syntactic part of the F.L. (see Logical Synthax or the calculus itself is constructed in a purely formal way (see Logistic Method). A calculus becomes a F.L. by adding the semantic rules which impart meaning (see Denotation and Meaning) to properly constructed propositions of a calculus. In addition to purely logical axioms,

a F.L. may also contain some propositions of a non-logical nature (for example, some laws of biology, axioms of arithmetic, and others); then a F.L. deductively describes the corresponding content. Thanks to its deductive means a F.L. makes it possible to apply a strict process of reasoning and receive a new deductive conclusion not contained directly in the accepted axioms. Thus, F.L. is an instrument for conclusion and proof in formalised scientific subjects. The role of F.L. has been enhanced by attempts to automate scientific reasoning through electronic machines (see Cybernetics).

Formalism 1. A general name for an anti-realistic method which includes many trends and schools in the art and aesthetics of bourgeois society in the epoch of imperialism (see Abstract Art, Cubism, Surrealism, Dadaism, Purism, Primitivism, Fauvism, Tachism). All these trends, notwithstanding some or other distinctions, have common features: they counterpose art to reality, divorce the artistic form from the idea-content and proclaim the autonomy and primacy of form in works of art. F. stems from the idealistic understanding of aesthetic pleasure, which it alleges to be free from social ideas, vital interests, from the aesthetic and social ideals and, therefore, entirely dependent on the "play of pure forms". Actually F. usually reveals the full dependence of the content of works on bourgeois ideology. At the same time the divorce of form from content in art inevitably leads to its destruction, although this is claimed to be "form-creation". F. is hostile to socialist art. 2. A trend in mathematics which tries to solve the problems of foundations of mathematics by means of formal axiomatic constructions. F. arose at the beginning of the century (the German mathematician D. Hilbert, q.v., and his colleagues W. Ackermann, P. Bernays, and G. Neyman). In contrast to intuitionism (q.v.), Hilbert seeks foundations for mathematics in a strictly elaborated formalised axiomatic method. The truth of a theory obtained by this method is understood

by Hilbert as its non-contradiction (q.v.). Thus Hilbert reduces the truth-value of mathematics to its non-contradiction and tries to prove the latter in mathematics itself. But such an attempt runs counter to the achievements of modern mathematics (Gödel's, q.v., second theorem). F. is also untenable from the philosophical viewpoint, because ultimately a mathematical theory, like any other, finds its proof in practice, in its conformity to the object. To try and deduce the truth of any theory, as Hilbert does with regard to mathematics, from the internal conformity of thoughts means to defend in one way or another the positions of idealism. This does not negate the positive results achieved by exponents of F. in the proof theory.

Formula, conventional expression by a definitely organised system of symbols of certain relations, processes or structures. The following are the examples of formulas: $XV\bar{X}$ (the Law of Excluded Middle, q.v.); $Ax+By+C=O$ (algebraic equation of a straight line);

$F=m \frac{dv}{dt}$ (Newton's second law); $n \rightarrow p+e^{-y}$ (process of beta disintegration); $\begin{matrix} H \\ H \end{matrix} > C = C < \begin{matrix} H \\ H \end{matrix}$ (structural formula of ethylene).

Ff. make it possible to express intricate relationships, processes, and structures in a compact and generalised form. The efficacy of scientific knowledge largely depends on the finding of a productive formalism that enables scientists to express in the language of formulas the objects they study and their quantitative and qualitative relations.

Fourier, François-Marie-Charles (1772-1837), French utopian socialist. He came from a middle-class merchant family and worked for a long time as a clerk and a business employee. F. profoundly and lucidly criticised bourgeois society, revealing the contradictions between the ideas voiced by the ideologists of the French Revolution and reality, the antagonism between poverty and wealth, and the moral and physical degradation of most people. In justifying the socialist system,

he proceeded from the propositions of the French materialists on the decisive part played by environment and education in moulding the personality. All human sensations and passions (taste, touch, vision, hearing, olfaction, friendship, ambition, love, fatherhood, predilection for "intrigue", desire for diversity, striving to unite in groups), all traits of the human character as such are good. There is no need to suppress human passions. The fault is not with man but with the society he lives in. Hence, it is necessary to create a social system which promotes the full satisfaction of human passions and their development. The *phalange*, consisting of a few production units, is to be the main cell of the future society. Each member of the *phalange* has a right to work. Guided by their own interests, people voluntarily join some productive group or other. Narrow professionalism, which warps man, is eliminated in the *phalange*; in the course of a day each member of the *phalange* passes from one type of work to another, engaging $1\frac{1}{2}$ -2 hours in each. This turns labour into a necessity and an object of pleasure. As a result, society attains a high level of labour productivity and material abundance. Distribution in the *phalange* is made according to labour and talent. F.'s conjectures concerning the elimination of the antithesis between mental and physical work, between town and country are highly valuable. Lack of understanding of the historical mission of the proletariat and renunciation of revolution as a means for remaking the existing society is characteristic of F., as of other utopian socialists. He expected to achieve his aims by peaceful propaganda of socialist ideas among the capitalists, too. As an inducement to the latter he suggested that unearned income, amounting to one-third of the total, be preserved in the *phalange*. Main works: *Théorie des quatre mouvements et des destinées générales*, 1808; *Théorie de l'unité universelle*, 1822; *Le Nouveau Monde industriel*, 1829.

Frank, Philipp (1884-), physicist and philosopher, specialising in mathemat-

ical physics. Began his activity in Vienna and then took Einstein's place in the chair of theoretical physics in Prague. Emigrated to the USA in 1938. F. is a neo-positivist. He took an active part in the Vienna circle (q.v.) and, together with Schlick (q.v.), wrote a series of books, *Essays on a Scientific World Outlook*, which has played a big part in shaping contemporary positivism (q.v.). F. is an active opponent of the philosophy of dialectical materialism. Eclectic combination of empiricism with apriorism and recognition of the intelligible, super-sensory aspect of some categories (space, time, and others) is characteristic of F. as of some other neo-positivists (see Neo-Positivism).

Franklin, Benjamin (1706-90), American thinker, political leader and encyclopaedic scientist. All his activities were associated with the struggle of the American people for independence. He was an ideologist of the bourgeois revolution of 1775-83 and called for the abolition of slavery. In his philosophical views was close to Locke (q.v.) and was greatly influenced by the works of the French 18th century Enlighteners. A deist, he acknowledged the objective existence of nature and its laws, and developed the idea of the indestructibility and uncreatability of matter. F.'s scientific works in physics (discovery of the electric nature of lightning) received world recognition and played an important role in the struggle against religious superstitions. F. took an interest in economic problems, he called man a tool-making animal. Problems of war and peace held a considerable place in his historical works. He advocated the establishment of peaceful relations among nations.

Freedom and Necessity, philosophical categories expressing the relationship between the activity of people and the objective laws of nature and society. Idealists regard F. and N. as mutually exclusive concepts and comprehend F. as the self-determination of the spirit, freedom of will, the possibility of acting according to a will which is not determined by external

conditions. They assert that the idea of determinism (q.v.) which posits the necessity of human actions fully removes the responsibility of man and makes the moral judgement of his actions impossible. Only unlimited and absolute F., from their viewpoint, is the basis of human responsibility and, consequently, of ethics. Sartre, Jaspers, and other proponents of existentialism (q.v.) lapse into extreme subjectivism in explaining F. A diametrically opposed and wrong view is held by adherents of mechanistic determinism. They deny the F. of will, motivating it by the claim that the action and behaviour of man in all cases are determined by external circumstances not depending on him. This obviously undialectical conception elevates to an absolute objective N. and leads to fatalism (q.v.). A scientific explanation of F. and N. is based on recognition of their dialectical interconnection. The first attempt to demonstrate this interconnection was made by Spinoza, who defined F. as recognised N. Hegel gave an elaborated conception of the dialectical unity of F. and N. from idealist positions. A genuinely scientific, dialectical materialist solution of the problem of F. and N. is based on the recognition of objective N. as primary in the epistemological sense and man's will and consciousness as secondary, derivative. N. exists in nature and society in the form of objective laws. Uncognised laws are manifested as "blind" N. At the beginning of his history man, being unable to divine the mysteries of nature, remained the slave of uncognised N., was unfree. The deeper man cognised objective laws, the freer and more conscious his activity became. Limitation of human F. is determined by the dependence of people's F. not only on nature but also on the social forces dominating them. In a society divided into antagonistic classes, social relations stand opposed to people and dominate them. The socialist revolution abolishes the antagonism of classes and frees people from social oppression. With the socialisation of the means of production, the anarchy

of social production inherent in capitalism is replaced by planned, purposeful organisation, while the living conditions, which so far dominated the people in the form of alien, spontaneous forces, come under man's control. A leap is made from the kingdom of necessity into the kingdom of freedom (Engels). The experience of building socialism shows that socialist society gives people the opportunity consciously to apply objective laws in their practical activity, to direct the development of society purposefully and in a planned way, to create all the necessary material and spiritual prerequisites for the comprehensive development of society as a whole and of each individual, i.e., for the exercise of genuine F.

Freedom of the Will, see Will

Frege, Gottlob (1848-1925), German logician, mathematician, and philosopher, professor of Jena University from 1879 to 1918. His works opened a new stage in mathematical logic. F. for the first time effected the axiomatic construction of the logic of propositions and predicates and laid the basis for proof theory. In his two-volumed *Grundgesetze der Arithmetik*, published in 1893 and 1903, F. built up a system of formalised arithmetic aiming to demonstrate the idea that all mathematics is reducible to logic (see Logicism). The subsequent development of logic is largely connected with the development of F.'s legacy, in particular with overcoming the contradiction discovered in his system. F. was opposed to the subjectivist "psychological" trend of logic. His views of logic are stamped by elements of materialism. At the same time F.'s treatment of the problem of the universal contained features of objective idealism in the spirit of Plato (q.v.). F. voiced a number of ideas and concepts which entered contemporary science: interpretation of the concept as a logical function, the concept of the values of truth, introduction of quantifiers (q.v.), analysis of the concept of the variable, etc. F. is the founder of that part of logical semantics (q.v.) which is connected with the concepts of deno-

tation and meaning, linguistic expressions, and the relation of designation (or name).

French Historians of the Restoration, A. Thierry, F. Guizot, F. Mignet—bourgeois historians of the 1830-40 period. They went farther than the French 18th century materialists in explaining social development. They considered the history of feudalism and bourgeois society as the struggle of the third estate against the nobility and the clergy, and arrived at the conclusion that the causes of the class struggle are rooted in different material interests of the social classes. Thierry, for example, regarded the religious struggle between Presbyterians and Catholics as a struggle of the political parties for the property interests of different classes. But, reducing social life to property relations, these historians did not see their basis—the forces and relations of production. On the question of origin of classes they held to idealist positions, regarding wars and violence as the decisive force of social development. As ideologists of the liberal bourgeoisie, the historians of the Restoration epoch denied the existence of contradictions within the third estate which, in their opinion, included the entire people except for the nobility and clergy. Viewing the class struggle as progressive in the past, they denied the need for it in capitalist society, calling the struggle of classes madness, advocating class peace and claiming that capitalism was eternal.

Freudism, the theory and method of psycho-analysis (q.v.) so named after Sigmund Freud (1856-1939), Austrian physician, neuropathologist, and psychiatrist. Studying the causes of pathological mental processes, Freud resolutely rejected vulgar materialistic attempts to explain changes in mental acts by physiological causes. At the same time he completely deviated from the materialist world outlook, denied objective methods of studying mental activity, and created an arbitrary subjectivist theory. F. divorces mental activity from material conditions and the causes producing it. Mental activity is regarded as some-

thing independent, existing side by side with material processes (see Psycho-Physical Parallelism), and governed by special, unknowable, eternal psychic forces lying beyond consciousness (see Unconscious). Dominating the spirit of man, like fate, are immutable mental conflicts between the unconscious striving for pleasure (above all sexual), for aggression and the "principle of reality" to which the mind adapts itself. Freud subjects all mental conditions, all actions of man, and also all historical events and social phenomena to psycho-analysis, i.e., interprets them as manifestations of unconscious, above all sexual, impulses. Thus, the ideal—the psychic (above all the unknowable "Id"—the Unconscious) is considered the cause of the history of mankind, morality, art, science, religion, state, law, wars, and so on. Neo-Freudists, exponents of the schools of "cultural psycho-analysis" (K. Horney, A. Kardiner, F. Alexander, and E. Fromm) preserved untouched the main idealist line of Freud, renouncing only the tendency to see in all phenomena of human life a sexual undercurrent and some other methodologically inessential features of classical F. The Freudist concept has exerted and continues to exert great influence on various spheres of culture in capitalist countries, particularly on the theory and works of art. F. has now less influence in the sphere in which it originated, namely, neurology and psychiatry.

Friendship of the Peoples, fraternal co-operation and mutual assistance between the nations (q.v.) and nationalities (q.v.) of socialist society, one of its characteristic laws and motive forces. F.P. is a new type of international relationship, based on socialist economy, socialist democracy, and the Marxist-Leninist ideology of internationalism. The relations between the peoples of the USSR are an example of the F.P. which has developed with the establishment of socialist nations. It is a natural result of the Great October Socialist Revolution, the building of socialism, and the consistent pursuit of the Leninist nationalities

policy by the Communist Party. It is the source of the strength of the Soviet state and accelerates the Soviet people's progress towards communism. In the course of the full-scale construction of communism, which marks a new stage in the relations between peoples, the socialist nations develop in every sphere and draw even closer together. The peoples of the USSR have friendly feelings for the working people of all countries. Fraternal cooperation and mutual assistance is making great strides among the peoples of the world socialist system.

Function 1. An outward manifestation of the properties of some objects in a given system of relations, e.g., the function of the sense-organs, the functions of money, the functions of the state, etc. A number of idealist philosophies seek to reduce science to a description of the functions of objects, denying not only the possibility of cognising the essence and laws of things but also their existence (Machism, behaviourism, etc.). 2. In the mathematical sense, F. is a concept expressing the dependence, the relations between elements of two sets. The mathematical concept of F. is utilised in all the exact sciences. Following Mach, the neo-positivists try to replace the concept of causality by that of functional dependence (q.v.). Lenin criticised this viewpoint in his *Materialism and Empirio-Criticism*. 3. The logical or propositional function (q.v.) has a special meaning.

Functional Calculus, an extension propositional calculus by formalising inferences based on the internal structure of the propositions. One of the basic concepts of F. C. is the predicate (q.v.) of one or several subject variables: $P(X_1 \dots X_n)$, where P is the predicate and $X_1 \dots X_n$ are the subject variables. In functional calculus of the first order, predicates of subject variables are bound by quantifiers (q.v.) (universal quantifiers \forall and existential quantifiers \exists). The axiomatics of F.C. is obtained from the axioms and rules of inference of propositional calculus

(q.v.) by the addition of two axioms: $\forall x P(x) \rightarrow P(y)$, $P(y) \rightarrow \exists x P(x)$ and the following rules of inference: if formula $C \rightarrow D(x)$ has been inferred, then $C \rightarrow \forall x D(x)$ is inferred; if formula $D(x) \rightarrow C$ has been inferred then $\exists x D(x) \rightarrow C$ is inferred. F.C. is non-contradictory and complete in the sense that any equivalent-true formula can be inferred in it. The decision problem (q.v.) is undecidable (proved by A. Church). Binding by quantifiers not only of subject variables, but also of predicate variables produces F.C. of the second order.

Functional Dependence, a form of stable relation between phenomena or magnitudes, in which a change in some phenomena causes a definite change in others. Objectively, F.D. is manifested in a law which has precise quantitative definiteness and in principle can be expressed as an equation uniting the given magnitudes or phenomena as a function and an argument. F.D. may describe a relation: (1) between abstract mathematical magnitudes or functions regardless of what they express; (2) between properties or states of material objects and phenomena; (3) between objects, phenomena or material systems as such within the bounds of a harmonious system of a higher order. Every F.D. presupposes that the phenomena subordinated to it are distinguished by definite constants, parameters, concrete conditions and a quantitatively definite law. F.D. is not identical to a causal connection. Side by side with phenomena in which the causal connection is subject to an exact functional law, there are many singular and chance causal connections which are not functional, just as there is F.D. between mathematical magnitudes or properties of bodies which is not a causal connection.

Functional School in Sociology, a school in contemporary sociology of the USA (R. Merton, T. Parsons, P. Sorokin). The F.S. regards society as a single, interconnected social system, each element of which performs a definite function. The basic feature of such a system is the interaction of its components and the absence of

a single determining basis. But actually the determining part of the system, according to this school, consists of "spiritual values", above all religion, as an element of the system discharging a necessary social function. The ideas of F.S. are a reaction to the empiricism of contemporary American sociology. On the other hand, the functional explanation of the social system is counterposed to Marxist social science. F.S. is metaphysical, anti-historical, and idealist. It recognises equilibrium in the social system, denies the concept of the historical process, and claims that conflicts in capitalist society are ruled out.

Futurism, a trend in art which arose in Italy in 1909-11. It was founded by F.T. Marinetti (1876-1944). In his book *Manifesti del Futurismo* he wrote: "We shall extol the mounting triumph of the machine"; "A racing motorcar is more beautiful than the statue of Nike of Samothrace." These calls for extolling "industrial dynamism" could not conceal the real essence of F. which expressed the ideology of the aggressive Italian bourgeoisie. The futurists' idealisation of the machine, far from appreciating man's labour, actually boiled down to worship of technology and glorification of "mechanised" militarism (the poems and novels of Marinetti). The distinctive features of paintings and sculptures of F. (G. Balla, C. Carrà, U. Boccioni, L. Russolo, and others) were the self-contained images of "rhythms" and "motions", subjectivist symbols, distorted moving objects, elements of erotics or mysticism. Russian F., which originated in 1910, was a contradictory movement in literature and art. The Russian futurists (the Burlyuk brothers, Kruchenykh, Khlebnikov, B. Lifshitz, and V. Kamensky) were hostile towards the reactionary essence of Marinetti's manifestos, but their own works were petty bourgeois and anarchistic. On realising the ideological and aesthetic fallacies of the formalistic refinements of the futurists, Mayakovsky and others broke with F. and went over to positions of socialist realism (q.v.).

G

Galaxy (Gk. *galaxios*, -aktos, milky), the Milky Way, a cosmic system of more than 100,000 million stars, of which the Sun is one. The star clusters, nebulae, etc., of which it is composed, are knit by gravitation into a single complex system with a variety of forms of motion. Distances between neighbouring stars of G. are of the order of a few light years; the diameter of G. is about 100,000 light years. Cosmic systems resembling the Milky Way and numbering from a few thousand million to several hundred thousand million stars each, and including gas (chiefly hydrogen) and dust, are also known as galaxies. Together, they are said to form the Metagalaxy (q.v.). It was not until the 1920s that the asteroidean nature of galaxies was conclusively established, and therefore writers sometimes still use the traditional term, "extra-galactical nebulae".

Galich, Alexander Ivanovich (1783-1848), Russian philosopher, aesthetician and psychologist; objective idealist. In his lectures (Petersburg University, 1817-21) and his *Kartina cheloveka* (*Picture of Man*), 1834, G. maintained that individual thinking was governed by the laws of being. He stressed the prominence of sensations in the process of cognition, held that cognition developed by stages (hypothesis-concept-idea) and associated thinking with physiology. In his *Istoriya filosofskikh sistem* (*History of the Philosophical Systems*)—books 1-2, 1818-19—he attempted to formulate objective laws governing the development of philosophy; opposed materialism, but commended the methodology of the experimental sciences. In

his *Opyt nauki izyashchnogo* (*Experience of the Science of Beauty*), 1825, he was one of the first in Russia to advocate the aesthetics of romanticism (q.v.) and attacked the theory of imitating classicism.

Galileo Galilei (1564-1642), Italian physicist and astronomer; proponent of scientific world outlook; defied blind worship of Aristotle (q.v.) and attacked dogmatic scholasticism; discovered the law of inertia and the principle of relativity, according to which uniform and rectilinear motion of a system of bodies does not reflect on the processes within the said system. This nullified the sterile scholastic physics of his time and paved the way for experimental science. G's astronomical discoveries, which corroborated the heliocentric system of Copernicus (q.v.), delivered a death blow to religious dogma; the Roman Inquisition compelled him to abjure his "Copernican heresies". G.'s world outlook was distinctly progressive. He believed the world was infinite, matter eternal and nature single, and maintained that nature was governed by the rigorous mechanical causality of immutable atoms obeying the laws of mechanics. Observation and experience were for G. the points of departure in the cognition of nature. He considered cognition of intrinsic necessity to be the highest level of knowledge, but was unable to shake off the influence of religious prejudice and acknowledged divine origin. His principal work is *Dialogo dei due massimi sistemi del mondo* (1632).

Gall, Ludwig (1794-1863), early German utopian socialist, influenced by French and English communist ideas;

was personally acquainted with Fourier (q.v.), some followers of Saint-Simon and Robert Owen (qq.v.). In his writings of 1825-28 (*My Wishes and Actions*, and others) G. attacked the burgeoning capitalist system. He believed that co-operation by land-hungry peasants and artisans could slow down mass impoverishment, but did not suggest revolution or the expropriation of capitalists. G.'s ideology is the socialism of the petty proprietor disgruntled by the proletarianisation of society and unwilling to renounce the system based on private ownership. G. founded a society for providing jobs and housing for destitutes in Trier, Germany. Emigrated to America, where he attempted to establish a socialist community. On failing, he returned to Germany.

Gandhi, Mohandas Karamchand (1869-1948), a leader of the Indian national liberation movement, founder of the ideology and tactics known as Gandhism. Philosophically, G. was an objective idealist; his system identified God and Truth. He held that perception of the truth derived from moral self-improvement. His ethical views were based on the Jain (see Jainism) principle of *ahimsā*, the "law of love" and "law of suffering", and the principles of *brahmacharya* (practice of continence), *aparigraha* (non-covetousness), etc. Gandhism's typical feature is its ethical treatment of socio-political problems, its "moralisation" of political acts. G.'s socio-political ideas are embodied in his concept of *Satyagraha* (literally, persistent seeking of truth), of which non-co-operation and civil disobedience (to imperialist domination) were the main forms. G. opposed expropriation of the exploiting classes and denied the possibility of any radical revolutionary reorganisation of society. He held that social progress lay not in the growth of people's requirements, but in their self-imposed and voluntary restriction. He advocated Hindu-Muslim unity, campaigned against "untouchability", urged the emancipation of women and called for a national system of public education, etc. Was conferred the title

of *mahatma* (great soul). Gandhism is the official ideology of the Indian National Congress, the ruling bourgeois party of India.

Gassendi, Pierre (1592-1655), French materialist philosopher, physicist, astronomer, clerical, and professor of a number of universities. G. campaigned strongly against scholasticism (q.v.) and its perversion of Aristotle's (q.v.) teaching, and against Descartes's (q.v.) theory of innate ideas (q.v.); revived the materialism of Epicurus (q.v.), on which he based his own doctrine. In his basic work, *Syntagma philosophiae Epicuri* (1658), he divided philosophy into three parts: (1) logic, in which he analysed the problem of the authenticity of knowledge and criticised scepticism and dogmatism; (2) physics, in which he expounded the atomistic theory and inferred the objectivity, uncreatability and indestructibility of time and space; (3) ethics, in which he attacked the ascetic moral code of the church and echoed Epicurus in maintaining that every kind of pleasure is a blessing in itself and every kind of virtue is a blessing so long as it provides "serenity". Socially and politically, G. advocated unrestricted monarchy, reflecting the compromise made by the bourgeoisie to absolute monarchy. G. made important observations and discoveries in astronomy and is the author of works on the history of science. In the specific environment of the 17th century, G. was progressive as philosopher and scientist, but his materialism was inconsistent, for he reconciled himself to religion and the church, recognised God as the creator of atoms and held that in addition to the materialistically conceived "animal soul", man also had a suprasensory "rational soul".

Ghose, Aurobindo (1872-1950), Indian philosopher, founder of the so-called integral Vedānta, which ostensibly reconciles materialism and idealism, mysticism and rationalism, pluralism and monism (qq.v.). In the early 20th century he took an active part in the Indian liberation movement. His chief philosophical works are *The Life*

Divine, The Human Cycle, and The Ideal of Human Unity. In these books elements of the different trends of the Vedānta interweave with those of idealistic Western schools, particularly Hegel (q.v.), Bradley and Alexander (q.v.). G. believed that in the course of human history there is a transition from "subconsciousness" to consciousness and "superconsciousness". He also believed that the solution of the riddle of history and the achievement of man's aspirations lie in the attainment of mystical "superconsciousness". G. claimed to have discovered a "third way" of social development, as distinct from capitalism and socialism, and was in effect a bourgeois ideologist.

General Crisis of Capitalism, all-round crisis of the world capitalist system which encompasses the economic and the state system, politics, ideology, and also all other spheres of life in contemporary bourgeois society. The division of the world into two opposite systems, capitalist and socialist, is the decisive feature of the G.C.C. "The breakaway from capitalism of more and more countries; the weakening of imperialist positions in the economic competition with socialism; the break-up of the imperialist colonial system; the intensification of imperialist contradictions with the development of state-monopoly capitalism and the growth of militarism; the mounting internal instability and decay of capitalist economy evidenced by the increasing inability of capitalism to make full use of the productive forces (low rates of production growth, periodic crises, continuous undercapacity operation of production plant, and chronic unemployment); the mounting struggle between labour and capital; an acute intensification of contradictions within the world capitalist economy; an unprecedented growth of political reaction in all spheres, rejection of bourgeois freedoms and establishment of fascist and despotic regimes in a number of countries; and the profound crisis of bourgeois policy and ideology—all these are manifestations of the *general crisis of capitalism.*" (Programme of the CPSU.) In its devel-

opment the G.C.C. has passed through several stages. The first stage began during the 1st World War, particularly as a result of the victory of the Great October Socialist Revolution in Russia in 1917. The second stage began during the 2nd World War, especially as a result of the establishment of people's democracy (q.v.) in a number of European and Asian countries. The decisive feature of this period was the emergence of socialism beyond the bounds of one country and the formation of the world socialist system (q.v.). The third stage of the G.C.C. began in the second half of the 1950s; its specific feature is that it arose not in connection with a world war, but in conditions of the competition and struggle between the two systems, the break-up of imperialism's world colonial system and an increasing change in the relation of world forces in favour of socialism.

General Semantics, a trend of neopositivism (q.v.) which arose in the United States in the 1930s. Alfred Korzybski was the founder of G.S. At present the International Society for General Semantics, founded in Chicago in 1942, and also the Institute of General Semantics, organised in Lakeville (USA) in 1947, serve as the organisational centres of G.S. *ETC.*, a journal started in Chicago in 1943, is the official organ of G.S. In the opinion of the journal's founders, its name symbolises the general semantic understanding of the world as being in the process of eternal and instant change and the impossibility of reflecting it adequately. The main proponents of G.S., in addition to Korzybski, are S. Hayakawa, Anatol Rapoport, and Stuart Chase. The main postulates of G.S. and also its object of study were formulated by Korzybski in his book *Science and Sanity*. In his opinion, G.S. is neither philosophy nor psychology, nor logic in the ordinary sense of the word. It is a new subject based on relations between people, facilitating a more effective use of man's nervous system. Korzybski treats the relationship of man and objective reality in an unscientific way, in the spirit of subjective idealism. The main princi-

ples of G.S. are the principle of non-identity, the principle of incompleteness, and the principle of self-reflection. These principles must underlie man's new orientation in the external world. They signify that in his daily life man must not identify words with things, must not assume that something can be fully knowable and, lastly, must take into account the fact that language reflects not only external objects but also man himself. By elevating into an absolute the importance of language as a means of communication, some general semanticists seek to explain all vital problems, including the origin of wars and international tensions, as consequences of the incorrect use of language. They deny the objective content of general scientific concepts which are not accessible to direct sensuous verification. In recent years G.S. has assumed a definite anti-Marxist and anti-materialist trend, although its proponents vehemently deny that their doctrine constitutes a philosophy.

Generalisation, a logical process of transition from the particular to the universal, from less general to more general knowledge (e.g., the transition from the concept of "heat" to the concept of "energy", from the geometry of Euclid, q.v., to the geometry of Lobachevsky, q.v.) and also the result of this process; a generalised concept, judgement, law of science, and theory. The obtaining of generalised knowledge signifies deeper reflection of reality and penetration of its essence. In formal logic, generalisation of a concept is understood to mean transition from a narrow to a broader concept. At the same time, the content of a generalised concept is narrower, because specific features are excluded from it (see Concept, Volume and Content of). In proceeding from the concept "oak" to the concept "tree", for example, the specific features of the oak are discarded. The opposite process of G. is restriction.

Genetic Method, a method of investigation based on analysing the development of phenomena; came into existence when the idea of develop-

ment took precedence in science (17th century), viz., differential calculus in mathematics, Lyell's theory in geology, the Kant-Laplace hypothesis in cosmogony, the theory of evolution in biology, etc. The G.M. was also adopted in philosophy, gradually ousting the then prevalent analytic method, and became one of the methods of contemporary mathematics and logic. According to the G.M. we must determine (1) the initial conditions of development, (2) the main stages of development, and (3) the basic tendency or line of development. The chief purpose is to establish the connections between phenomena in time and to examine the transitions from lower to higher forms. The G.M. is superior to empirical analysis, because it proceeds parallel to actual development, the latter serving as the criterion of the validity of emergent ideas. However, despite its advantages, the G.M. does not get to the bottom of all the complexities of the development process. If used alone, unsupported by other methods, it leads into error, distorts and simplifies the facts, and reduces itself to primitive evolutionism. In modern science the G.M. has established itself as an element of the dialectical method.

Genius, the highest degree of creative mental endowment; a person of such endowment. Considering the relative difference between G. and talent, works of genius may be defined as having extraordinary novelty, individuality and historic importance, for which reason they are preserved for all time in the memory of mankind. A man of genius is one who by virtue of his extraordinary endowment and labour expresses and satisfies vitally important social demands.

Gentile, Giovanni (1875-1944), Italian philosopher, professor at Rome University, Minister of Education in Mussolini's government. He attacked Marxism in his work, *La filosofia di Marx* (1899) and revised the doctrine of Hegel (q.v.), removing from it the concepts of nature and the objective idea, and remoulding it into a system of "actualism", a subjective idealistic

variety of Neo-Hegelianism (q.v.). G. described all existence as the fruit of the thinking mind in motion. Thought, he contended, is always actual and active, and its creative activity is not restricted by space or time. The matter which it produces is dead and inert, although it is in unity with thought. To escape solipsism (q.v.), G. introduced the concept of the universal "I". Reality, he contended, is not identical with the conceptions of the individual mind, but is the pure thought of a supra-personal transcendental (q.v.) entity in the Universe, which overcomes all opposites in the process of coming into being. G.'s socio-political views evolved from liberalism to fascism. His subjectivism and voluntarism became the pillar of the ideology of the Italian fascists. His main works are *La riforma della dialettica hegeliana* (1913) and *Sistema di logica come teoria del conoscere* (1917).

Geoffroy Saint-Hilaire, Etienne (1772-1844), French zoologist, member of the Paris Academy of Sciences. G. advanced the idea of a "united plan of structure" of the organic world, which was a progressive idea in his day. He recognised the influence of the environment on the development of organisms and the possibility of transmitting the changes occurring in them by heredity. His researches helped to prepare the way for the theory of evolution (see Darwin).

Geographical Determinism, a school in sociology which holds that the geographical environment (climate, soil, rivers, etc.) is the chief factor in social development; an essentially naturalistic and idealistic approach to history. First advanced by ancient thinkers, Plato, Aristotle (qq.v.) and others, in opposition to religious and mythological views. G.D., which took shape as a distinct school of thought in the 18th century under the influence of Montesquieu (q.v.), was progressive so long as it opposed the church-sponsored feudal ideology which construed the divine preordination of social phenomena. But in the mid-19th century it was used, as in the case of Buckle (q.v.), to prove the alleged immutabil-

ity of social inequality and colonialist expansion. Lev Mechnikov's (q.v.) theory, which considered rivers as the root factor in the origin and development of civilisation, is closely related to G.D. Mechnikov argued that social development leads inevitably from tyranny to anarchy. The geographical school paved the way for the appearance, in the imperialist epoch, of geopolitics (q.v.).

Geographical Environment, the aggregate of things and phenomena of animate and inanimate nature (the earth's crust, lower layers of the atmosphere, water, soil, flora and fauna) involved at any given time in the process of social production and constituting the objectively necessary medium for the existence and development of any society. The development of society also changes and widens the G.E. In remote times men used little more than the natural sources of livelihood (wild plants and animals, fertile land, etc.). In the course of time, natural wealth comprising means of labour, i.e., mineral and power resources, came into play more prominently. G.E. considerably influences the life of society, tending to retard or accelerate the development of countries and nations, and often stimulating the growth of specific economic branches. In their natural state the elements of the G.E. do not necessarily satisfy the growing requirements of production. For this reason, man transforms or changes them, and, therefore, acts as the most powerful agent in the transformation of the G.E. But the extent, nature and forms of change depend on the social system. The anarchy of production and the competition prevailing in capitalist society more often than not cause changes of G.E. harmful to society. In none but socialist society are men "rationally regulating their interchange with nature, bringing it under their common control ... achieving this with the least expenditure of energy and under conditions most favourable to, and worthy of, their human nature." (Marx, *Capital*, Vol. 3, p. 800.) The building of the material and technical basis of

communism proceeds from effective and plan-regulated utilisation of all the elements of the G.E. for the good of the people.

Geometrical Method in Philosophy, widely used but inaccurate name for the axiomatic method (q.v.) of setting out philosophical theories; Spinoza (q.v.) was its most prominent exponent. He modelled his chief work *Ethics*, on Euclid's (q.v.) geometry, in the sense that he first presented the necessary definitions and axioms and then proceeded to prove the resultant theorems. In our time these theorems appear artificial, but it was Spinoza's purpose to stress the necessary interconnection between parts of the Universe, our knowledge of which is capable of proof. Descartes (q.v.), whose *Discours de la méthode* is clearly influenced by geometry, set a high value on the G.M. He went so far as to postulate that clarity and appearance, both notable features of geometrical axioms, are criteria of the validity of all knowledge. In his *De la recherche de la vérité*, Malebranche (q.v.) notes man's natural inclination to error and recommends the G.M. for metaphysics, i.e., speculative philosophy, to make it possible to deduce all the consequences from its few self-evident propositions.

Geometry, the branch of mathematics which investigates spatial relations and forms and their abstractions. Its origin may be traced to the antique world (Egypt, Babylon, Greece), where it resulted from the demands of production (measuring land, surfaces, etc.). It was in Greece that geometry was first moulded into a deductive theory by Euclid (q.v.). In the 17th century Descartes introduced the concept of co-ordinates, which marked the origin of analytical G. Applied to G., methods of mathematical analysis discovered in the 17th century produced differential G. Projective G. and descriptive G. were conceived in the 17th-19th centuries, to meet the need for depicting bodies on planes. In the 19th century Lobachevsky (q.v.) made the revolutionary discovery of non-Euclidean Gg. (q.v.). In the 20th century, under the influence of the theory of plurality,

topology emerged, becoming a branch of mathematics in its own right; topology investigates the most general properties of continuous transformations in space. At first, data obtained from man's immediate experience were the subject of G. Then, as science advanced, G. inclined towards a higher degree of abstraction. At present, it is usual to employ the axiomatic method (q.v.) for the logical construction of a geometrical theory from elements given in abstract form. The development of G. was stimulated by the needs of natural science. Investigations of the logical foundations of G., which helped to determine the nature of the axiomatic method, are of great epistemological importance. They have added precision to our knowledge of the relation of geometrical theories to the real world.

Geopolitics, a political doctrine justifying imperialist expansion with references to economic and political geography. G. was propounded by Friedrich Ratzel, a German geographer, shortly before the 1st World War; he viewed countries as organisms struggling for *Lebensraum*. Its other proponents were Halford Mackinder (Britain) and Admiral Alfred Mahan (USA). The term G. was first used by Rudolf Kjellén, a Swedish scholar, who, in his *Staten som Lifform* used the arguments of Malthusianism (q.v.) and Social-Darwinism (q.v.) to justify the imperialist approach to geographical space. In 1923-27 a study group organised by the German journal *Geopolitik* proclaimed G. a special science distinct from conventional political geography. Karl Haushofer and Erich Obst, the leaders of this group, applied G. to the political objectives of nazism. After the 2nd World War, G. won adherents in the United States (Nicholas J. Spykman, etc.), Canada (Thomas Greenwood), and particularly in Federal Germany (Carl Schmitt, Hans Grimm, Alfred Hettner, Adolf Grabowski, etc.). Today, G. argues the need for inter-state imperialist blocs and seeks to prove the geographical causes of the rift between the communist East and the bourgeois West (the "continental" and "maritime" types of civ-

ilisation). Prominent among the contemporary geopolitical concepts is the so-called global approach to political geography which, as a rule, reflects imperialist claims to world domination.

"The German Ideology", an early philosophical work of Marx and Engels written in 1845-46, criticising the idealism of the Young Hegelians (q.v.) and the limited nature of Feuerbach's (q.v.) materialism. The book was not published during the lifetime of Marx and Engels; it appeared for the first time in 1932 in the Soviet Union. Developing further the ideas expounded in *The Holy Family*, Marx and Engels showed that idealism is associated with the classes hostile to the proletariat and that, in particular, the philosophy of the Young Hegelians reflected the cowardice and impotence of the German bourgeoisie. Marx and Engels criticised the metaphysical character and the contemplative nature of Feuerbach's materialism, they showed that in his views of history Feuerbach was an idealist and, therefore, like the Young Hegelians, was unable to understand the driving forces of social development. *G.I.* presents a profound critique of bourgeois individualism and anarchism (q.v.) of Stirner (q.v.) and also of the reactionary, so-called "true socialism" of K. Grün, M. Hess, and others. Combating the enemies of the proletariat, Marx and Engels developed in *G.I.* the theory of scientific communism and proved that the proletariat based its activity on the objective laws of social development. They saw in the proletariat's struggle against the bourgeoisie, in the victorious communist revolution and the inevitable establishment of the communist system the necessary result of the operation of economic laws which exist independent of man's will. *G.I.* gives the first detailed exposition of the materialist understanding of history: of the question of the socio-economic formation (q.v.), the productive forces (q.v.), and relations of production, q.v. (the latter term was not used yet in *G. I.*), the relationship of social being (q.v.) to social consciousness (q.v.), etc. In *G.I.* Marx and Engels

expounded their world outlook, which by that time was, in the main, clearly defined. This book is a model of militant philosophical critique of ideology hostile to the proletariat, a model of communist partisanship in elaborating philosophical problems.

Gestalt Psychology (Ger. *Gestalt*—shape, form), an idealistic trend in modern psychology; originated in Germany in 1912. The term "G.P." was first introduced by Christian von Ehrenfels (1859-1932); its most prominent exponents were Max Wertheimer (1880-1944), Wolfgang Köhler (b. 1887) and Kurt Koffka (1886-1941). Philosophically, G.P. is based on the ideas of Edmund Husserl (q.v.) and Ernst Mach (q.v.). In contrast to associationist psychology (q.v.), G.P. considers what it styles as psychic structures, "organised wholes" or "Gestalts", rather than sensations (q.v.), to be primary and basic in the workings of the mind. Their formation, according to G.P., is subject to the intrinsic faculties of individuals to create simple, symmetrical and closed or integral figures. This theory assumes the individual's isolation from his environment and his own practical activities. Ultimately, the *Gestaltists* ascribe the wholeness of the psychic structures to immanent subjective "laws"; in this they adhere to the idealistic standpoint. Subsequently, the ideas of G.P. (particularly the notion of "Gestalt") were applied to physical, physiological and even economic phenomena. Theoretically, G.P. was disproved by Ivan Pavlov (q.v.) and many other physiologists and psychologists.

Gnostics, adherents of a philosophico-religious school in the first centuries of Christianity who merged Christian theology with the religions of the ancient East, with Neo-Platonism (q.v.) and Pythagoreanism (see Pythagoreans); the G. believed in a spiritual unrecognisable prime cause which manifests itself in emanation and is counterposed to the material world, the source of "evil". The two leading Christian G. were Valentinus of Egypt (2nd century) and Basilides of Syria (2nd century).

God, imaginary conception of a supernatural omnipotent being, which is supposed to have created the world and to be ruling it; in Judaism (q.v.) Jehovah, in Islam (q.v.) Allah, in Christianity (q.v.) the Holy Trinity (God the Father, God the Son and God the Holy Ghost), etc. Conceptions of a god form the basis of modern forms of religion, whereas in the early stages of the development of religion this conception did not exist (see Totemism, Fetishism, and Animism). The conceptions of tribal and national gods came into existence with the collapse of the primitive-communal system, the development of tribal associations, and the rise of classes and the state. The conception of a single and omnipotent Almighty God, deity, the Lord of Heaven, took shape as a "copy of the single oriental despot". (Engels.) Theology (q.v.) resorts to idealism to prove the existence of God philosophically, to embellish and cloak this idea in pseudo-scientific terms, to present God as an absolute idea, a universal will, a kind of impersonal rational principle. That the idea of God and all attempts to defend it are groundless and reactionary was made perfectly clear by Marxism and corroborated by the whole development of the natural and social sciences. "God is," wrote Lenin, "(in history and in real life) first of all the complex of ideas generated by the brutish subjection of man both by external nature and by the class yoke—ideas which *consolidate* that subjection, *lull to sleep* the class struggle". (Vol. 35, p. 128.)

God-Building, a religious-philosophical trend in Russia which arose after the defeat of the revolution of 1905-07. Among its leaders were Lunacharsky (q.v.), V. Bazarov, Yushkevich (q.v.); Gorky was also associated with the God-builders for a time (*Ispoved* [*Confession*], 1907, and *Razrushe-niye lichnosti* [*Destruction of the Personality*], 1909), but broke with the movement under the influence of Lenin. The aim of G., which was closely linked with the philosophy of Bogdanov (q.v.) was to unite scientific socialism with religion and create a so-called religious

atheism, i.e., a religion without God. The God-builders regarded even Marxism as primarily a religious system that would show men the way to a new life. The ideas of the trend were much advocated in the school which Bogdanov and others set up on Capri in 1909. Although the God-builders belonged to the Social-Democratic Labour Party and opposed God-seeking (q.v.), their theories had nothing in common with Marxism; they reflected the ideological wavering of the part of the working class that was influenced by petty-bourgeois ideology. Lenin and Plekhanov (qq.v.) were sharply critical of G. "... Both in Europe and in Russia," Lenin wrote, "*any*, even the most refined and best-intentioned defence or justification of the idea of God is a justification of reaction." (Vol. 35, p. 128.) By the outbreak of the 1st World War G. had already ceased to exist as a trend.

God-Seeking, a religious-philosophical trend in Russia that set out to "inoculate the people with or strengthen the hold of religion on them in new forms". (Lenin.) It originated at the beginning of the 20th century in the form of religious meetings (St. Petersburg, 1901-03) and in the magazines *Novy Put* (*The New Way*), and *Voprosy Zhizni* (*Problems of Life*), etc. The ideas of G. became particularly popular among bourgeois intellectuals after the defeat of the Russian revolution in 1905-07. They were widely discussed in literature and at the Philosophico-Religious Society, which was revived in 1907. The advocates of G., such philosophers and writers as Berdyayev (q.v.), D. Merezhkovsky (*Ne mir, no mech* [*Not Peace but the Sword*], 1908, etc.), N. Minsky (*O svobode religioznoi sovesti*) [*On Freedom of the Religious Conscience*], 1902, and *Religiya budushchego* [*Religion of the Future*], 1905), and S. Bulgakov (q.v.), called for a "new attitude" to the Christian gospel and preached a "religious reformation". They maintained that the aim of life was to seek God, that the purpose of history was the realisation of God in humanity, the creation of a divine humanity, i.e., a social or-

ganisation founded on religious principles. Man could achieve this aim, the kingdom of God, only through love, humility, and patience. The God-seekers upheld irrationalism (q.v.) and mystical knowledge, considering revelation the most reliable means of discovering the truth. The theory of G. was aimed primarily against the Marxist teaching on society and was based on the philosophico-theological theories of Solov'yov (q.v.). Lenin, Plekhanov, and other Marxists exposed the reactionary nature of all philosophic brands of religious mysticism, including G. With the resurgence of the revolutionary movement in 1910-12 the influence of G. among intellectuals dwindled and disappeared altogether after the October Revolution of 1917.

Gödel, Kurt (1906-), Austrian logician and mathematician; resolved many key problems in mathematical logic. Associated with the University of Vienna in the 1930s, moved to the United States in 1940. G. proved (1931) the incompleteness of the formal systems, e.g., those assuming the formalisation (q.v.) of the arithmetic of natural numbers. Such systems, he showed, invariably contained propositions which, within their own framework, were both unprovable and undeniable. G.'s exposition stimulated research in the limitations of the formal systems by Alonzo Church, Stephen Cole Kleene, Tarski (q.v.), A. Mostovsky, P. Novikov, and others, which culminated in the fundamental philosophical deduction that complete formalisation of scientific knowledge is impossible. G. also devoted himself to metamathematics (q.v.), constructive logic, the theory of recursive functions, etc. In the 1930s, G.'s philosophical views were strongly influenced by neo-positivism (q.v.); subsequently, he came to oppose subjectivism.

Godwin, William (1756-1836), English political thinker and man of letters; exponent of petty-bourgeois equalitarian utopianism. He was a dissident minister as a young man and became a consistent rationalist in the early 1780s. G. gave primacy to the influence on men of the social environ-

ment and morals. He advocated abolition of the right of property and political authority. His ideal was a society of independent producers organised in small communities. He favoured the communist principle of distribution according to requirements. However, Engels described G.'s views as anti-social. G. influenced anarchistic doctrines.

Goethe, Johann Wolfgang von (1749-1832), German poet, naturalist and thinker; his philosophical views greatly affected the development of European theoretical thought. G. championed the idea that theory and experience are one. "First came the cause" is the basic principle of his approach to the world and cognition. He was convinced of the objectiveness of the laws of nature, the mover of the development of which is locked within it. G. was eager to supplement Spinoza's (q.v.) concepts, which he interpreted pantheistically, (see Pantheism) with the idea of development. Interaction of the positive and negative ("ascent" and "polarities"), G. held, is observable in every phenomenon; this interaction gives rise to new qualities. G.'s ideas about the creative character of negation embodied, in particular, in the image of Mephistopheles (*Faust*) are very valuable. G. considered motion the basic form of the existence of matter. However, unable to explain the multiplicity of forms of motion, he arrived at hylozoism (q.v.), i.e., acknowledgement of an eternally vital power, entelechy (q.v.). Although G.'s views are inconsistent and often contradictory, they may be described as close to materialistic. G.'s realistic aesthetics and his dramatic works and poetry exercise a strong influence on the theory and practice of world art.

Gogotsky, Sylvestr Sylvestrovich (1813-89), Russian idealist philosopher, professor at Kiev Ecclesiastical Academy (1841-51) and Kiev University (from 1851). G. deliberately adapted his philosophical views to the Orthodox faith and political reaction. He assailed materialism as a doctrine leading to atheism, and considered it the purpose of philosophy to represent

the ideas of God as the rational and creative first cause of the natural and spiritual world. G. believed knowledge of God to be innate and acquired through faith. He held that the idea of God is inseparable from human cognition, which is secondary and derives from internal experience, from immediate conviction, that is, faith. Antonovich and Pisarev (qq.v.) demonstrated the unscientific essence of G.'s writings. G.'s *Filosoofsky leksikon* (4 vols., 1857-73) is one of the earliest attempts made in Russia to compile an encyclopaedia of philosophy.

Good, The, any object or phenomenon that satisfies a definite human need, that corresponds to human interests or aspirations and in general exercises a beneficial effect on society, a class or a person. If a given object is a G. it means that it has a positive value (q.v.). The opposite to G. is evil, i.e., anything that has a negative social significance. Material Gg. are to be distinguished from spiritual Gg. Material Gg. satisfy man's material needs for food, clothing, housing, etc. Material Gg., or wealth, include the means of production—machines, industrial buildings, materials, and so on. Spiritual Gg. comprise knowledge, the achievements of human culture, moral good as expressed in man's moral actions, etc. The highest G. is man himself, the creator of all material and spiritual values. Many Gg. have a class character. What is a G. for the exploiters may be an evil for the exploited. This is an expression of the clash of class interests.

Good and Evil, ethical categories which express a moral appraisal of social phenomena and human conduct. G. is what society (or a given progressive class) considers moral and worthy of imitation, the reverse being true of E. The exploiting classes present their conception of G. & E. as "eternal" and universal, basing their claim on the commandments of God or metaphysical principles. One of the most influential idealist systems of morality is that of Kant (q.v.). According to the Kantian theory, G. is what conforms to the moral law, which is inherent in every

rational being and does not depend on the conditions in which a man lives (see Categorical Imperative). The materialist trend in the interpretation of the problem of G. & E., of moral conduct, was already developed in ancient philosophy. The hedonism (q.v.) of Aristippus and Epicurus asserts that pleasure alone is intrinsically G. This ethical theory was developed by the French materialists of the 18th century, particularly Helvétius (q.v.). Although pre-Marxist materialism held that the source of man's moral conduct lay in human nature, in a man's conditions of life and upbringing, it also claimed that the notions of G. & E. are eternal. The characteristic features of present-day bourgeois ethics are its attempts, on the one hand, to find grounds and justification for exploitation of the working people and the population of the colonies, and, on the other hand, to deny the importance of moral judgements in general (see Logical Positivism in Ethics). Marxist-Leninist ethics rejects the metaphysical interpretation of G. & E. "The conceptions of good and evil have varied so much from nation to nation and from age to age that they have often been in direct contradiction to each other". (Engels, *Anti-Dühring*, p. 131.) At the same time the concepts of G. & E. have their objective source in the development of society. Men's actions may be appraised as G. or E., according to whether they promote or hinder the satisfaction of the historical needs of society (see Morality).

Gorgias (483-375 B.C.), Greek sophist of Leontini, Sicily, a proponent of slave-owning democracy. Supplemented the relativism (q.v.) of Protagoras (q.v.) with rationalistic agnosticism (q.v.). His postulates have come down to us in the rendering of Plato (q.v.) and other authors. In his work, *On Nature or on That Which is Not*, G. proceeds from the philosophy of the Eleatic school (q.v.) to set out three propositions: nothing is real; if anything were real, it would still be uncognisable; if anything were cognisable, it would still be inexpressible.

Gramsci, Antonio (1891-1937), Marxist theoretician, founder of the Italian Communist Party; sentenced for his revolutionary activities by a fascist court (in 1928) to 20 years' imprisonment. G. played a prominent part in exposing mechanistic philosophy, the ideological basis of Right deviationism, widespread in some of the Communist Parties of Europe in the 1920s. His main writings are contained in his *Quaderni del Carcere*. He devoted himself to problems of historical materialism and took an interest in aesthetics, sociology, the history of philosophy, etc. His studies on the history of Italian culture and his criticism of Catholicism are of considerable interest. He dealt with the relation of basis to superstructure, of the proletariat to the intelligentsia, the cultural revolution and the role of ideology in social development. G. battled against idealistic sociological and philosophical trends, especially that of Croce (q.v.), and propagated Marxism-Leninism.

Granovsky, Timofei Nikolayevich (1813-55), Russian historian and sociologist, professor at Moscow University (1839-55), a prominent exponent of Westernism (see Westerners, Slavophiles). His views were strongly influenced by Stankevich, Belinsky and Herzen (qq.v.); he also had a good grasp of the German classical philosophers. According to G., the historical process is rigorously governed by objective laws. He defines objective law as an ideal, a moral goal, in the attainment of which personalities are likely to play a leading role. However, he does not deny the masses "a certain historical weight". Hence, he denounces fatalism, which he describes as a doctrine that relieves individuals of moral responsibility. G.'s views on historical development (containing elements of dialectics) evolved from idealism towards naturalism. He believed that history should borrow the methods of research employed in natural science. His explanations of social phenomena attach considerable weight to geographical conditions. G. was an advocate of constitutional monarchy and expounded liberal views in opposing serfdom in

Russia. He exercised a beneficial influence on Russian society and Russian historiography.

Gravitation, a kind of physical interaction which is expressed in the mutual attraction of two bodies. According to the law of G. first formulated by Newton, each mass is attracted toward every other mass with a force directly proportional to the product of the masses and inversely proportional to the square of the distance between them. The theory of Einstein (q.v.) provided a deeper explanation of G. The study of immediate action and action at a distance (q.v.), which caused numerous debates among philosophers (see Relativity, Theory of), arose largely out of research into the nature of G.

Great Numbers, Law of, a general principle by which the combined effect of a large number of accidental factors produces, for a very large class of such factors, results almost independent of chance. In some conditions this law may be quantitatively evaluated (see Probability, Theory of). The first accurate, though limited, formulation of these conditions and the quantitative evaluation to be deduced from them was given by Bernoulli (1713). His theorem was generalised by Poisson (1837), who was the first to use the term "Law of Great Numbers". The theorem was given its most generalised form and proved by Chebyshev in 1867. The theorems pertaining to this law have their greatest practical use in statistics and statistical physics.

Grotius, Hugo (Huig de Groot) (1583-1645), Dutch jurist, sociologist and statesman; a prominent exponent of the bourgeois theories of natural law (q.v.) and social contract (q.v.). G. believed that the law and the state are of earthly rather than divine origin. The state, he said, came into being as a result of agreement among men. His theories helped to free the theory of the state and law from the influence of theology and medieval scholasticism (q.v.). His most celebrated work is *De Jure Belli et Pacis* (1625).

Gurvitch, Georges (1894-), French sociologist, was born in Russia, emi-

grated to France after 1917. His main works are *La vocation actuelle de la Sociologie* (1950) and *Déterminismes sociaux et Liberté humaine* (1955). He founded so-called dialectical hyperempiricism (microsociology), which claims to examine comprehensively all aspects of social reality in all its "strata", "levels", "dimensions and as-

pects", and all its "contradictions". G.'s concept is unhistorical, formal and idealistic, because it describes as "pseudo-problems", and thus rejects, the concepts of a single determinative basis of society, objective sociological laws, and the concepts of society and progress. G. is associated with the World Peace Movement.

H

Habits, actions which as a result of prolonged repetition become automatic. The physiological mechanism of H. is represented by the dynamic stereotype (q.v.). The H. of animals are unconscious. A similar psychological mechanism of H. is formed in man too in the course of adaptation to the environment. These are automated actions timed for concrete specific situations. Some H. are of practical value, but as long as they are not conscious they cannot be transmitted to another person. The higher form of H. is the H. of man whose components are apprehended in advance, consciously divided, and united into systems which meet the general specific features of the objective situation for which the H. are formed. In such a case man in the process of automating H. and their functioning preserves the possibility of consciously controlling his actions and he can alter them with relative ease should the need arise. H. are included in all kinds of activities both external (e.g., motor H.) and internal (e.g., automated mental actions). H. are not only a result but also a requisite for man's creative activity.

Haeckel, Ernst (1834-1919), German biologist, professor at Jena University; known for his defence of Darwin's (q.v.) theory of evolution and natural historical materialism (q.v.). H. took Darwinism a step farther in a number of his theoretical propositions, such as the biogenetic law (q.v.) and the theory of phylogenesis (q.v.) which inferred natural inception of life from inorganic matter. H. developed Darwin's conception of natural selection as a factor of organic evolution by

stressing the adaptation of mutation of organisms under the influence of the environment. H. won popularity with his book, *Die Welträtsel* (1899) in which he attacked the idealist religious outlook and advocated the materialist outlook in natural science. The book became "a weapon in the struggle of the classes" and roused opposition from idealist philosophers, the church, and such idealist naturalists as Oliver Lodge and Chwolson. Progressive scientists ranged themselves behind H. Lenin highly commended the book (see Vol. 14, p. 334). H. publicly renounced religion and the church, but was not always consistent in his views. He departed in some matters from his materialism and atheism, and, among other things, suggested replacing official religion with belief in the divine powers of nature, in the spirit of Spinoza's (q.v.) pantheism (q.v.).

Hamann, Johann Georg (1730-88), German idealist philosopher; exponent of the teaching on immediate knowledge (q.v.); influenced the bourgeois-democratic *Sturm und Drang* literary school. H. opposed enlightenment (q.v.) and rationalism (q.v.); believed in the creative powers of mystic intuition. Yet he expressed the notion of the unity of opposites as a general law of being and thereby influenced the idealistic dialectics of Fichte, Schelling and Hegel (qq.v.). The most notable of his writings is *Kreuzzüge des Philologen* (1762).

Hamilton, William (1788-1856), Scottish idealist philosopher and logician; held that cognition was determination of the conditions of existence of the object investigated; denied objective

truth and gravitated towards agnosticism. H. held that "absolute", i.e., material reality, is cognisable through supernatural revelation only. He ranged himself beside Kant in accepting apriorism (q.v.) and moral postulates as the foundation of religious faith. He introduced into logic the doctrine of the quantification (q.v.) of the predicate, thus attempting to reduce inference to equation and logic to calculation. H. was a forerunner of the exponents of modern mathematical logic. Among his best-known works is *Metaphysics and Logic* (lectures edited and published posthumously in four volumes, 1859-60).

Hartley, David (1705-57), English physician and materialist philosopher; known for his theory of association of ideas being the direct result of molecular nervous vibrations. His doctrine is set out in his work, *Observations on Man, His Frame, His Duty, and His Expectations*. According to H., external objects act on the senses by inducing in the brain vibrations of infinitely small particles of matter. These vibrations, he held, are transmitted from one particle to the next through ether and constitute the direct cause of sensations. The sequence and order of the sensations reflect the sequence and order of the external impulses inducing the vibrations. While stressing the material origin of ideas, H. does not identify mechanical vibrations with the ideas themselves because, he avers, the vibrations are corporeal, while ideas are spiritual. H.'s materialism is mechanistic; what is more, it has a deistic complexion. H.'s doctrine strongly influenced Priestley (q.v.) and James Mill, and served as one of the prime movers of associationist psychology (q.v.).

Hartmann, Eduard von (1842-1906), German idealist philosopher; forerunner of the contemporary schools of irrationalism and voluntarism (qq.v.). Of his works, *Philosophie des Unbewußten* (1869) has had the greatest influence. Like Schopenhauer (q.v.), H. believed the unconscious spirit was the foundation of being. The idea of the unconscious also pervades H.'s

ethics. The desire of happiness, H. holds, is the source of unhappiness, and the rejection of all desires the way to painlessness, this being the only happiness, or the only substitute for happiness. To achieve painlessness, H. avers, man has to abandon his three dominant illusions—earthly happiness, happiness in the hereafter and happiness attainable by reorganising and improving society. H.'s doctrine denies happiness attainable through social progress and is, therefore, reactionary not only in the philosophical, but also in the socio-political sense.

Hartmann, Nikolai (1882-1950), German idealist philosopher, professor at Marburg, Berlin and other universities; belonged to the Marburg Neo-Kantian school (q.v.) until he repugned its subjective idealistic rationalism. Developed an objectively idealist doctrine of being, categories of being and categories of cognition. H.'s so-called critical ontology pivots on a teaching of the strata of being: inorganic, organic, soul and spirit. His philosophy contains traces of irrationalism and agnosticism, proclaiming as mysterious and uncognisable all the fundamental forms of being which are said to invade all strata of being. On the basis of his ontology, H. built up a philosophy of nature, a philosophy of the objective spirit, a system of ethics and a theory of "values", aesthetics and a theory of knowledge. His best-known works are *Ethik* (1925), *Zur Grundlegung der Ontologie* (1935), *Philosophie der Natur* (1950), and *Ästhetik* (1953).

Hedonism (Gk. *hedone*, pleasure), in ethics, a theory which defines good as that which yields pleasure or relief from suffering and evil as that which causes suffering. Hedonistic theories have been held from the earliest times; they reached their peak in the ethics of Epicurus (q.v.), and are the pivot in the utilitarianism of Mill and Bentham (qq.v.). The idea that pleasure is the ultimate good is, however, a crude and vulgar approach to the problems of morality.

Hegel, Georg Wilhelm Friedrich (1770-1831), one of the German clas-

sical philosophers; an objective idealist. The young H. was a radical, welcomed the 18th century French Revolution and rebelled against the feudal order of the Prussian monarchy, but the reaction that set in all over Europe after the downfall of the Napoleonic empire affected H.'s way of thinking. In 1818, he took a professorial chair at Berlin University and became an exponent, the founder even, of the official philosophy of monarchist Prussia. H.'s philosophy reflected the contradictory development of Germany on the eve of the bourgeois revolution; it was moved by the dualism of the rising German bourgeoisie, of which H. was an ideologist. Hence, the progressive, even revolutionary tendency of his philosophy, reflecting the revolutionary climate of contemporary Europe, on the one hand, and his conservative reactionary ideas, reflecting the inconsistency and cowardice of the German bourgeoisie and its gravitation towards compromise with Junkerdom, on the other. H.'s dualism is evident in all his writings, including *Die Phänomenologie des Geistes* (1807), which Marx described as the "true source and secret of Hegelian philosophy". In it H. examines the evolution of human consciousness from the first signs of it to the conscious development of science and scientific methodology (phenomenology—doctrine of the phenomena of consciousness from the point of view of their development). Engels described *Die Phänomenologie des Geistes* as the embryology and paleontology of the human spirit and the origin of the historicity that underlies all H.'s thinking. The volume contains an analysis of the category of alienation (q.v.), in which H. "grasps the essence of labour", albeit in an idealistic way, and conceives man and his history as "the result of his own work" (Marx). It also contains the basic principles of H.'s dialectics, a reasoned exposition of the identity of thought and being, which is the point of departure in H.'s system, and of the self-developing Absolute Idea as the basis and essence of the whole world. In its elaborate form, the system of

H.'s absolute (objective) idealism (outlined in *Enzyklopädie der philosophischen Wissenschaften im Grundrisse*, 1817) purports that all natural and social phenomena are based on the absolute—the spirit and reason, the "absolute idea", "world reason", or "world spirit". This absolute is active, its activity consisting of thought or, more precisely, of self-cognition. The absolute idea develops in three stages: (1) development of the idea in its own bosom, in the "element of pure thinking", i.e., Logic, wherein the idea reveals its content in a system of associated and contiguous logical categories; (2) development of the idea in the form of the "other-being", in the form of nature, i.e., Philosophy of Nature. Nature, H. avers, does not develop: it is merely the external manifestation of the self-development of the logical categories that constitute its spiritual essence; (3) development of the idea in thought and history (in the "spirit"), i.e., Philosophy of the Spirit. At this stage the absolute idea withdraws within itself and conceives its content in the different forms of human reasoning and activity. H. held that his system completed the self-development of the absolute idea and, at the same time, its self-cognition. H.'s dialectics, set out exhaustively in *Wissenschaft der Logik* (1812-16), has been a most valuable contribution to philosophy. In *Wissenschaft der Logik* H. formulated the law of quantitative changes turning into qualitative ones, produced a deep-going exposition of contradiction being the motive principle of all development, defined the law of "the negation of the negation", the dialectics of form and content, of the whole and the part, elucidated the categories of reality, necessity and chance, and many others, examined and criticised the Kantian dualism of "things-in-themselves", etc. However, H.'s dialectics is distinctly at odds with his idealist philosophy. The idealism of his philosophy and his bourgeois limitations prompted H. to betray his own dialectical ideas (claiming that the development of the world and of cognition had run its course

to completion, injecting mysticism into dialectics, applying the principle of development solely to phenomena in the realm of the idea, and making the categories of logic stereotyped and artificial). He was unable and reluctant to draw any consistent social conclusions from dialectics and reconciled himself to the status quo, going to the length of proclaiming the Prussian monarchy the crowning of social development, tolerating nationalist prejudice, etc. H.'s philosophy had a bearing on the development of Marxism, which salvaged its most valuable element, dialectics, moulding it into a scientifically reasoned teaching on the development of nature, society and thought. Marxism acclaims H.'s opposition to agnosticism, his historicity, his faith in the powers of human reason, and his science of logic, in which he traced the connections of the real world and the most important objective laws governing cognition. His works include *Grundlinien der Philosophie des Rechts* (1821), *Vorlesungen über die Geschichte der Philosophie* (1833-36), *Lectures on Aesthetics* (1835-38), *Vorlesungen über die Philosophie der Geschichte* (1837).

Hegelianism, see Young Hegelians and Old Hegelians.

Heidegger, Martin (1889-), one of the founders and main exponents of German existentialism (q.v.). He wrote his thesis under the guidance of Rickert (q.v.), was Husserl's (q.v.) assistant, and taught in Marburg and Freiburg. His main works are: *Sein und Zeit*, 1927; *Kant und das Problem der Metaphysik*, 1929; *Einführung in die Metaphysik*, 1953. He accepted the ideology of National-Socialism in his speech when he became rector of Freiburg University in 1933. The main category of H.'s idealist philosophy is "temporality", understood by him as the internal emotions of men. H. regards as primary the "mood", i.e., a form of spontaneous, undeveloped consciousness. Concern, dread, etc., are a priori forms of the human personality. These forms constitute the subjective being of man, which H. calls "being in the world". That is why

the doctrine of a priori forms becomes a doctrine of being (as fundamental ontology). To divine "the meaning of being" man must get rid of all practical aims and be conscious of his "mortality", "frailty". Only by feeling that he constantly stands "face to face with death" is man, according to H., capable of perceiving the importance and fulness of each moment in life and getting rid of the "idols of social being"—aims, "ideals", "scientific abstractions". The philosophy of H. combines the irrationalist tendencies of Kierkegaard (q.v.), the philosophy of life (q.v.), and Husserl's phenomenology (q.v.). Profound pessimism and hostility for science are intrinsic in H.'s existentialism.

Heine, Heinrich (1797-1856), German poet, revolutionary democrat, a friend of Marx; he was the first publicly to reveal the underlying revolutionary complexion of German classical philosophy and, in particular, the dialectics of Hegel (q.v.) which, he said, paved the way to political revolution. H. maintained that the history of philosophy was a history of the struggle between spiritualism (q.v.) and sensationalism (q.v.), and declared himself a champion of the latter trend (*Zur Geschichte der Religion und Philosophie in Deutschland*, 1834). The poet associated his criticism of religion and idealism with the fight against feudalism, monarchy and philistinism. He advocated democratic revolution and socialism, which he conceived in the spirit of Saint-Simon. His sanguine hope was that the varied requirements of mankind, the birthright of the people, would be satisfied in the future. He identified the term "materialism" with the mechanistic materialism of the 18th century, and opposed it to the pantheism (q.v.) of Spinoza (q.v.).

Heisenberg, Werner (1901-), German physicist, resides in the Federal Republic of Germany; he is one of the founders of quantum mechanics. In 1927, H. defined the correlation of uncertainties (q.v.). In the 30s and 40s, he devoted himself to various problems related to quantum mechanics and nuclear physics, and since

the early 50s he has been working on a comprehensive theory of elementary particles which infers the origin of particles from the interaction with itself ("self-action") of a single material substance. In his numerous utterances on the philosophical issues of contemporary theoretical physics, H. has generally maintained positivistic views, denied the independence of physical reality from observation, and referred to the "indeterminism" of microprocesses. However, as a researcher he has in one way or another acknowledged the objective existence of matter. Lately, he has been departing from his earlier positivistic views and expressing himself in the spirit of objective idealism.

Heliocentrism and Geocentrism, two theories, the first of which maintains that the Earth, while revolving round its axis, is one of many planets revolving round the Sun. Declarations in favour of this theory were made by Aristarchus of Samos, Nicholas of Cusa (qq.v.) and others, but Copernicus (q.v.) is rightly considered its true father, for he produced an exhaustive exposition of H. and substantiated it mathematically. Subsequently, the Copernican system was elaborated upon. The Sun, it was shown, was the centre not of all the Universe, but only of the solar system. Much was done by Galileo, Kepler and Newton (qq.v.) to substantiate H. Progressive scientists, who championed the heliocentric system, defeated the church-sponsored geocentric theory that the Earth was immobile and constituted the centre of the Universe. The latter theory contended that the Sun, Moon, planets and stars revolved round the Earth; based on religious concepts and the writings of Plato and Aristotle (qq.v.), it was expounded in its most complete form by Ptolemy, a 2nd century Greek scholar.

Helmholtz, Hermann Ludwig Ferdinand von (1821-94), German naturalist; professor at Königsberg, Bonn, Heidelberg and Berlin universities. His physico-chemical methods of examining living bodies refuted the doctrine of vitalism (q.v.) and stimulated

the development of materialist views in biology. H. made notable physiological discoveries (measurement of the speed of excitation in nerve fibres, physiological studies of the sense organs and the laws governing the perception of space, etc.). In his works on the theory of physics and other natural sciences H. expounded spontaneously materialist views, but gravitated at times towards Kantianism. He inferred erroneously from the theory of the "specific energy of sense-organs" that sensations were not images or copies of real things, but mere symbols, conventional signs or "hieroglyphs" bearing no resemblance to objectively existing things (see Hieroglyphs, Theory of). In his *Materialism and Empirio-Criticism* Lenin criticised H. for his departures from materialism.

Helvétius, Claude Adrien (1715-71); an exponent of French 18th century materialism (q.v.); his basic works are *De l'Esprit* (1758) and *De l'homme* (1773). H.'s philosophy is based on Locke's (q.v.) sensationalism (q.v.), which he purged of its idealistic element. According to H. objectively existing matter is cognised through sensations. H. described the memory as "a lasting but weakened sensation" and classed it as another instrument of cognition. He produced a simplified notion of thought, which he conceived as a combination of sensations. He stressed the part played by the social environment in developing the human character and thereby inferred the necessity of substituting capitalist for feudal relations, but held that human consciousness and passion were the motives of social development. Marx and Engels gave a deep-going description of H.'s philosophy. "Sensuous qualities and self-love, enjoyment and correctly understood personal interests are the bases of morals," they wrote. "The natural equality of human intelligence, the unity of progress of reason and progress of industry, the natural goodness of man and the omnipotence of education are the main points in his system." (Marx, Engels, *The Holy Family*, p. 175.) H.'s acknowledgement that environment is a

decisive factor in moulding the human character, his idea of the harmonious combination of personal and social interests and his conception of the original mental equality of individuals cleared the way for utopian socialism (q.v.).

Heracleides Ponticus (400 B.C.), Greek philosopher, disciple of Plato (q.v.), member of Plato's Academy (q.v.), belonged to the atomistic school. H. assumed that atoms were formed by a world reason, *nous*. His conception of the soul was atomistic and clearly influenced by Pythagoreanism. H.'s astronomical views inclined towards heliocentricism (q.v.), while his musical theories were Aristotelian (q.v.). None of his many works have survived.

Heraclitus of Ephesus (c. 544-c. 483 B.C.), Greek materialist philosopher and dialectician, an aristocrat. His philosophical work *On Nature*, of which only fragments survive, was extolled in the antique world for its profundity. The mysterious presentation of his views earned him the name of "The Obscure". Fire, H. held, was the prime material in nature, for it was the most capable of change and motion. The world as a whole, separate things and even souls, originated from fire. "This one order of all things," H. maintained, "was created by none of the gods, nor yet by any of mankind, but it ever was, and is, and shall be—eternal fire—ignited by measure and extinguished by measure." Lenin described this aphorism as "a very good exposition of the principles of dialectical materialism". (Vol. 38, p. 349.) All things derive from fire in accordance with necessity, which H. names "logos". The world process is cyclical: when the "great year" expires all things again turn into "fire". Everything in nature is in continuous flux. All things and all properties change into their opposites: cold becomes hot, hot becomes cold, etc. Since everything is constantly changing and is renewed, one cannot step into the same river twice because the second time one steps into new water. In human affairs this conversion of everything into its opposite is not a

simple change, but a struggle. Struggle is universal, it is "the father of everything, the sovereign of everything". But the struggle of opposites reveals their identity: the road up and the road down, life and death, etc., are all one and the same. The universality of change and the conversion of every property into its opposite make all qualities relative. Sensations are the basis of knowledge. If something were concealed from the light which is sensory, it would not, all the same, succeed in concealing itself from the light of reason. H. opposed his outlook to that of most of his contemporaries and compatriots. His aristocratic conceptions of society blended with a few progressive views: he opposed the traditional unwritten law championed by the aristocrats, and advocated law established by the state, which, he held, men should guard as closely as the walls of their native city.

Herbart, Johann Friedrich (1776-1841), German idealist philosopher, psychologist and educator. H. believed all existence to be based on *reals*, which are essences eternal, immutable, spiritual (like Leibniz's, q.v., *monad*, q.v.) and uncognisable (like Kant's, q.v., "things-in-themselves", q.v.). The "soul" is the most perfect of the *reals*, giving birth to all psychic phenomena. H.'s logic much resembled Kant's. In education, he departed from the democratic principles of his teacher, Pestalozzi (q.v.). Some of his ideas (active and passive attention, experimental psychology, etc.) are valuable. He based religion on teleology. H.'s socio-political views were reactionary. He rejected constitutionalism and considered subordination to the dominant classes the greatest virtue of the people.

Herder, Johann Gottfried (1744-1803), German philosopher, enlightener, man of letters and critic; studied at University of Königsberg (1762-64), where he heard the lectures of Kant (q.v.). He denounced Kant's "critique" of reason and opposed to it the "physiology" of cognitive faculties and the teaching on the primacy of language over reason. H. deduced his concepts of time and space from experience and

championed the unity of matter and the forms of cognition. Proceeding from the concept of progress in nature he developed the notion of progress in history (*Ideen zur Philosophie der Geschichte der Menschheit*, 1784-91) and society's advancement towards humanism. H. stressed the originality of the spiritual cultures of the various peoples, in particular the Southern Slavs, whose poetry he held in high esteem. He voiced a number of conjectures on the role of production (the crafts) and science in the development of society and anticipated the teachings of Schelling and Hegel (qq.v.) on the disparity between the subjective purposes of individual human acts and their objective historical results.

Heredity, the ability of living organisms to transmit characteristics and properties to their offspring. This ability arose and developed in the process of biological evolution. In the case of higher animals the transmission of hereditary characteristics depends only on the sex cells. Changes in H. of organisms are caused by the influence of the environment. Such changes are called mutations. Harmful mutations lead to the death of the organism, useful mutations are consolidated by natural selection. Mutation and natural selection are the basic factors of biological evolution which produced the contemporary species of organisms. Modern biology has discovered that substances, the molecules of which are sufficiently stable, reproduce themselves and regulate protein synthesis, can be the material carriers of H. Molecules of nuclear nuclein acids possess this range of properties. Discovery of the material carriers of H. refutes the idealist ideas of supernatural causes producing this ability of living organisms. Modern genetics has drawn near to discovering concrete ways for the purposive change of H. This will be an important stage in the cognition and transformation of living nature.

Heresy (Gk. sect, choice), a departure from orthodox religious doctrine. Hh. were the religious form in which the common people protested against the ruling classes in feudal society,

which were supported by the Catholic Church. The first Christian Hh.—monotanism, Judeo-Christianity, gnosticism — arose in the 2nd and 3rd centuries and opposed the established Christian dogmas. Arianism, Nestorianism, and Monophysitism date from the 4th and 5th centuries, when Christianity (q.v.) became the official religion of the Roman Empire. H. reached its peak in the Middle Ages, when the Catholic Church was most closely connected with the exploiting classes of feudal society and was at the height of its power (Bogomils, Waldenses, Albigenses, Lollards, Taborites, etc.). The H. movement was of great importance because it heralded the collapse of the feudal system in Western Europe. The peasant-plebeian Hh., which provided the slogans of peasant rebellions and inspired the common people, played a particularly prominent role in this respect. With the rise of capitalism Hh. lost their militancy and declined into religious sectarianism.

Herzen, Alexander Ivanovich (1812-70), Russian revolutionary democrat, materialist thinker, man of letters; founder of Narodism (q.v.); son of a nobleman; completed his studies at Moscow University in 1833. Was twice exiled by the tsarist authorities, first from 1835 to 1840 and then from 1841 to 1842. In 1847 he emigrated from Russia. Witnessed the 1848-49 revolution in France and Italy. After 1852 resided mostly in England, where he founded the Free Russian Printing Press (1853). Published *Kolokol* (*The Bell*), a revolutionary Russian language newspaper, from 1857 to 1867. Died in Paris. His chief works include: *Diletantism v nauke* (*Diletantism in Science*), 1842-43; *Pisma ob izuchenii prirody* (*Letters on the Study of Nature*), 1845-46; *S togo berega* (*From the Other Shore*), 1847-50; *K staromu tovarishchuu* (*To an Old Comrade*), 1869. H.'s development was complex and contradictory, but a basic goal was always evident in his theoretical search: proceeding from the highest accomplishments of social and philosophical thought, he wanted to create a new, "realistic", scientific theory to serve as

the groundwork for the coming social revolution. H. elaborated on the ideas of the French utopian socialists, the romantic historiography of the Renaissance and the 19th century German classical philosophy, and in the early 1840s produced an original atheistic and materialistic ontology whose main value lay in its materialistic interpretation of Hegel's (q.v.) dialectics. Later, he called it "the algebra of revolution". H. "came right up to dialectical materialism". (Lenin, Vol. 18, p. 26.) The main accent in his philosophical searchings lay on proving the identity of being and thinking, practice and theory, society and the individual. H. wanted to find a method of cognition adequate to reality and representing unity of experience and speculation. In the philosophy of history, H. engaged in the study of the law of society, which he ultimately conceived as a combination of the spontaneous process of history (the unconscious life of the nations) and the conscious activities of individuals (the development of science). In social affairs the notion of the unity of theory and practice prompted H. to work for the revolutionary enlightenment of the masses, to prepare them for socialist revolution. He approached this complex but intrinsically connected range of problems from different angles at different stages of his ideological development. The revolution of 1848-49, whose defeat was a personal tragedy to H., did much to correct his socio-philosophical views. Not finding in West European reality any coincidence of the historical process with the development of human thought, which had advanced and elaborated the socialist ideal, H. became pessimistic and sceptical of the prospects of a social revolution in the West. He attempted to overcome his pessimism by preaching a "Russian" peasant socialism, considering the Russian peasant community as the real embryo of the socialist future. H. pictured the further progress of Russian history as liberation of peasants from all feudal and autocratic trammels and fusion of the peasants' patriarchally collective way of life

with socialist theory. He not only called for a radical solution of the peasant question in Russia, but postulated the possibility of by-passing the capitalist stage of development. But events in the mid-1860s convinced him that the "bourgeois plague" was spreading in Russia. He did not succeed in overcoming his pessimism until shortly before his death, when he broke relations with the anarchist Bakunin (q.v.) and acclaimed the reviving working-class movement in Western Europe led by the First International as an earnest of the victory of socialism.

Heuristic, the art of discourse which flourished among the ancient Greek sophists. It sprang up as a means of discovering truth; it split into dialectics (q.v.) and sophistry (q.v.). It was Socrates (q.v.) who developed dialectics. Sophistry, which did not aim at discovering truth but only at winning an argument, reduced H. to a number of ways of proving and disproving any statement with equal success. For this reason, Aristotle (q.v.) saw no distinction between H. and sophistry.

Hieroglyphs (or Symbols), Theory of, an epistemological concept which claims that sensations create in the human mind not images reflecting the features of objects and phenomena, but symbols, signs, hieroglyphs which have nothing in common with things and their properties. The T.H. was first propounded by Hermann von Helmholtz on the basis of the so-called law of specific energy of the sense-organs formulated by Johannes Müller (according to this law, the specific nature of sensations depends not on outside influences, but on the properties of the sense-organs. For example, any influence on the organ of sight produces the sensation of light). The term "hieroglyph" was introduced into philosophy by Plekhanov (q.v.). This point of view brings in an element of agnosticism in epistemology. Dialectical materialism does not regard sensation as a mere copy of the properties of objects. Elementary sensations, arising during interaction with the objective world, also depend on the specific organisation of the sense-

organs. But the specific nature of the sense-organs themselves is ultimately determined by such objective and constant vehicles of information about changes in the environment as electromagnetic waves (light), oscillation of air (sound), and so on. On the other hand, elementary sensations are a subjective image of the objective world. They are the subjective means with the help of which a real image of external things is reproduced. That is why sensations keep us in touch with reality, and are not an impassable abyss which separates man's mind from the objective world. Lenin gave a criticism of Plekhanov's mistakes on this question in *Materialism and Empirio-Criticism* (q.v.).

Higher Nervous Activity, aggregate of the complex processes forming temporary associations in the cortex of the cerebral hemispheres. Pavlov's (q.v.) teaching on H.N.A. reveals the specific function of nervous activity, which enables highly developed bodies to adapt themselves to the changing conditions of their environment. H.N.A. is based essentially on conditioned reflexes acquired by the body in the course of individual experience. H.N.A. of animals is limited to the immediate reflection of external causes through the first signal system (q.v.). Man, as distinct from other animals, chiefly employs the higher second signal system, in which reflex activity is mediated by speech. Speech affords man a more profound, generalised reflection of reality in the form of abstract notions and complex judgements. H.N.A. reveals the physiological basis and laws governing psychic activity (q.v.). This facilitates cognition of the origin and development of human consciousness and confirms the proposition of the materialist philosophers that consciousness is the function of highly organised matter, the brain.

Higher Nervous Activity, Types of, the complexes of the basic properties of nervous processes (stimulation and inhibition) which determine the individual features of the higher nervous activity of animals and man. The concept T. of H.N.A. was intro-

duced by Ivan Pavlov. According to Pavlov, stimulation and inhibition operative in the cortex of the cerebral hemispheres possess three main properties. They are expressed in terms of the stages of (1) the power of nervous processes which is dependent on the efficiency of nervous cells; (2) the balance between the various processes; (3) the mobility of processes, i.e., the velocity of emergence or termination of stimulation and replacement of stimulation by inhibition and vice versa. A combination of these properties results in the T. of H.N.A. There are four most characteristic types: (1) strong, balanced, and mobile; (2) strong, balanced, and immobile; (3) strong and unbalanced (the process of stimulation being obviously predominant); (4) weak (both processes are weak, with inhibition being somewhat predominant). Four temperaments (q.v.) correspond to these main T. of H.N.A. The afore-mentioned T. of H.N.A. are common both to the animals and man. Pavlov singles out three T. of H.N.A. which are proper to man alone and are conditioned by the peculiarities inherent in the correlation of the signal systems: apprehensive type (with the relative predominance of the second signal system), artistic type (with the relative predominance of the first signal system), and middle type. The peculiar features of the individual's nervous processes are closely connected with his general talents and condition individual differences in the formation of capabilities.

Hilbert, David (1862-1943), German mathematician and logician; lecturer at Königsberg from 1886 and at Göttingen from 1895; founder of the Göttingen mathematical school. H. worked on the theory of algebraic invariants, algebraic numbers and the foundations of mathematics and mathematical logic. In his *Grundlagen der Geometrie* (1899) he reduced Euclidean geometry to a rigid system of axioms, which largely predetermined further work on the axiomatisation of knowledge (see Axiomatic Method). H. produced important work on the propositional calculus (q.v.) and functional calculus

(q.v.). In a number of articles which appeared in the early 20s, H. formulated a new approach to the foundations of mathematics, which led to the appearance, on the one hand, of the conception of formalism (q.v.) and, on the other, of metamathematics (q.v.), a new branch of mathematics.

Hinduism, a system of ideas and concepts which has prevailed in the religion, ethics and philosophy of India from the early Middle Ages to current times. The sphere of H. includes most of the Indian cults and religious systems based on the worship of the gods Vishnu and Śiva. H. arose in connection with the general crisis of the world outlook in India in the 6th-4th centuries B.C. The written sources of H. include most of the ancient and medieval Indian religious, philosophical and legal literature in Sanskrit. Ātman, the individual soul, and Brahman, the world soul, are the most important of the general religious philosophical categories. According to the objective idealist concepts of H., these categories are not connected with space, time or causation; Ātman and Brahman are counterposed by nature (*Prakṛti*) which develops in space and time according to the laws of causation. The ultimate aim of every progress is release of Ātman from nature and its fusion with Brahman. The soul's link with nature is regulated by the law of karma, the essence of which is: Ātman, on becoming a "living" soul lodged in the body of a living being, performs actions, good and bad. Karma (literally, "action") is the influence of these actions; it leaves the soul in a cycle of births and deaths (*samsara*) and dooms it to be born anew. The condition (wealth, poverty, honour, degradation, etc.) in which the next birth takes place is a reward or retribution for the actions committed during previous births. The ideas and concepts of H. reflected and consolidated the conservative caste system. Avatārs and manifestation play the most important part among the Hinduistic religious mythological ideas. Avatārs is the incarnation of a god in another god, man or animal. The

new incarnation continues to exist alongside the "initial" deity and its other incarnations. Manifestation is the revelation of the God Śiva in any image it wishes to assume and whose existence might last from a few moments to eternity.

The Historical and the Logical, philosophical categories characterising the process of development and also the relationship between the logical development of thought and the history of an object, the history of the process itself. The H. expresses the real process of origin and formation of the given object; the L., the relationship, the laws of connection and interaction of its aspects which exist in a developed state. The H. is related to the L. as the process of development to its result, in which the connections successively shaped in the course of history attain "complete maturity and classical form" (Engels). H. and L. are in dialectical unity, including an element of contradiction. Their unity is expressed, first, in the H. containing within it the L. to the extent to which every process contains its own objective orientation, its own necessity which leads to a definite result. Although at the beginning of the process the L., as an expression of the developed structure of the object, is still absent, the sequence of the phases undergone during the process on the whole coincides with the relationship (logical connection) between the components of the developed system; the process is consummated in the emergence of a definite, specific object. Secondly, the unity of the H. and L. is expressed in the reproduction by the relationship and interdependence between the sides of the developed whole of the history of this whole, its emergence and the formation of its specific structure. The result contains "photographed" in itself the process of its emergence: the L. contains within itself the H. Although the unity of the H. and L. is of decisive significance for understanding the relationship between the history of the object and its result, the two coincide only in general, because all the accidental and tran-

sient, all the zigzags of development which are inevitable in the historical process are obviated and lost in the object which has reached "complete maturity and classical form". The L. is the "corrected" H. But this "correction" is made "according to the laws which the actual historical process itself provides" (Engels). Hence the difference in the logical and historical ways of reflecting reality in thought. The difference between these methods of study is not merely and not only a difference in the subjective aims of study: it has its objective basis. This difference is inevitable, because in reality itself the process and result of development do not coincide, although they are in unity, and therefore the historical and logical methods of study differ in content. The purpose of historical study is to reveal the concrete conditions and prerequisites for the development of phenomena, their historical sequence and transition from certain historically necessary stages to others. The purpose of logical study is to reveal the role which separate elements of the system play in the developed whole. But since the developed whole preserves only the conditions and features of its development which express its specific nature, the logical reproduction of the developed whole proves to be the key to revealing its real history. "The anatomy of man is the key to the anatomy of the ape" (Marx). At the same time the boundaries separating these two methods of study are arbitrary and mobile, because ultimately the L. is the selfsame H. released from its concrete form and presented in a generalised, theoretical way; and vice versa, the H. is the selfsame L. vested in the flesh and blood of concrete historical development. The dialectics of H. and L. is of great importance for dialectical logic, which uncovers the general laws of knowledge, the logic of movement of thought in the process of cognising reality.

Historical Cycle, Theory of, an idealist theory elaborated by Vico (q.v.), according to which society endlessly passes through the same stages. In

the 19th and 20th centuries certain philosophers and sociologists rejected the positive elements of Vico's theory—the idea of historical progress, law-governed social development, etc., and highlighted the idea of mankind's constant return to its point of origin (see Nietzsche and Spengler). The main present-day adherent of this theory is Toynbee, q.v. (see also Progress and Retrogression in Social Development). The theory of historical cycles raises into an absolute and thereby distorts certain aspects of the historical process (idea of repetition, etc.).

Historism (or Historicity), the principle of cognition of things and phenomena in the process of their emergence and development, in connection with the concrete historical conditions determining them. H. implies an approach to phenomena as products of definite historical development, which considers how they arose, developed, and attained their present state. As a definite method of theoretical research H. is a fixation not of any and every (even qualitative) change, but only of those which reflect the formation of specific properties and connections of things, determining their essence, their qualitative specifics. H. presupposes recognition of the irreversible and successive nature of changes of things. H. has become a major principle of science, enabling it to give a scientific picture of nature and discover the laws governing its development (for example, Darwin's theory of evolution). Thanks to H., which constitutes an integral and important side of the dialectical method, Marxism was able to explain the essence of such intricate social phenomena as the state, classes, etc., to foresee the historically transient nature of capitalism and its inevitable replacement by socialism. Denial of the principle of H., struggle against it or its interpretation in a positivist and empirical spirit, are characteristic features of contemporary idealist philosophy.

Hobbes, Thomas (1588-1679), English materialist philosopher; his philosophy was influenced by the English 17th century bourgeois revolution. His

chief works are *De Cive* (1642) and *Leviathan* (1651). H. developed the doctrine of mechanistic materialism and gave system to Bacon's (q.v.) materialism. Marx pointed out that H.'s materialism was one-sided. "Sensuousness," Marx wrote, "lost its bloom and became the abstract sensuousness of the *geometrician*. Physical motion was sacrificed to *mechanical* or *mathematical, geometry* was proclaimed the principal science." (Marx and Engels, *The Holy Family*, p. 173.) According to H. the world is the sum total of bodies governed by the laws of mechanical motion. H. also reduces to motion and effort the psychic life of man and beast. These, he holds, are complex mechanisms completely governed by outside effects. From this H. infers that (1) souls do not exist as special substances, (2) material bodies are the single substance, and (3) God is no more than a figment of the imagination. H. denies the objectiveness of the qualitative multiplicity of nature, believing that it is a property of human perception based on the mechanical differences between things. In his doctrine on knowledge H. attacks Descartes' (q.v.) theory of innate ideas (q.v.). Inferring all ideas from sensations, H. develops the teaching on the elaboration of ideas by comparison, combination and division. While H. holds that experience or knowledge of isolated facts furnishes no more than probable truths about the connections of things, he admits that valid general knowledge is possible, being conditioned by language, that is, the ability of names to become symbols of general ideas. In his doctrine of law and the state, H. rejects the theories of the divine origin of society and advances the theory of social contract (see Social Contract, Theory of). H. considers absolute monarchy the best form of state, but his numerous explanations and reservations leave room for revolutionary principles. His idea centres not on the monarchistic principle as such, but on the unrestricted character of state power. Powers of the state, he points out, are compatible with the interests

of the classes which carried out the bourgeois revolution in 17th century England. H.'s theory of society and the state contains embryos of a materialistic appreciation of social phenomena.

Holbach, Paul Henri Dietrich (1723-89), French materialist philosopher, and atheist. Born a German baron, he spent most of his life in France. His most important book, *Le Système de la nature* (1770) was publicly burned by order of the Paris Parliament. His other works are *Le Christianisme dévoilé* (1761), *Théologie portative* (1768), and *Bon Sens, ou idées naturelles opposées aux idées surnaturelles* (1772). H. attacked religion and idealist philosophy, particularly the doctrines of Berkeley (q.v.). He described idealism as a chimera opposed to common sense (q.v.), and attributed the origin of religion to ignorance and to the fear of most and the deceit of some. Matter, H. held, "is everything that acts in one way or another on our senses", it consists of immutable and indivisible atoms whose main properties are extent, weight, shape and impenetrability. He believed that motion, another attribute of matter, was simple mechanical movement of bodies in space. Man, H. stated, was part of nature and subject to its laws. He advocated determinism (q.v.), but interpreted causality mechanistically. He denied the objective existence of chances and defined them as phenomena, the causes of which were unknown. In epistemology, H. leaned towards sensationism (q.v.) and opposed agnosticism. In politics, he favoured constitutional monarchy, but in specific cases advocated enlightened absolutism. An idealist in his approach to society, H. said that "opinions rule the world". He attributed the decisive role in history to legislators. He saw education as the means for man's emancipation. Ignorance of their own nature, H. averred, put the human race under the sway of governments. He believed bourgeois society to be a realm of reason.

Holism, idealist "philosophy of integrity". This concept was introduced by Field Marshal J. Smuts of South

Africa in his book *Holism and Evolution* (1926). Idealistically interpreting the irreducibility of the whole to the sum of its parts, Smuts asserted that the world is governed by a holistic process—the process of creative evolution, the creation of new integrities, in the course of which the forms of matter are constantly increasing. According to Smuts, the holistic process negates the law of preservation of matter. He considered the "factor of integrity" to be non-material and unknowable, attributing to it a mystic character. Smuts saw the political embodiment of the holist principle in the Union of South Africa with the regime of social oppression and racial discrimination prevailing in it.

"The Holy Family or Critique of 'Critical Critique'", an early philosophical work written by Marx and Engels in 1845. "*The Holy Family* is a facetious nickname for the Bauer brothers, the philosophers, and their followers. These gentlemen preached a criticism which stood above all reality, above parties and politics, which rejected all practical activity, and which only 'critically' contemplated the surrounding world and the events going on within it. These gentlemen, the Bauers, looked down on the proletariat as an uncritical mass. Marx and Engels vigorously opposed this absurd and harmful tendency." (Lenin, *Works*, Vol. 2, p. 23.) The *H. F.* gives a profound critique of the idealism of Hegel and the Young Hegelians (q.v.) and continues the elaboration of dialectical and historical materialism. In it Marx and Engels arrived at a primary idea in the materialistic understanding of history, the idea of the social relations of production. Subjecting the personality cult upheld by the Young Hegelians to sharp criticism, they showed that the struggle of the working people against the exploiters is the central feature of all history. They declared that the proletariat is the grave-digger of capitalism. The *H.F.* presents the view of Marx and Engels on the proletariat's revolutionary role in an almost finished form. The *H.F.* gives a profound and interesting outline of the

history of philosophy, particularly the history of materialism in Britain and France. It is an important landmark in the development of scientific communism, in the struggle against anti-proletarian, petty-bourgeois ideology and idealism.

Homoeomerics (Gk. of similar parts), a term used by Anaxagoras (q.v.); though not used in surviving fragments of his works, it was passed down by his later commentators. Anaxagoras believed that all things were an infinite number of particles of different qualities, each of these being divided into an infinite number of like particles. According to Anaxagoras, H. are the qualitatively like particles or qualitatively original particles containing an infinity of smaller particles. This, he inferred, is why they bear the name of the thing which possesses similar or like particles. In modern mathematical terms H. may be defined as an infinity given in an infinite degree.

Homogeneity and Heterogeneity, according to the principle of homogeneity postulated by Kant (q.v.) the special concepts must have something in common, this common quality classing them under a common generic concept. The principle of heterogeneity, on the other hand, requires that special concepts classed under the same generic concept should differ. The modern interpretation of homogeneity forbids the classification of heterogeneous principles within the framework of one theory. Violation of this principle leads to eclecticism.

Homonymy, a logical mistake consisting in the identical use of two different meanings of one and the same word which leads to a violation of the law of identity (q.v.). The reason for H. is the existence of homonyms (words having the same pronunciation but different meanings) and polysemy. The term H. was introduced by Aristotle (q.v.) in his treatise *Sophistici Elenchi*.

Honour, a moral category expressing social recognition of that which merits a high appraisal in the activity of an individual, group, institution, etc. In feudal society, H. was determined by

noble birth and in capitalist society, by wealth. In socialist society, H. (respect) is determined by services to the people in building communism and also by man's behaviour in everyday life, his attitude to other people. H. obliges one to be honest, morally pure, to preserve, cherish, and multiply what deserves respect. Unworthy behaviour leads to dishonour and disgrace. Excessive striving for honours and glory is called ambition and is a vice.

● **Hsün Tzū** (c. 298-238 B.C.), Chinese materialist philosopher; took a critical view of and used in his teaching the ideas of many philosophical schools and trends in ancient China. He produced a harmonious theory of nature. His concept of heaven is not some mystical supreme ruler but the aggregate of natural phenomena; he rejected the existence of a universal creator. All phenomena and things originate and change under the impact of two interacting forces: the positive *yang* and the negative *yin* (see Yin and Yang). According to H.T., the process of cognition begins with the testimony of the sense-organs, but man can obtain a correct and comprehensive picture only as a result of cogitation on the data of sensory experience. His theory that the evil qualities are innate in man's nature enjoyed a wide popularity; he held that all the good elements in man were created in the course of education. His teaching had a profound influence on the subsequent development of Chinese philosophy.

Human Relations, Theory of, a sociological theory which tries to prove the humane nature of contemporary capitalism by picturing the relations between the exploiters and the exploited as "human relations" based on Christian commandments. T.H.R. is a component of the theory of "people's capitalism". It proposes various measures for camouflaging capitalist exploitation (participation of workers in profits of the monopolies and the buying of shares, group insurance, visits of workers' homes by the employers, the presentation of holiday gifts, joint consultations of workers and management, and so on).

Humanism, a system of views based on respect for the dignity of man, concern for his welfare, his all-round development, and the creation of favourable conditions for social life. Humanistic ideas originated spontaneously in popular struggles against exploitation and vice. It grew into a distinct ideological movement at the time of the Renaissance (q.v.) from the 14th to 16th century, when it figured prominently as an element of bourgeois ideology opposed to feudalism and medieval theology. H. is closely associated with progressive materialistic views; it proclaims freedom of the individual, opposes religious asceticism, vindicates man's right to pleasure and the satisfaction of earthly desires and requirements. Some of the most prominent humanists of the Renaissance, Petrarch, Dante, Boccaccio, Leonardo da Vinci, Erasmus of Rotterdam, Bruno (q.v.), Rabelais, Montaigne (q.v.), Copernicus (q.v.), Shakespeare (q.v.), Francis Bacon (q.v.), and others, helped to mould mundane views, but were far removed from the people, from working men, and hostile to the revolutionary movements of the oppressed. Thinkers like More and Campanella (qq.v.), on the other hand, expressed the interests of the working people. Bourgeois H. reached its zenith in the works of the 18th century Enlighteners, who put forward the slogans of liberty, equality and fraternity and proclaimed men's right freely to develop their "natural essence". However, even the finest manifestations of bourgeois H. have the shortcoming of, overlooking the living conditions of working people, ignoring the question of their true freedom and basing humanistic ideals on private property and individualism. Hence the contradiction between the slogans of H. and their realisation in capitalist society. As for the exponents of utopian socialism (q.v.), they saw the anti-humanistic nature of capitalism and attacked its vices. But, not knowing the objective laws of history, they were unable to discover effective ways and means for achieving a just society. Socialist H. is fundamentally different. It is based

on the Marxist-Leninist philosophy and theory of scientific communism, which postulate liberation of the working people from social oppression and the building of communism as an essential condition for the harmonious development of all men and genuine freedom of the individual. Socialist H. is the ideology of the proletariat, because the proletariat is the only class that seeks to provide the essential conditions for the triumph of man's humanistic ideals by its struggle against the exploiting classes, for communism. By abolishing private ownership and exploitation, socialism establishes truly humanistic relations, based on the principle that man is to man a friend, comrade and brother. Communism is the supreme embodiment of H., for it eliminates all surviving traces of inequality and establishes the supreme expression of justice, the principle "from each according to his ability, to each according to his needs", providing the essential conditions for the harmonious development of all individuals. Communism delivers "all men from social inequality, from every form of oppression and exploitation, from the horrors of war, and proclaims *Peace, Labour, Freedom, Equality, Fraternity*, and *Happiness* for all peoples of the earth". (Programme of the CPSU.) The term H. is also used to describe the culture and ideology of the Renaissance.

Humboldt, Alexander von (1769-1859), German materialist philosopher, naturalist, one of the founders of modern geography. His most famous philosophical works are *Ansichten der Natur* (1807) and *Kosmos* (1845-58). He considered matter endowed with intrinsic activity to be the only cosmic substance. He did not delve into the sources of motion, but attempted all the same to overcome the mechanistic concept of motion. He made a number of dialectical conjectures about the interconnection of various phenomena and their peculiarities. He opposed the natural philosophies of Schelling and Hegel (qq.v.) and Comte's (q.v.) positivism, and attached importance to the alliance of science and material-

ist philosophy. His ideas on natural science helped to refute various metaphysical views. He identified sensualism and rationalism, and advocated a poetical appreciation of reality which, he averred, makes cognition socially useful. H. believed that cognition is possible through experimental communion with nature. This was a strong point in his epistemological system. He expressed the interests of the radical wing of the German bourgeoisie and sympathised with the French late 18th century bourgeois revolution.

Humboldt, Karl Wilhelm (1767-1835), German philosopher, linguist and statesman; brother of Alexander von Humboldt (q.v.). His main works are *Ideen zu einem Versuch, die Grenzen der Wirksamkeit des Staates zu bestimmen* (1792), *Asthetische Versuche über Goethes Hermann und Dorothea* (1799), *Über die Aufgabe des Geschichtsschreibers* (1821) and *Über die Kawisprache auf der Insel Java* (1836-39). H. accepted Kant's (q.v.) philosophical doctrine and sought to concretise and develop it by basing it on social history, though he inclined towards objective idealism on a number of points. According to H.'s theory of historical cognition, world history is the result of the activity of a spiritual force which transcends cognition. He believed that the history of mankind cannot be understood from the causative point of view, though it consists of a chain of explicable aspirations of individuals and appears describable. This is why, he said, history as a science may to a certain degree be replaced by aesthetics. In the field of linguistics, H. suggested the method of comparative historical investigations of languages, which proved highly valuable. He represented the liberal wing of the German bourgeoisie. His anti-feudal views did not go beyond the aim of educational reform and the idea of German unity. H. took part in the founding of Berlin University.

Hume, David (1711-76), English idealist philosopher, psychologist, historian. The task of knowledge, according to H., lies not in the understanding of being but in its ability to be a

guide in practical life. For him, the only subject of authentic knowledge is that of mathematics. All other objects of study concern facts which cannot be proved logically and can only be deduced from experience. All opinions on existences also proceed from experience, which H., however, understood idealistically. Reality, for him, is only a stream of "impressions" whose causes are unknown and unknowable. He considered insoluble the problem of the existence or non-existence of the objective world. One of the fundamental relations established by experience is the relation of cause and effect; it can be deduced neither by intuition nor by analysis and proof. If one phenomenon precedes another it cannot be deduced that the former is the cause and the latter the effect. Even the most frequent repetitions of events in time do not give knowledge of a hidden force by which one object produces the other. People, however, are inclined to infer from the behaviour of a given object in the past similar behaviours of the same object in the future. They make such inference only by force of habit. Thus, H. denies the objective character of causality. The stream of our impressions, according to H., is not absolute chaos: some objects appear to us as bright, vivid, stable objects, and this is quite sufficient for practical life. It is only necessary to understand that the source of certitude is not theoretical knowledge but faith. In ethics H. developed the theory of utilitarianism (q.v.), and declared utility to be the criterion of morality; in the philosophy of religion he confined himself to the admission that the causes of the order in the Universe have some analogy with reason, but denied all the theological and philosophical doctrines of God, and, turning to historical experience, he acknowledged the evil influence of religion on morality and civil life. H.'s scepticism (q.v.) was the theoretical foundation of the utilitarian and rational world outlook of the bourgeoisie. Main work: *Enquiry Concerning the Human Understanding* (1748). H.'s agnosticism greatly influenced contemporary

idealism. It served as one of the main ideological sources of neo-positivism (q.v.).

Husserl, Edmund (1859-1938), German idealist philosopher, founder of the so-called phenomenological school, professor at Göttingen and Freiburg. His philosophy is based on the teachings of Plato, Leibniz, and Brentano (q.v.). H. sought to turn philosophy into a strictly defined science and to create a pure logic of scientific knowledge. For this purpose, he believed, logical categories and laws had to be defined in their pure form. H. professed to be neutral in philosophy and attempted to identify "pure consciousness" divorced from being and the consciousness of the concrete subject (the individual). This, he maintained, was the way to achieve the "pure essences" of Plato's objective idealism. These "possess meaning", but do not possess existence in themselves. On the whole, H.'s views were subjectively idealistic, inasmuch as he held that the object of cognition does not exist outside the consciousness of the subject focussed upon it. The object is discovered (and created) as the result of intuition, which is concentrated upon it. The personal emotions of the individual are the criterion of truth. H.'s ideas strongly influenced the subsequent development of bourgeois philosophy. Elements of H.'s objective idealism were projected in Nicolai Hartmann's (q.v.) "critical ontology" and the neo-realistic schools in the USA and Britain. His subjective idealism became to a large extent the foundation of German existentialism (q.v.), particularly that of Heidegger (q.v.). His most prominent works are *Logische Untersuchungen* (1900, 1901), *Die Krisis der Europäischen Wissenschaften und die transzendente Phänomenologie* (1954) and *Erste Philosophie* (1956-59). (See Phenomenology.)

Huxley, Thomas Henry (1825-95), English naturalist, friend and follower of Darwin (q.v.); author of eminent works on biology, comparative anatomy, palaeontology and anthropology; championed Darwin's theories. In philosophy H. professed to be a follower

of Hume (q.v.), maintaining, as Hume did, that we can never conclusively cognise the true causes of our sensations. He aptly described his attitude with the word "agnosticism". But his agnosticism (q.v.) served him as a screen for his spontaneously materialist outlook, especially in natural science.

Hylozoism (Gk. *hyle*, matter and *zōē*, life), the doctrine that all matter is animated and, therefore, possesses sensations. The early Greek materialists, such as Bruno (q.v.) and some French materialists, such as Jean-Baptiste Robinet (q.v.), were hylozoists. The term was first employed in the 17th century. The doctrine attributes sensations and mental faculties to all forms of matter. In fact, however, sensations are a property of only highly developed organic matter.

Hypostatization 1. In the general sense, attribution of the self-subsistent reality of an object or substance to mere properties or relations. 2. In the more common usage, idealist attribution of self-subsistent reality to abstract concepts.

Hypothesis, an assumption based on a series of facts for inferring the existence of an object, or the relation or cause of phenomena, without actual proof. The corresponding judgement, conclusion or inference is called hypothetical. The need for H. arises in science when the connection between, or the cause of, phenomena is unclear, although many of the circumstances preceding or accompanying these phenomena are known; H. is also used when a picture of the past has to be restored from some characteristics of the present or a conclusion has to be drawn about the future development of a phenomenon on the strength of the past and present. But the formulation of H. on the basis of definite facts is only the first step. Being no more than probable, H. calls for verification and proof. After verification, H. becomes a scientific theory; if the verification is negative, H. is either revised or rejected. The main rules governing the formulation and verification of H. are: 1. H. must agree or

at least be compatible with all the pertinent facts. 2. Of many conflicting Hh., formulated to explain a series of facts, the H. which explains a larger number is preferable. So-called working Hh. may be formulated to explain individual facts of the series. 3. The least possible number of Hh. should be formulated to explain a connected series of facts, and their connection should be as close as possible. 4. When formulating H. it should be borne in mind that H. is essentially no more than probable. 5. Hh. contradicting each other cannot both be true unless they explain different aspects and connections of one and the same object. Modern positivists, empiricists, "all-inductivists", etc., believe that science should record and register the facts and should not formulate Hh. on the laws governing the objective world. They hold that Hh. play no more than a working role and are of no real significance. The nature of modern science, the fact that experiments have become more complex and intricate, compel researchers to engage in theoretical conjectures and broad Hh. This confirms Engels' proposition that H. is the "form of development of natural science, in so far as it thinks". (*Dialectics of Nature*, p. 244.)

Hypothetico-Deductive Method, a methodological device whereby certain propositions are advanced as hypothetical and subjected to verification by inferring effects on the strength of available valid knowledge and comparing these effects to the facts. H.D.M. is an important element of scientific methodology. It is used in association with a number of methodological operations: comparison of the facts; revision of existing concepts; formulation of new concepts; agreement of hypotheses with other theoretical tenets, etc. The neo-positivist "philosophy of science" is, therefore, wrong when it elevates H.D.M. to an absolute and describes it as the only essential methodological operation from the point of view of logic.

Hypothetico-Deductive Theory, a form of logical arrangement of knowl-

edge in the natural sciences. H.D.T. is an application of the deductive or axiomatic theory (employed in mathematical methodology) to the specific problems of natural science based on experiments and observations. In addition to the rules governing deductive systems in general, H.D.T. should also meet the requirements of empirical interpretation, which facilitates empirical verification of propositions. Empirical interpretation is achieved through so-called interpretative propositions, which connect the meaning of theoretical concepts with some of the immediately observable properties (see Operational Definitions).

Hyppolite, Jean (1907-), French existentialist philosopher, director of the École Normale. His main works are devoted to Hegel (q.v.). H. maintains that Hegelian philosophy has the same importance for our age as the philosophy of Aristotle (q.v.) had for the Middle Ages. He regards the main philosophical trends as a continuation of the Hegelian system. From his point of view, Hegel's "ontology of life" must become the basis for knowing human existence. He thus turns Hegel into an existentialist. Proceeding from his false concept, H. claims that Marx is a Hegelian and tries to find elements of idealism in Marxism.

I

Ibn Roshd, or Ibn Rushd Muhammad (Averroës in Latin transcription) (1126-98), Arab philosopher and scientist who lived in Spain during the caliphate of Cordova. Without breaking with the Muslim religion, he developed the materialist elements of Aristotle's (q.v.) philosophy. He tried to prove the eternity and uncreatability of matter and motion, denied the immortality of the individual soul and after-life. Founded the doctrine of twofold truth (q.v.). Sharply criticised the mysticism of the Muslim theologian al Ghazzali. His comments on the works of Aristotle played a great part in acquainting Europeans with ancient philosophy. His teaching (see Averroism) was persecuted by orthodox Muslims.

Ibn Sina, Abu-ali (Avicenna in Lat. transcription) (980-1037), philosopher and physician, natural scientist and poet of Central Asia; lived in Bokhara and Iran. Although faithful to Islam, played a considerable role in spreading among the Arabs and, through them, in Europe, the philosophical and scientific heritage of the ancient world, above all the teachings of Aristotle (q.v.). Did much to consolidate rational thinking and propagate natural science and mathematics. In his philosophy preserved both the materialist and idealist tendencies of Aristotle, deviating on some questions from Aristotelianism towards Neo-Platonism (q.v.). Developed Aristotle's logic, physics and metaphysics. Recognised the eternity of matter, considering it the cause of diversity of individual things, and opposed astrological and other superstitions. His main work, *Danesh-name* (*Book of Knowledge*),

gives a concise exposition of his views on logic and physics.

Idea, a philosophical term denoting "sense", "meaning", "essence", and closely connected with the categories of thinking and being. In the history of philosophy the category I. is used in different senses. When an I. is regarded only as existing in the mind it denotes: (1) a sensory image that arises in the mind as a reflection of sensory objects (see Realism, Naive); (2) "sense" or "essence" of things reducible to sensations and impressions of the subject or to the creative principle which gives being to the Universe (see Idealism, Subjective). In some philosophical systems I. also denoted the materialist principle. Democritus (q.v.), for example, called his atoms "ideas". In systems of objective idealism (q.v.) the I. is the objectively existing essence of all things (see Objective Idea). In Hegel's (q.v.) philosophy, for example, the I.—the sense and creator of all things—developing purely logically, passes through three stages: objective, subjective, and absolute. Proper understanding of the relation of thinking to being helps solve the question of I. This question has been scientifically and consistently elaborated only in dialectical materialism, which regards I. as a reflection of objective reality. At the same time it stresses the reverse influence of I. on the development of material reality with the object of transforming it. I. is also understood as a form, a method of cognition, the purpose of which is to formulate the generalised theoretical principle explaining the essence, the law of phenomena. Such, for example, is

the idea of the materiality of the world, the dual corpuscular-wave nature of substance and field, and so on.

Ideal 1. Social I., a conception of a perfect social system corresponding to the economic and political interests of a social group, the ultimate goal of that group's aspirations and activity. The S.I. is attainable only if it reflects the objective tendencies of social development. The S.I. of the proletariat is the establishment of communism, a highly organised society of free and socially conscious members, in which the principle "from each according to his ability, to each according to his needs" will prevail. The S.I. of the bourgeoisie—reconciliation of classes and removal of anarchy in production, while preserving private ownership, social inequality and exploitation—is a utopia. 2. Ethical I., traits of a character, its moral qualities and corresponding behaviour considered as a model of moral perfection. E.I. reflects the socio-economic condition of a class and conforms to its criterion of morality and the social ideal. The E.I. of the working class contains such traits as collectivism, comradesly mutual assistance, internationalism, humaneness, a high sense of social duty, truthfulness, modesty, etc. 3. Aesthetical I., the free, fullest, all-round harmonious development of the physical and spiritual capabilities of the individual possible in given concrete historical conditions. It is reflected in the ideas of a given class or people, especially synthesised in typical artistic images. The A.I. is historical, but in the course of man's aesthetical development it acquires the significance of a standard and model and is an objective criterion in the assessment of the beautiful in life and art. Pre-Marxist doctrines deduced the A.I. from speculative principles, unrelated to work and socio-political activity. Nevertheless, alongside the historical limitations in certain aspects, the A.I. of past epochs (ancient Greece, the Renaissance), contained some general human elements of the human personality, realised to a certain extent in those epochs. The

A.I. of communism is a higher and qualitatively new stage in the aesthetical development of mankind. It is based on the all-round integral development of the creative powers of each man, who harmoniously combines spiritual wealth, moral purity and physical perfection.

Ideal, The, a characteristic of human consciousness based on its epistemological contrast to the material, to matter. Consciousness, the mind, is ideal because it is a reflection of the material world in subjective images, concepts, ideas. The meaning and sense of images and language, with the help of which an ideal reflection of reality is achieved, are not something material, although the mind functions only with the help of definite material means and processes (practical activity of society, physiology of the central nervous system, signal means of communication through language, etc.). The mind, operating not with things themselves, but only with their images, meaning and sense which act as "substitutes" of things, as their models, can reflect the essence of real things, study objective laws and, basing itself on them, create designs of a not yet existent future. The mind can also produce illusory ideas and concepts which distort objective reality. That is why scientific cognition must constantly counterpose and compare its knowledge of objects with the objects themselves to ascertain how exactly and fully our knowledge reflects objective reality, in other words, how true our knowledge is.

Idealisation, an act of thought associated with the formation of some abstract objects which cannot be realised or created in practice experimentally. Idealised objects are cases of extremes of certain real objects; they serve as a means for the scientific analysis of the real objects and a basis for constructing theories about them; they ultimately act as reflections of objective things, processes and phenomena. The following concepts are examples of idealised objects: "point", "straight line", "actual infinity" in mathematics; "absolutely solid body",

"ideal gas", "absolutely black body" in physics; "ideal solution" in physical chemistry. Together with abstraction (q.v.), with which it is closely associated, I. is a powerful means of cognising the laws of reality.

Idealism (Gk. image, concept), a philosophical trend diametrically opposed to materialism in the solution of the fundamental question of philosophy (see Philosophy, Fundamental Question of). I. proceeds from the principle that the spiritual, non-material, is primary and the material is secondary, which brings it closer to the ideas of religion on the finiteness of the world in time and space and its creation by God. I. regards consciousness in isolation from nature, as a result of which it inevitably misleads human consciousness and the cognitive process and, as a rule, advocates scepticism (q.v.) and agnosticism (q.v.). To materialist determinism (q.v.) consistent I. counterposes the teleological point of view (see Teleology). Marxism-Leninism, in contrast to metaphysical and vulgar materialism, which regards I. merely as an absurdity and nonsense, stresses the existence of epistemological roots in any concrete form of I. (See Lenin, Vol. 38, p. 363.) As theoretical thinking develops, even the most elementary abstraction offers the possibility of I.—the divorcement of concepts from their objects. This possibility turns into reality only in a class society where I. arises as a science-like continuation of the fantastic concepts of mythology and religion. In contrast to materialism, I. is usually rooted socially in the world outlook of conservative and reactionary sections and classes interested neither in the correct reflection of being, nor in the development of the productive forces, nor in a radical reconstruction of social relations. I. turns into an absolute the inevitable difficulties in the development of human knowledge and thereby retards scientific progress. At the same time some idealist philosophers, by raising new epistemological questions and seeking to understand the cognitive process, gave an impulse to the study of a number of

philosophical problems (for example, in the dialectics of concepts Hegel "surmised" the dialectics of things). Marxism-Leninism divides the varieties of I. into two groups: objective idealism (q.v.) which takes as the basis of reality a personal or impersonal spirit, some kind of superindividual mind; subjective idealism (q.v.) which construes the world on the basis of the distinctions of individual consciousness. But the difference between subjective and objective I. is not absolute. Many objective idealist systems contain elements of subjective I.; on the other hand, subjective idealists, in an effort to get away from solipsism (q.v.) often adopt the position of objective I. Objective idealist doctrines first arose in the East (see Vedānta, Confucianism). The philosophy of Plato (q.v.) was a classical form of objective I. Connection with religious and mythological ideas was typical of Plato's objective I., and of ancient I. in general. This connection was extended at the beginning of our era, during the crisis of ancient society, when Neo-Platonism (q.v.) developed. The latter became closely intertwined also with extreme mysticism (q.v.). This feature became even more pronounced during the Middle Ages, when philosophy was completely subordinated to Christian and Muslim theology (see St. Augustine and Thomas Aquinas). After Thomas Aquinas, the main concept of objective idealistic and scholastic philosophy became the concept of the non-material form, treated as the purposeful element which fulfils the will of preternatural God who wisely planned the world, finite in space and time. Beginning with Descartes (q.v.), subjective I. increasingly developed in bourgeois philosophy as individualistic motives grew stronger. The epistemological part of Berkeley's (q.v.) system and Hume's (q.v.) philosophy became the classical expression of subjective I. In the philosophy of Kant (q.v.), materialist assertion of the independence of "things-in-themselves" from the subject's consciousness was combined, on the one hand, with the subjective

idealist thesis of a priori forms of consciousness, a thesis providing a basis for agnosticism, and, on the other, with the objective idealist recognition of the superindividual nature of these forms. Subsequently, the subjective idealist tendency prevailed in the philosophy of Fichte (q.v.) while the objective idealist tendency, in the philosophy of Schelling (q.v.) and especially Hegel (q.v.), the author of an all-embracing system of dialectical I. The evolution of I. after the disintegration of the Hegelian school was a result of the bourgeoisie abandoning its progressive social role and fighting against the philosophy of dialectical materialism. There appeared many teachings standing "between" or even allegedly "above" materialism and I. (see Positivism; Neo-Realism). Agnostic and irrationalist trends, disbelief in human reason and the future of mankind grew stronger. Capitalism's general crisis has led to the spread of such forms of I. as existentialism (q.v.) and neo-positivism (q.v.). The same cause has led to the revival of a number of schools of Catholic philosophy, Neo-Thomism (q.v.) in the first place. These are the three main trends of I., in the mid-1920s, but the fragmentation of I. into small epigonic schools continues to this day. The main social causes for the "diversity" of forms of contemporary I. (see Phenomenology; Realism, Critical; Personalism; Pragmatism; Philosophy of Life) are the disintegration of bourgeois consciousness and the desire to consolidate the illusory "independence" of idealist philosophy from the political forces of imperialism. On the other hand, an opposite process is under way, the rapprochement and even "hybridisation" of various trends of contemporary I. on the basis of their common anti-communist stand. The scientific groundwork for a critique of the contemporary forms of I. were laid by Lenin in *Materialism and Empirio-Criticism* (q.v.), in which he gave a Marxist analysis not only of the Machist variety of positivism, but also of the main content of all bourgeois philosophy in the epoch of imperialism.

Idealism, Objective, one of the main varieties of idealism (q.v.). It holds that the spirit is primary and matter secondary, derivative. As distinct from subjective idealism (q.v.), it regards as the prime source of being not the personal, human mind, but some objective other-world consciousness, the "absolute spirit", "universal reason", etc. Plato (q.v.) was the greatest objective idealist of antiquity and Hegel (q.v.) its classical representative in the 19th century. In contemporary philosophy O.I. is represented by Neo-Thomism (q.v.), personalism (q.v.), and other trends. O.I. as a rule merges with theology (q.v.) and furnishes a peculiar philosophical basis of religion.

Idealism, Physical, the name given by Lenin in his *Materialism and Empirio-Criticism* to the subjective-idealist views in modern physics. The break-up of old physical ideas associated with the discoveries at the turn of the century (see Radioactivity; Relativity, Theory of) led to a crisis in physics and brought to the fore two factors in the development of this science: its mathematisation and the principle of relativity of knowledge. Lenin demonstrated that these factors were responsible for the spread of P.I. among scientists who, because of their social position, did not know dialectical materialism. First, the disappearance of sensory visuality in studying the most simple objects of physics and their description in abstract mathematical terms led to the erroneous conclusion that "matter vanished" and only mathematical equations remained. Second, the collapse of customary concepts, coupled with ignorance of the dialectics of absolute and relative truth, led scientists to assert the "pure relativity" of man's knowledge, to deny objective truth and ultimately, to adhere to idealism and agnosticism. Contemporary P.I. seeks to explain the characteristic features of modern physics by the properties of the subject (observer) who describes the world with the help of a priori mathematics and measurements by instruments. This explanation ultimately rests on the so-called principle of observabil-

ity, according to which a theory must contain nothing which does not correspond to the subject's direct sensory experience. As a result, P.I. denies the objectivity of knowledge and thereby hampers the development of science. But the progress of science refutes P.I. and confirms the need for a union of physics with the philosophy of dialectical materialism.

Idealism, Physiological, a subjective idealist theory current among biologists and medical men in the mid-19th century. It was founded by Johannes Müller. Feuerbach was the first to use the term "P.I.". The untenability of this doctrine, revealed by Lenin in his *Materialism and Empirio-Criticism* (q.v.) arises from its overestimating the dependence of the content of sensations on the activity of the sense-organs. Sensations were regarded not as an image of the objectively real world, but as a symbol of it. According to Müller, the colour spectrum, the tembre of sound, and the distinctions of taste and smell are determined only by the structural and functional features of the corresponding sense-organs. Supporters of P.I. raised to an absolute the relative independence of a number of physiological reactions in the organism vis-à-vis the intensity and quality of the external stimuli. The organism was thus put in contrast to the external environment, which was considered as "the external switch" of the autonomously acting sense-organs. Theories close to P.I. are now current among some bourgeois natural scientists. These include psycho-somatics (q.v.), the so-called stress concept (q.v.), holism (q.v.), various doctrines of autogenesis (q.v.) and conditionalism (q.v.).

Idealism, Subjective, a philosophical trend, according to which the objective world cannot be regarded as existing independently of man's cognitive activity and means of cognition. Consistent subjective idealists end up in solipsism (q.v.). The classical exponents of S.I. were Berkeley, Fichte, Mach (qq.v.). The modern varieties of S.I. are pragmatism, operationism, neo-positivism, existentialism (qq.v.), etc. S.I.'s theory of knowledge is based

on an absolutisation of the subjective sides of the real process of cognition. Actually, however, the fact that cognition is subjective does not deny its objective content and source. Practice furnishes proof of the objective nature of our knowledge. At the same time, the subjective and the objective can be contraposed only within the framework of the fundamental question (q.v.) of philosophy (see Idealism; Idealism, Objective).

Idealistic Understanding of History, a teaching which regards ideas, theories, people's consciousness, etc., as the main force of social development. Its rule over science was undivided prior to Marx. The development of society was explained either by the activity of an "absolute idea", "universal reason", superindividual mind (for example, Hegel, q.v.) or the activity of an outstanding personality (for example, Young Hegelians, Narodniks, qq.v.). Pre-Marxist materialist philosophy also did not go beyond the bounds of these ideas. The 18th century French materialists held that the course of history depends on the views of people, on the spread of knowledge. Feuerbach (q.v.) associated periods in history with changes in religion, and so on. Contemporary reactionary sociology is completely dominated by idealism, denial of the existence of objective laws governing the development of society, voluntarism (q.v.), different variants of racialism (q.v.) and Malthusianism (q.v.). It seeks either to spread pessimism and disbelief in historical progress or to divert the attention of the people from struggle for the revolutionary transformation of social relations. Historical materialism (q.v.) is the scientific theory of social development.

Identically True Statements, propositions, expressions or formulas of the logical calculi (q.v.), which are true given any truth-values of their variables. All the laws of formal logic are true. Accordingly, identically false propositions or formulas are false given any truth-values of their variables.

Identity, a category expressing the equality and similarity of an object

or phenomenon with itself or the equality of several objects. Objects A and B are identical if and only if all the properties (and relations) which characterise A, also characterise B, and vice versa (Leibniz's law). But since material reality undergoes a constant change, there cannot be objects absolutely identified with themselves even in their essential, basic properties. I. is concrete, not abstract, i.e., it contains inherent distinctions, contradictions which are resolved in the process of development due to given conditions. The very identification of objects requires that they be distinguished beforehand; on the other hand, various objects often need to be identified (for instance, with a view to classifying them). This means that I. is inseparably connected with distinction and is relative. Every I. of things is temporary and transient, while their development and change are absolute. The exact sciences, however, make use of the abstract I., i.e., abstracted from the development of things, in conformity with the afore-mentioned Leibniz's law, since idealisation and simplification of reality are possible and necessary in certain conditions during the process of cognition. The logical law of identity is also formulated with similar limitations. But extension of the application of this law to reality, which is a feature of metaphysics, leads to the conclusion that things are invariable, constant.

Identity, Law of, a law of logic, according to which every meaningful expression (concept, judgement) must be used in reasoning in the same meaning. The premiss of its implementation is the possibility to identify or distinguish between the objects which are the subject of judgement. In actual fact, however, this identification and this distinction are not always possible (see Identity). For this reason L.I. implies some idealisation of the actual character of the objects which are discussed in a given judgement (abstraction from their development and changes), this being determined by the relative stability of things and phenomena in the objective world.

L.I. as described above must be distinguished from the formulas of the logical calculi which are a formal analogy of L.I. These formulas are as follows: $A \supset A$ and $A \equiv A$ in the propositional calculus, q.v. (they read: "If A then A", "A is equivalent to A"); $\forall x(F(x) \supset F(x))$ in the predicate calculus, q.v. (it reads: "For every object x in the domain in question it is correct that if x has the property of F, then x has this property"), and others. Such formulas are identically true statements, or tautologies (q.v.) and are also usually known as L.I.

Ideology, a system of views and ideas: political, legal, ethical, aesthetical, religious, philosophical. I. is part of the superstructure (see Basis and Superstructure) and as such ultimately reflects economic relations. In a society with antagonistic classes ideological struggle corresponds to the class struggle. I. may be scientific or unscientific, a true or false reflection of reality. The interests of reactionary classes nurture a false I., the interests of progressive, revolutionary classes help shape a scientific I. Marxism-Leninism is a truly scientific I., expressing the vital interests of the working class and the overwhelming majority of mankind striving for peace, freedom and progress. The development of I. is determined by the economy, but I. possesses a certain relative independence. This is expressed in the impossibility of directly explaining the content of I. by economics and also in a certain unevenness in economic and ideological development. Moreover, the relative independence of I. is manifested more in the operation of internal laws of ideological development which are not directly reducible to economics, in the ideological spheres most removed from the economic basis. The relative independence of I. is explained by the fact that ideological evolution is affected indirectly by a number of extra-economic factors: internal continuity in the development of I., the personal role of individual ideologists, the mutual influence of various forms of ideology, etc.

Illusion, distorted perception of reality. We distinguish two types of I. One is caused by unusual external conditions in which the objects are perceived; in such cases the physiological mechanisms function normally. The other is determined by the pathological functioning of physiological mechanisms taking part in perception. Idealist philosophers frequently utilise I. as an argument to prove that our perception of the outside world is inadequate. But the very fact that we are able to single out I. as a separate class of phenomena and oppose them to adequate perceptions attests to the falsity of the agnostic "conclusions". I. should be distinguished from hallucinations which, unlike I., arise in the absence of the external objects.

Image, Artistic, a specific method employed in art for reproducing objective reality, in a living, concrete, sensuous, directly perceivable form in terms of a definite aesthetic ideal (q.v.). The Marxist-Leninist theory of reflection (q.v.) provides the epistemological basis for the correct understanding of the essence of A.I. A.I. has a number of distinctions which differentiate it from scientific concepts, political ideas or moral principles. It represents an inseparable, interconnected unity of the sensuous and logical, concrete and abstract, immediate and mediated, individual and universal, accidental and necessary, external and internal, part and whole, appearance and essence, form and content. The dialectical unity of these opposite aspects, effected by methods proper to each art, produces images of characters, events and circumstances expressing definite aesthetic ideas and sentiments and conveying lofty ideas and emotions. Imagination plays an exceptional part in creating A.I.

Imagination, the ability to create new sensual or thought images in the human consciousness on the basis of the conversion of impressions gathered from reality but not encountered in the reality given at a particular moment. A man acquires I. through work, which without I. could be neither purposeful nor fruitful. Psychology classifies I.

according to the degree of pre-intention (voluntary and involuntary I.), of activity (reproductive and creative I.), and generalisation (scientific, inventive, artistic, religious, etc.). In Lenin's words, "in the simplest generalisation, in the most elementary general idea ('table' in general) there is a certain bit of *fantasy*". (Vol. 38, p. 372.) The scientist's I. helps him to know the world by evolving hypotheses, model concepts, ideas for experiments. The function of the I. is particularly important in creative art. Here it serves not only as a means of generalisation, but as a force that calls to life aesthetically significant images, expressing the artist's knowledge of reality. The ideal, as the image of what should be, and the wish, as the image of what is desired, are both products of the I. Unlike vague dreams that lead man away from reality, I. is connected with the needs of society and helps us to know life and change it.

Immanence (Lat. to remain in), one of the central concepts of traditional speculative philosophy (q.v.) and the modern idealist schools. The term "I" in this acceptance dates back to Aristotle (q.v.); in its literal sense it was first used in medieval scholasticism (q.v.). The contemporary understanding of I. was given by Kant (q.v.). I., in contrast to transcendent (q.v.), denotes the presence of a "thing-in-itself". Immanent criticism is criticism of an idea or system of ideas which proceeds from the idea's or system's own premises. An immanent history of philosophy is an idealist interpretation of philosophy as a process governed solely by its own laws and not subject to the influence of the economy, class struggle and social consciousness.

Immanence Philosophy, a subjective idealist trend in philosophy at the end of the 19th century. Its most outstanding proponents were Schuppe, Schubert-Soldern, Rehmke and Lecclair. Mach and Avenarius (qq.v.) admitted their affinity with this trend. This school had its followers in Russia (see Lossky). The immanentists criticised Kant's "thing-in-itself", q.v.,

(criticism from the right). They demanded a reversion from Kantianism to Berkeley (q.v.) and Hume (q.v.). The main postulates of this philosophy are: "only that which is the object of thought exists", being is immanent in consciousness, the object is inseparably connected with the subject. To avoid solipsism (q.v.), the immanentists (with the exception of Schubert-Soldern who openly admitted adherence to the positions of "theoretical cognitive solipsism") introduced the concept of "consciousness in general" or "generic consciousness" supposedly existing independently of the human brain. In *Materialism and Empirio-Criticism* (q.v.) Lenin gave a profound criticism of I.P. and its direct connection with religion. (Lenin, Vol. 14, pp. 212-13.) The immanentists' rejection of the theory of reflection, their definition of cognition as the "entry of things into consciousness" were subsequently taken over by neo-realism (q.v.). By the beginning of the 20th century, this school had broken up into many small trends.

Immediate Inference, in traditional logic, a judgement in which the conclusion follows immediately from one premiss alone. I.I. includes contradiction (q.v.), conclusions in accordance with the square of opposition (q.v.), and others. I.I. is contrasted to an implicative inference, which consists of two or more premisses.

Immediate Knowledge, or intuition (q.v.), knowledge gained without proof, a direct contemplation of truth, as distinct from discursive (q.v.) or demonstrative knowledge, which is always mediated not only by data of experience, but also by logical inference. As the theory of knowledge developed, two kinds of I.K. were differentiated: sensory and intellectual (sensuous intuition and intellectual intuition), which in metaphysical doctrines were sharply opposed to each other. Prior to Kant, sensuous I.K. was always regarded as knowledge arising from experience. Kant (q.v.) asserted that in addition to I.K., which results from experience, there are also a priori forms of sensuous I.K. (space

and time). Kant rejected the possibility of intellectual intuition by the human mind, admitting, however, its possibility for a mind higher than human. Jacobi (q.v.) considered I.K. the highest form of knowledge; he considered "emotion", and in later works "reason", to be the organ of such knowledge. Intellectual I.K. was recognised in antiquity by Plato (q.v.) and Plotinus (q.v.); in the 17th century by the rationalists Descartes, Spinoza, and Leibniz (qq.v.); at the turn of the 19th century, by the German idealists and philosophers of romanticism, Fichte (q.v.), Schelling (q.v.), and Schlegel; in the 20th century by Husserl (q.v.). Under intellectual intuition they understood the ability of the mind to "see" the truth with the "eyes of the mind", directly, without proof; for example, axioms of geometry were regarded as such truths. In the 20th century, a view arose in the formalist trend of geometry, identifying axioms with definitions and depriving them of the nature of direct proof. Hegel (q.v.) criticised the early theories of I.K. as undialectical. He saw in I.K. the unity of direct and mediated knowledge. But Hegel wrongly considered the self-developing thought itself as the basis of this unity. Dialectical materialism considers that the unity of direct and mediated knowledge is based on practice: maxims are mediated by practice and thinking conditioned by practice, and they, by virtue of repeated reproduction, become directly truthful.

Imperialism, the highest, monopolistic and last stage of capitalism which began at the turn of the century. In his *Imperialism, the Highest Stage of Capitalism* (1916) Lenin gave a systematic and detailed exposition of the theory of I. He analysed the economy of the capitalist countries, singled out the economic essence of I. and indicated its five main features: (1) in the epoch of imperialism production and capital are concentrated to such a degree that they give rise to monopolies, which play the decisive part in the economic life of capitalist states; (2) monopoly banking capital

merges with monopoly industrial capital, forming finance capital, the financial oligarchy; (3) the export of capital, as distinct from the export of goods, acquires particularly great importance; (4) the process of monopolisation brings about the formation of international monopolies which divide the world among themselves economically; (5) the territorial division of the world between a handful of the biggest capitalist powers is completed. With the transition of capitalism to the monopoly stage it turns into decaying, parasitic capitalism. Lenin characterised the period of I. as the eve of the socialist revolution. The October Socialist Revolution, which broke one of the weakest links in the chain of I., signified the beginning of the downfall of I. The subsequent history of world capitalism and the revolutionary struggle of the working class has fully confirmed Lenin's analysis. The world imperialist system is torn asunder by extremely acute contradictions, economic crises are becoming ever deeper, unemployment is rising and, moreover, becoming chronic. Militarism is devouring vast natural and manpower resources, it is exhausting and ruining the nations and preparing new devastating wars. I. is the greatest oppressor of nations. At the present stage, monopoly capitalism has turned into state-monopoly capitalism, which combines the power of the monopolies with the power of the state to intensify the exploitation of the people and enrich the monopolies. The formation of the world socialist system has aggravated the crisis of I. Anti-imperialist, national liberation revolutions are developing with ever greater force. The world colonial system has collapsed. Contradictions between labour and capital are mounting. Capitalist politics and ideology are in the grip of a profound crisis. The Programme of the CPSU gives a comprehensive analysis of contemporary I. "Imperialism," the Programme states, "has entered the period of decline and collapse. An inexorable process of decay has seized capitalism from top to bottom—its economic and political sys-

tem, its politics and ideology. Imperialism has for ever lost its power over the bulk of mankind. The main content, main trend and main features of the historical development of mankind are being determined by the world socialist system, by the forces fighting against imperialism, for the socialist reorganisation of society."

Implication, the logical operation which forms a complex proposition from two propositions (for example, p and q) through a logical connective conforming to the conjunctive "if ... then": if p then q . In an implicative proposition we distinguish the antecedent preceded by the word "if" from the consequent which follows the word "then". Mathematical logic proceeds from the concept of material I. (expressed in the form $p \supset q$ or $p \rightarrow q$), which is determined through the function of truth-value. I. is false only if the antecedent (p) is true and the consequent (q) is false, and true in all other cases. This concept proved to be quite effective for the logical proof of mathematical statements. But logicians, who treat the problem of I. as one of formalised logical sequence have discerned in it a number of properties (for example, "a true proposition follows from any proposition", "of any two propositions one implies the other") which sound paradoxical if we require I. to express the properties of logical sequence in sense, i.e., some connection in meaning between the antecedent and the consequent, as a condition of truth. In view of this, C. I. Lewis, utilising the concept of modal logic (q.v.), gave a definition of a strict I. (expressed in the form $p \rightarrow q$): it is impossible for p to be true and q false (p necessarily implies q). But Lewis' system also gives rise to its own "paradoxes" similar to the case of material I. There are other methods of eliminating these "paradoxes" (for example, Ackermann's concept of a strong I.).

Impressionism, a method applied in art at the end of the 19th and early 20th century. Derived its name from Monet's painting "Impression" (1872). After the pictorial arts (Sisley, Pis-

sarro, Renoir, Degas, Rodin, Liebermann, Korovin, and others), I. spread to music (Debussy, Ravel), literature (Goncourt brothers, Mallarmé, Verlaine, Hauptmann, Rilke, Schnitzler, Oscar Wilde, Knut Hamsun, and others) and the theatre. In their struggle against officially canonised art standards, the French impressionists demanded truthful portrayal of the artist's vision of the world and direct contact with nature. In their finest works they have to a certain extent achieved their aim of extending the boundaries of portrayal, in particular of vindicating *plein-air* in painting. But their limited political and aesthetic outlook led to subjectivism in their art. Reproduction of the changing effects of air and light, the desire to fix constantly varying impressions became an end in itself and made I. incapable of penetrating the essential aspects of life, of reflecting processes and conflicts typical of the epoch. It is indicative that the French impressionists, contemporaries of the Paris Commune, have almost no paintings of deep social content, and the landscape is their favourite genre. The best works of I., extolling the beauty of the world, still have artistic significance in our day.

Indeterminism, see Determinism and Indeterminism.

Indian Philosophy In India philosophy arose on the basis of one of the oldest human civilisations; its traditions, dating back to the 10th-15th centuries B.C., have been preserved to our days. I.P. is usually divided into four periods: (1) the Vedic period; (2) the classical period or Brahman-Buddhist period, from the 6th century B.C. to the 10th century; (3) post-classical or Hinduistic—10th-18th centuries; (4) new and current I.P. The very first memorials of Indian thought, the Vedas (q.v.) together with hymns to the numerous gods, contain the concept of a single world order—the concept of Rita. The Upanishads (q.v.), religious philosophical commentaries to the Vedas, contain ideas which largely shaped all subsequent development of I.P. (unity of Brahman, the world-

soul, and Ātman, the individual soul; immortality of the soul which is reincarnated according to the law of karma, or retribution). Besides mystic religious idealistic doctrines, the Upanishads reflected the views of the ancient materialists and atheists who denied the authority of the Vedas and the life of the soul after death and regarded one of the material elements—fire, water, air, space or time—as the primary foundation of the world. In the classical period, I.P. developed under the strong influence of the Vedas and Upanishads. Since the days of the medieval Indian philosopher Madhavacharya (16th century), it has become a tradition to divide all philosophical schools into orthodox, which recognised the authority of the Vedas, and non-orthodox, which rejected the infallibility of the Vedas. The Mimāṃsā, Sāṃkhya, Yoga, Nyāya, Vaiśeṣika, and Vedānta (qq. v.) are the principal orthodox schools. The non-orthodox schools include the Buddhist, Jainist and numerous materialist and atheist schools, the most widespread being the Chārvākas (Lokāyata, q.v.). Although this division has historical grounds, it conceals the true mainspring in the development of philosophy: the struggle between materialism and idealism. Both Buddhist and Brahman sources denounce above all the materialist schools. Śaṅkara, the most outstanding Vedānta philosopher, vehemently attacked both the materialist ideas of the Sāṃkhya school and the empiricism of the Nyāya and Vaiśeṣika. He dissociated himself from the common sense of the Nyāya and was close to the idealist and mystic schools of Buddhism (q.v.). Within the bounds of Buddhism the idealist Mādhyamika and the Yogacāra schools fought against the materialist teaching of the Theravādin and Sarvāstivādins. Bitter conflict between different philosophical schools brought into being the art of dispute and the science of the sources of knowledge and authentic knowledge—logic. First information about Indian logic may be gleaned from early Buddhist sources (3rd century B.C.); subsequently, logic was developed in the Nyāya

school and later in the treatises of Buddhist logicians Dignāga, Dharmakīrti, and others. Towards the end of the classical period, Jainism (q.v.) was losing its influence, while Buddhism was being ousted from India. In the Hinduistic period the Vishnu and Śiva systems of Hinduism (q.v.) were developed. They taught that the Brahman of the Upanishads is the God Śiva, or Vishnu. Tantrism and Shak-tism spread in the 5th-7th centuries. Under the influence of Islam, various monotheistic doctrines (Kabirpanhism and Sikhism) arose in the 10th century. In recent times philosophy in India developed under the influence of the people's national liberation struggle. The nature of the new I.P. is determined by the fact that the movement for national liberation was headed by the Indian bourgeoisie, whose ideologists followed the road of reviving national, religious and philosophical traditions. As a result, there arose modernised theism, Brahma Samāj and Ārya Samāj, pantheism and idealism, the doctrines of Tagore (q.v.), Gandhi (q.v.) and Ghose (q.v.). Contemporary Indian philosophers (Sarvepalli Radhakrishnan and others) advocate a merger of Western science and technology with the "spiritual values" of the East. Gandhi's doctrine of non-violence and so-called democratic socialism are now the prevailing ideology in India.

Indirect Proof, a form of logic proof (q.v.) distinguished by its method of rationalising a proposition. Unlike direct proof, the truth of the proposition to be proved indirectly is rationalised by demonstrating the falsity of certain premisses. The latter stand in such a relationship with the proposition to be proved that their falsity necessarily implies the truth of the proposition. There are several types of indirect proof. Divisory I.P. has the following pattern. A number of assumptions are examined, which, taken together, exhaust the number of assertions possible in the given case; the falsity of all the assumptions is demonstrated, save one, the truth of which is thus established. Another

form of I.P. is the apagogic proof (q.v.).

Individual 1. A human being with his socially determined and individually expressed qualities, intellectual, emotional, and volitional. The scientific understanding of the I. rests on the Marxist definition of man as the sum total of social relations. Hence, an individual in this sense cannot be the vehicle of inherited characteristics but is ultimately determined by the historically given system of society. A society based on private ownership of the means of production cramps and corrupts the development of the I. The establishment of socialism opens up the road to the all-round development of the individual (see All-Round Development, etc.). A new type of individual harmoniously incorporating spiritual richness, moral purity, and physical perfection is formed thanks to the creation of the material and technical basis of communism (see Material, etc.), the development of communist social relations and the carrying out of a cultural revolution (q.v.). 2. In psychology, each separate human being with his inherent individual peculiarities of character, intellect, and emotional make-up. The psychological qualities of the I. include character, temperament, abilities, and also the peculiar features of his mental processes. Though psychological conditions (emotional experiences, motives of behaviour, etc.) constantly vary, the psychological make-up of the I. remains relatively stable, this being dependent on the relative stability of his conditions of life and the typological peculiarities of his particular nervous system. Changes in the psychological make-up of the I. are caused by the changes that take place in his life, by the process of social education. The I. in this sense is the sum total of the inherent features and peculiarities of a human being through which all external influences are refracted. The actions of the I. are motivated by his personal and social requirements. The subjective element in the I. (emotional experiences, consciousness, requirements) is

inseparable from the objective relations formed between the I. and his environment. The I.'s level of development depends on how progressive these relations are from the historical point of view.

Individual and Society (their interrelation). The interrelation between the I. & S. varies from one historical period to another because there is no such thing as "society in general", there being in reality only socio-economic formations (q.v.), nor any such thing as the "individual in general", the I. being always the product of a historically given social system. The theory of an alleged eternal antagonism between the individual and the social qualifies as "eternal" what is particularly characteristic of capitalism and is historically transient. Under socialism the interrelation between the individual and the social is characterised by the natural combination of individual and social interests and, ultimately, complete harmony between them. Under socialism and communism the source of satisfaction and the general direction of personal and social interests coincide. Both society as a whole and each individual in society are interested in technical progress, in the constant raising of the productivity of labour, in the increasing satisfaction of the material needs and cultural requirements of members of society. This coincidence of interests of the I. & S. on the basic questions of their life does not exclude certain partial and temporary contradictions that arise when individual interest must be subordinated to the social interest. Success in combining social and individual interests depends, on the one hand, on the increase in social wealth, on the activity of the directing organisations, on their correct implementation of the Party's slogan "Everything for the sake of man, for the benefit of man"; on the other hand it depends on each member of society, on his conscious service of the interests of society. The period of the full-scale building of communism signifies a big step forward in the direction of combining the interests of the I. & S.

Party and government policy for creating the material and technical basis of communism in the USSR, shaping communist social relations, extending socialist democracy, and raising the material and cultural well-being of the people aims at achieving harmony between the I. & S. The road charted in the Programme of the CPSU is the road to the creation of an association in which, to use the words of Marx and Engels, the free development of each is the condition for the free development of all.

Individual, Particular, and Universal, philosophical categories formed in the course of the development of cognition and expressing different objective relations in the world, and the degree to which we know these relations. Objects possess individuality, which makes them different from other objects, and are, therefore, perceived as something individual. Practical experience, however, shows that these individual objects may have certain recurrent features in common. In other words, the individual possesses general features. General features and properties may belong either to a restricted group of objects, in which case they are merely particular, or they may be found in all objects and phenomena, in which case they are universal. The individual, particular, and universal are inseparably bound up with each other; the difference between them is relative and they overlap (see Lenin, Vol. 38, p. 361). The scientific solution of the problem of the relation of the universal in consciousness, its analogue in reality and the individual qualities of objects, has given rise to great difficulties in the history of philosophy. Historically speaking, the first notion of the universal was a naive conception of something similar and recurrent. No one had as yet raised the question of the origin or cause of this similarity, the vital question of the nature of the universal, or whether it reflects qualities that really exist in the objective world, or whether it springs from the ability of the consciousness to generalise, or from the qualities of some spiritual absolute. This early

notion of the universal was shared by the materialists of ancient Greece. Thales (q.v.) conceived the basis of all things, their universal, to be water; Heraclitus (q.v.) conceived it as fire; Democritus (q.v.) as atoms. Most of the idealist philosophers of the ancient world also regarded the universal as objective, but in their view it was detached from material reality and became a special world of essences. Plato's (q.v.) idealist doctrine of the universal was criticised by Aristotle (q.v.), who, however, was unable to solve the problem. He did not regard the universal as a special essence isolated from the individual. For him the universal was primarily the abstractions of the human mind. But he was unwilling to pronounce them purely mental essences because this would mean denying their objectivity. He, therefore, regarded the universal as both the essence of individual objects and as the aim for which they exist. In this he is in effect close to Plato's conception. Thus, although he failed to find the solution, Aristotle placed the problem in clear perspective and hence his teaching became the focal point of the controversy between nominalism (q.v.), and realism (q.v.). Here the contradictory propositions in Aristotle's teaching developed into the antithesis between the schools in philosophy. Experimental science, which emerged from the struggle with the abstract scholasticism of theology, raised a protest against the theological interpretation of the universal. Once again the objectivity of such a universal was questioned, this time by Locke (q.v.), who interpreted the universal as a purely abstract, verbal expression of the similarity of phenomena and denied that it had anything to do with reality. This interpretation was in accord with the science of his time, particularly with the classification of phenomena it had adopted. But scientific study of the laws of the objective world exploded Locke's interpretation, and even in Kant (q.v.) and particularly in Hegel (q.v.), we find a distinction between the "abstract universal", as the verbally expressed sameness of

a number of phenomena (the effect of mere resemblance) and the real "concrete universal", understood as the inner essence, the law of existence and change. According to Hegel, however, only the spiritual—the concept, the idea—is the real universal. The Marxist conception of the particular and the universal is based on recognition of the idea of the universal as a reflection of the objective unity of the phenomena of the world. The essential similarity of objects or processes is merely the expression of this profound objective interconnection. "The form of universality in nature," wrote Engels, "is law" and again ... "the form of universality, however, is the form of self-completeness, hence of infinity; it is the comprehension of the many finites in the infinite". (*Dialectics of Nature*, pp. 238, 237.) The universal, therefore, embodies all the richness of the particular and the individual. The objective connection between the individual, particular and universal is reflected in language, in the form in which a subject is expounded, in the ways in which objects are studied. The interrelation between the individual, particular, and universal lies in the fact that they are connected, in the fact that the individual cannot exist without the universal, and that the universal cannot exist without the individual, that the individual under certain conditions may become both particular and universal. An analysis of these dialectical relations is essential, for instance, for the understanding of the general ways and laws of building socialism and their manifestation in different countries. Thus the categories of the individual, the particular and the universal primarily express the essential relations of the objective world and only because of this do they also characterise the process of its cognition. Practical activity, which is always concentrated on individual objects, is illuminated by knowledge of the universal, of the laws, aspects, and qualities that recur in these objects and are concretised by consideration of their particularities.

Individualisation, a specific aspect of artistic creation: the ability of art, while depicting the essence and typical features of the phenomena portrayed, to preserve their sensorily concrete features, to reproduce all the specific nature of these phenomena, the individual aspect of the human characters in their originality and harmony. I. is a method of reproducing reality inherent in genuine art. It is an element of artistic typification. Attempts to contrast I. to typification adversely affect artistic creation. The characters do not appear as living people, but as "mouthpieces of the spirit of the time", resembling lifeless schemes and allegories. On the other hand, I. by itself is incapable of giving a realistically artistic image; it fails to penetrate the essence of what is portrayed, it turns into a mere record of single and accidental facts. Engels aptly described it as "bad I.". Only when I. is closely combined with artistic generalisation does it become a powerful means for the realistic portrayal of the world.

Individualism, a principle of sociopolitical ideology founded on recognition of the absolute rights of the individual, of the freedom and independence of the individual from society and the state. Theorists of exploiting classes hold that I. is inherent in "immutable human nature". In actual fact, I., as a principle setting the individual in opposition to the collective and subordinating the social interests to the personal, emerged with the appearance of private property and the division of society into classes. The social basis out of which the tradition of I. grew was the centuries-old domination of private property. I. was most fully expressed in the philosophy of Stirner (q.v.) and particularly Nietzsche (q.v.), whose doctrine of the "élite" and "superman" was taken over by fascism (q.v.). At present I. is actively championed by the existentialists (see Existentialism). Socialism radically changes the relationship between society and the individual because it renovates both society and the individual. Genuine

collectivism arises in a society which knows no exploitation or political oppression and provides conditions for the development of man's personality and abilities.

Induction (Lat. *inductio*, from *inducere*—to lead in), one of the types of reasoning and a method of study. Questions pertaining to the theory of I. are already found in the works of Aristotle (q.v.), but they began to commend special attention with the development of empirical natural science in the 17th-18th centuries. A big contribution to elaborating problems of I. was made by Francis Bacon, Galileo, Newton, Herschel, and Mill (qq.v.). As a form of reasoning conclusion I. makes possible the transition from single facts to general propositions. Usually three main types of inductive conclusions are distinguished: complete I.; I. through simple enumeration (popular I.); scientific I. (the latter two types are an incomplete I.). A complete I. represents a general proposition concerning a class as a whole to be concluded on the basis of examining all its elements; it gives a true conclusion, but its sphere is limited because it is applicable only to classes all the members of which can be easily observed. When a class is practically unlimited incomplete I. is applied. In a popular I. the presence of a feature in some of the elements of a class warrants the conclusion that all elements of the class possess that feature. A popular I. has an unlimited sphere of application, but its conclusions form only probable propositions needing subsequent proof. A scientific I. also represents a conclusion concerning a whole class based on a number of the elements of that class, but here the grounds for conclusion are provided by the discovery of essential connections between the elements studied which show that the given feature must be possessed by the whole class. Hence, methods of disclosing the essential connections are of prime importance in scientific I. The disclosure of these connections presupposes an intricate analysis. Traditional logic formulates

some of these methods, which are known as inductive methods of study of causal relations: method of agreement, method of difference, joint method of agreement and difference (method of dual agreement), method of concomitant variations and method of residues. As a method of study, I. means a way of experimentally studying phenomena, in the course of which we pass from single facts to general propositions; the single facts lead to general propositions. I. always appears in unity with deduction (q.v.). Dialectical materialism regards I. and deduction not as universal self-sufficient methods, but as aspects of dialectical cognition of reality which are inseparably interconnected and determine each other; it is therefore opposed to the one-sided exaggeration of any one of them (see Logic, Inductive).

Inductive Definition, one of the ways of defining objects of mathematical and logical systems. It indicates: a) the primary or elementary objects of the system; b) the rules or operations by which we can form new objects of the system from already available objects. This is how a natural number (in arithmetic), properly constructed and demonstrable formulas (in logical calculi) and others are determined. I.D. must be complete, i.e., it must be used to determine all the objects of a given system and only such objects.

Inference, the process of reasoning in the course of which from one or several propositions called premisses an I., a new proposition, is deduced (called conclusion or consequence) which logically follows from the premisses. The transition from the premisses to the conclusion is always made according to some rule of logic (rule of inference). A logical analysis of I. consists in singling out the premisses and conclusion and in ascertaining the structure of I. Ii. made according to the same rules of inference and laws of logic are of one and the same logical form. Thus, an analysis of I. serves to bring out its logical form. I. is a form of thought in which (alongside a concept, proposition, and other forms of thinking and methods of reasoning)

cognition of the external world is effected at the stage of abstract thinking. Every proper I. must meet the following condition: if its premisses are true, its conclusion too must be true. This condition is met if in the course of I. the laws of logic and rules of inference are not violated. In the actual process of thinking some of the premisses of I. are often omitted and the rules of inference and laws of logic underlying it are not formulated. This makes errors possible in I. Logic lays down methods of distinguishing a valid I. from an invalid one and thereby helps to prevent and correct logical mistakes. Usually, the process of reasoning and proof makes up a chain of Ii., in which the conclusion of a preceding I. becomes the premiss of a subsequent I. For a proof to be valid it is necessary for its initial premisses—the basis of proof—to be true, and each I. within it must be correct. The most common division of Ii. is into deductive and inductive (see Deduction, Induction).

Infinite and Finite, categories denoting the two inseparably connected opposite aspects of the objective world. For example, an unlimitedly increasing (or decreasing) variable quantity, capable of becoming, and in fact becoming, more (or less) than any pre-given quantity, however large (or small), is called an infinite quantity; a definite quantity, in relation to which another definite quantity may be indicated as larger (or smaller), is known as a finite quantity. In its application to the objective world I. characterises: (1) the existence of the world in space and the essential non-isolation of all material systems; (2) the existence of the world in time, the uncreatability and indestructibility of matter, the eternity of its existence; (3) the quantitative inexhaustibility of matter in depth, the infinite variety of its qualities, interrelations, forms of existence, and tendencies of development; (4) the qualitative heterogeneity of the structure of matter, the existence of innumerable qualitatively different levels of the structural organisation of matter, which possesses

at each level different specific properties and is subject to different laws. F. is the negation of I., but at the same time every finite object is a form of the manifestation of I. As a given, definite quality, it exists for a limited time. But the matter of which it is composed is uncreatable and indestructible, exists for eternity, and merely changes from one form to another. The existence of a given body may be discovered in any part of the Universe, no matter how distant, to which material rays created by one body interacting with other bodies can penetrate. Thus F. also includes I., just as I. is composed of innumerable finite objects and phenomena. The contradictory unity of I. & F. makes it possible to know I., although at every step in his practical activity and cognition man comes into contact with only finite objects and processes. But since I. is either contained or manifested in some way or other in every finite object, "all true knowledge of nature is knowledge of the eternal, the infinite...." (Engels, *Dialectics of Nature*, p. 238.) (See also Infinity, Real and Potential; Infinity, Bad; and Eternity.)

Infinity, Bad, metaphysical conception of the infinity of the world, based on the assumption of a monotonous, unceasing repetition of the same specific qualities, processes, and laws of motion on any scale of space and time. Applied to the structure of matter, B.I. implies recognition of the unlimited divisibility of matter, each smaller particle possessing the same qualities and obeying the same specific laws of motion as the macroscopic bodies. Applied to the structure of the Universe, it assumes an infinite hierarchy of mechanical systems with identical qualities and laws of existence. Applied to the development of nature, it implies recognition of infinite cycles of matter constantly returning to the same starting points. The concept of B.I. was introduced by Hegel (q.v.). It is disproved by the existence of countless numbers of qualitatively different levels in the structural organisation of matter, which

possesses at each level different qualities and obeys different specific laws of motion, and also by the qualitative changes of matter and its general irreversible transformation.

Infinity, Calculated, a logical argument against the application of bad infinity (see Infinity, Bad) to what actually exists because the fact that an actual whole is composed of an infinite number of parts leads to the contradiction of a calculated, i.e., finite infinity. This argument was used by Zeno of Elea (q.v.) in his aporia (q.v.), Democritus, Aristotle, and Kant (qq.v.) in his antinomies (q.v.) against the spatial and temporal infinity of the world, against infinite divisibility, and so on. In modern science these problems are treated from the standpoint of the concepts of actual and potential infinity, q.v. (e.g., paradoxes, q.v., in the set theory). The argument points to the dialectical character of the infinity of nature, and the role of the process in the actualisation (realisation) of potential infinity; "true infinity was already correctly put by Hegel ... in the process of nature and in history". (Engels, *Dialectics of Nature*, p. 240.) As for bad infinity, it manifests itself not in actual being but in the form of the potential infinity of being, e.g., its eternity.

Infinity, Real and Potential, two ways of perceiving the infinite. In mathematics, R.I. is understood as an infinite multitude, complete and realised (e.g., the multitude of all natural numbers). P.I. is understood as an infinite quantity that can increase (decrease) endlessly and become greater (smaller) than any given, pre-determined quantity. The paradoxes of Cantor's theory of sets undermined the instinctive belief of mathematicians in the concept of R.I., and some of them asserted that only P.I. is realisable. These latter consider R.I. contradictory because once an infinite quantity is realised it is finite and not infinite. The struggle between the two conceptions is still going on. The solution to it is to be found in the real world. The material world is infinite in space and time, not potentially but in reali-

ty, it is not becoming infinite but has always been such. At the same time it is constantly developing and contains within itself the possibility of unlimited changes. Its infinity is, therefore, also potential. The unity of R.I. and P.I. is also observed in the structure of matter. Research methods, to reflect this unity, must be based on a dialectic approach to R.I. and P.I. (see also Infinite and Finite).

Information, one of the fundamental concepts of cybernetics (q.v.). The scientific concept of I. largely detracts from the meaning of messages and deals with their quantitative aspect. Thus, the concept of measurement of information is introduced, being defined as a quantity proportional to the degree of probability of the event mentioned in the message. The more probable the event the less the amount of I. that is carried in a message about its occurrence, and vice versa. The development of the scientific concept of I. has made possible a uniform approach to many processes that had previously been thought to have nothing whatsoever in common, e.g., the transmission of messages along engineering communication systems, the functioning of the nervous system, computer operations, various control processes, etc. In all of these we deal with processes involving the transmission, storage, and processing of I. Here the concept of I. has played a part similar to that of the concept of energy in physics by providing an opportunity to describe the most diverse physical processes from a common point of view. Two aspects should be distinguished in the concept of I. First, I. is a measure of the organisation of a system. The mathematical expression of I. is identical with the expression for entropy (q.v.), taken with the reverse sign. Just as entropy is an expression of the disorganisation of a system, so I. is the measure of its organisation. I. thus understood constitutes an internal property of a system of process in itself, and as such it can be called structural information. It is to be distinguished from relative information, which is associated with

the interrelationship of two processes. Let there be processes A and B with many different states. If to each state of A there corresponds a certain state of B, and the relations between the states of B are isomorphous (q.v.) with the relations between the states of A, then we can say that process B carries I. about process A. Information theory usually deals with relative I. From the point of view of this theory our brain represents a cybernetic system of extreme complexity which receives, stores, and processes I. coming in from the outside world. The brain's ability to reflect and perceive the outside world is seen as a link in the development of processes associated with the transmission and processing of information. That is why one finds in modern information theory an embodiment of Lenin's thesis, according to which all matter possesses a quality akin to perception, namely, reflection.

Innate Ideas, concepts which, according to idealistic epistemology, are primordially inherent in the human mind and independent of experience. They include axioms in mathematics and logic and the primary principles of philosophy. Some philosophers, notably Descartes (q.v.), believed these principles to be innate. Others, such as Leibniz (q.v.), believed them to be inclinations or dispositions of the mind developing at the prompting of sensory experience. Rationalistic theories of immediate knowledge (theories of intellectual intuition) admit that some principles are not innate but are acquired through the immediate mental perception of truth without logical deduction or proof (see Intuition). Despite the above difference, the theories of I.I. and intellectual intuition contain an equal element of apriorism, i.e., knowledge preceding, and independent of, experience. The apriorism of Kant (q.v.) differs from the theories of I.I., inasmuch as his a priori knowledge is applied not to the contents of concepts and principles but to universal forms of sensation and reason, which order the contents of our experience. Theories of I.I. originated not only from the primary premises of

idealism, but also from an unhistorical, undialectical approach to the origin of general concepts and principles, to the relation between the mediate and the immediate, between the sensory and the rational elements in cognition and between individual and socio-historical experience.

Inspiration, condition particularly conducive to various forms of creative activity. It is characterised by total concentration of the individual's spiritual energy on what he is creating, and by emotional elevation that makes work exceptionally productive. In contradistinction to the idealist conception of I. as "divine madness", mystical intuition and revelation (Plato, Schelling, Hartmann, q.v., S. Freud, H. Read, and others), materialism denies that I. has any supernatural character and regards it as a mental phenomenon determined by the social and individual incentives to create, and also by the process of work itself.

Inspirationalism, an idealist theory of the mystic religious character of knowledge, according to which truth is revealed not in a rationally logical way, not discursively, but suddenly, without any connection, solely through inspiration, i.e., an idea born by inspiration is prompted to man from above in the form of divine suggestion. I. in pure form is seldom found, and chiefly in theological doctrines, but actually this principle is shared by all irrational philosophy.

Instinct, a form of psychic activity (see Activity), a type of behaviour. In the broad sense, instinct is counterposed to consciousness. Instinctive behaviour is characteristic of animals; it is based on biological forms of existence developed in the process of adaptation to the environment. On the other hand, conscious behaviour is expressed in the purposeful changing of nature by man and is based on knowledge of nature's laws. In a more specific sense, I. is a type of behaviour inborn in a given species of animals and fixed by biological heredity. According to Pavlov (q.v.), I. is a chain of unconditioned reflexes (q.v.). I. is most distinctly expressed in animals

of relatively low organisation (insects, fishes, birds). With evolutionary development, the role of innate activity is reduced and intricate reflexory activity resting on individual experience becomes more and more important. Ii. are also a feature of man, but in humans they do not play a decisive role because specifically human activity originates and develops as a consequence of socio-historical processes and is prompted chiefly by social, not biological motives.

Instrument, a means of cognition used for registering different kinds of measurement (q.v.). The role of Ii. in contemporary scientific knowledge has greatly increased. They are amplifiers of human sense-organs, allowing the investigation of material objects that are inaccessible to direct perception. Erroneous interpretation of the enhanced role of Ii. in cognition, their subjectivisation, gave rise to so-called "instrumental idealism". Its basis was the proposition of the alleged "principal co-ordination" of object and I., as well as the "principle of uncontrollability", according to which the process of measuring, the determination of this or that property of microobjects causes "uncontrollable breaches". The exponents of "instrumental idealism" (P. Jordan and others) maintain that the subject "prepares", creates the physical reality by means of I.

Instrumentalism, a subjective idealist doctrine of the American philosopher John Dewey (q.v.) and his followers, a variety of pragmatism (q.v.). The distinctions between subject and object, thoughts and facts, psychical and physical, are, according to Dewey, merely differences within "experience", elements of a "situation", aspects of an "event". Such ambiguous terms and also references to the "social nature" of experience are used to disguise the idealism of this philosophy. According to I. concepts, scientific laws and theories are merely instruments, tools, keys to the situation, "plans of action" (hence the name of this form of idealism). Recognising cognition as a vital function of an organism, I. denies that its importance lies in its ability to

reflect the objective world; it regards truth as something justified, which ensures success in the given situation. Dewey and his supporters do not recognise the reality of social classes, resort to metaphysical abstractions of society, individual and the state "in general". The instrumentalist "theory" of progress (meliorism) holds that progress does not imply the attainment of definite aims by society but the process of movement itself. In fact, Dewey's meliorism resurrects the old opportunist slogan "the movement is everything, the final goal is nothing". Dewey, Hook, Childs, and Schlesinger are the chief proponents of I.

Intellectualism, a philosophical idealist doctrine which places cognition in the foreground through the intellect and metaphysically divorces it from sensory knowledge and practice. I. is akin to rationalism (q.v.). In ancient philosophy I. was represented by those who denied the truth of sensory knowledge and considered only intellectual knowledge as really truthful (see Eleatics, Platonists). In modern philosophy I. opposed the one-sidedness of sensualism (q.v.) and was represented by Descartes (q.v.) and the Cartesians and to some extent by Spinozism. In our days, with a considerable admixture of agnosticism (q.v.), I. is advocated by logical positivism (q.v.). Dialectical materialism recognises the unity of sensory and intellectual cognition (see Knowledge; Theory and Practice).

Intelligible, the philosophical term denoting an object or phenomenon perceivable only by reason or intellectual intuition (q. v.). The term I. is contrasted with the term "sensible" denoting an object perceived with the help of the sense-organs. The concept I. was widely used in scholasticism (q.v.) and in the philosophy of Kant (q.v.).

Interaction, process of mutual influence of bodies on one another, any connection or relation between material objects and phenomena. I. determines the existence and structural organisation of any material system, its union with other bodies in a system of a larger order, and also the properties of

all bodies, processes, and phenomena. Without the capacity for I. matter could not exist. In this sense Engels defined I. as the final cause of everything that exists, and beyond which nothing exists or can exist. In any integral system I. emerges as the relation in which cause and effect constantly change places. Physically, I. is immediate action (see Action, Immediate and Distant), whose speed is equal in the extreme case to the speed of light in a vacuum. But there exist in nature many other forms of I. that are not reduced to physical I. (see Universal Connection of Phenomena, Functional Dependence).

Interest I. Purposeful orientation of thought and action reflecting the material and spiritual needs of individuals (personal I.), social groups and historical communities (general I.). General I., which correspond to the objective needs and tendencies of social development, constitute the I. of society. In a class society these can be only the I. of classes who express natural historical necessity. I. is displayed in striving, but, besides subjective elements, it always contains objective elements. General I., as a rule, is objective, inasmuch as it is determined by the conditions of life and the nature of a given social group or historical community. The only exception is the I. of voluntary associations arising out of certain aspirations and aims. But both the I. of such associations and personal I. bear the imprint of the classes to which the individuals belong and the conditions in which those classes exist. In a society with private property relations and class antagonisms, the I. of different social groups, just like the I. of individuals, are often diametrically opposed. Not only the personal I., but also the general I. of reactionary classes come in conflict with the I. of society. Only with the transition to socialism are conditions created for the unity of the fundamental I. of all members of society, and an objective basis is created for the harmonious correspondence of personal I. and social I. 2. I. (in psychology) is man-

ifested in a positive and emotional attitude to an object and in the concentration of attention upon it. A temporary, situational interest arises in the process of performing a given action and vanishes with its completion. A stable I. is a relatively constant trait of an individual and is an important requisite for a creative attitude of man to his activity, helping to broaden his horizon and enrich his knowledge.

Interpretation and Model, semantic concepts of metamathematics (q.v.) and metalogic (q.v.). In a broad sense, I. is the assigning of meanings to initial propositions of a calculus, as a result of which all properly constructed propositions of the given calculus acquire sense (see Denotation and Sense, Name, and Logical Semantics). An interpreted calculus is therefore a formalised language (q.v.), in which various propositions having sense are formulated and demonstrated. By utilising the concept of M. a stricter definition of I. can be given. Let us take a certain class of propositions K calculus L; if we replace all constants in these propositions by variables of corresponding types (see Types, Theory of) we obtain a class of propositional functions (q.v.) K^1 . Any number of objects which decide each of the propositional (see Decidability) functions of K^1 is called M. of the class of propositions K of the calculus L. The concept M. of calculus helps to introduce the concept I. Being either extracted or specially constructed M. is called the I. of calculus. In its turn, I. is used to determine the logical and actual truth-value (q.v.) and analytical and synthetic propositions. The theory of models of logical systems has been developed in the works of Alfred Tarski, Rudolf Carnap, John Kemeny, the Soviet mathematician A. I. Maltsev, and others. In the natural sciences, the term "model" is used in a different sense (see Analogue Simulation).

Introjection (Lat. *intro*—within, *jace-re*—to throw), a concept introduced by Avenarius (q.v.). According to him I. is an impermissible incorporation of the image perceived into the consciousness of the individual and also

of the ideal into the thoughts of the subject. In contrast to I. he put forward his theory of principal co-ordination between the ego and the environment (see Principal Co-ordination). Dialectical materialism, in contrast to anthropological materialism, does not lapse into I. because it overcomes the viewpoint of the isolated individual in epistemology. The essence of I. was thoroughly criticised by Lenin (see *Materialism and Empirio-Criticism*).

Introspection (Lat. *intro*—inside, *spectare*—look), observation of one's own psychic phenomena, self-observation. I. is associated with the development of the higher form of psychic activity (q.v.), i.e., with man's understanding of reality around him and with the crystallisation of man's world of inner emotions and the forming of his inner plan of action. Only that which is perceived by consciousness can be the object of I. The results of I. can be expressed in the form of statements by people about their thoughts and emotions. Idealist psychology holds that I. is the only or the main method of studying psychic phenomena, and that it enables us to penetrate their essence directly. But materialist psychology holds that the data of I. do not go beyond directly sensory knowledge, and that strictly objective methods are necessary for the study of the essence of these data. For scientific psychology, the data of I. are therefore not a method, but one of the objects of psychological study.

Intuition, ability to understand truth directly without preliminary logical reasoning. In pre-Marxist philosophy I. was considered a special form of cognitive activity. Descartes (q.v.), for example, held that the deductive form of proof rests on axioms; the latter are understood purely intuitively, without any proof. According to Descartes, I. in combination with the deductive method serves as a universal criterion of complete truth. I. also holds a big place in the philosophy of Spinoza (q.v.) who considered it a "third kind" of knowledge, the most fruitful and important, which grasps the essence of things. In contemporary

idealist philosophy I. is regarded as a mystical ability of cognition, incompatible with logic and practice (see Intuitionism, Philosophical; Intuitionism, Mathematical; Intuitionism, Ethical). Dialectical materialism does not consider I. as a special stage in cognition and rejects any attempts to treat it as a superrational, mystical cognitive ability. At the same time, I. plays a subsidiary role in the process of scientific cognition and aesthetical apprehension of reality. I. must not be considered as a kind of fundamental deviation from the usual ways of knowing the truth, it is a natural form of their manifestation based on logical thinking and practice. Behind the ability "suddenly" to grasp the truth, are, in reality, accumulated experience and knowledge. The results of intuitive cognition do not need any special criterion of truth-value ("self-evident nature", etc.), but are also logically proved and verified by practice.

Intuitionism, Ethical, a trend in contemporary ethics, especially widespread in Britain. Its main proponents are George Moore (q.v.), Charlie Broad, David Ross and Alfred Ewing. The intuitionists maintain that good and moral duty are entirely "unique" concepts and that they cannot be determined by, or deduced from, our knowledge of man, society or nature (see Naturalism, Ethical) and can be cognised only by special intuition; the so-called deontological intuitionists hold that moral duty is "self-evident". Intuitionists sever man's moral conceptions from his social convictions, and ethics from the social sciences, depriving it of its scientific basis. This leads them to the assertion that moral rules have no roots in history and are not associated with society. By claiming that ethical rules are "self-evident", they justify, in effect, the immutability of bourgeois morality.

Intuitionism, Mathematical, an idealistic philosophical school which arose in the early 1920s in connection with polemics over the theoretical principles of mathematics. I. is associated with the names of Brower, Weyl, Heyting, and others. According to I., the exact

part of a thought is based on intuition (q.v.), understood as the ability to distinguish clearly between objects of thought and to identify them. Intuition gives content to a statement, imparts sense to it and also serves as a criterion of truth. Mathematical proof is convincing not by its strict logic, but by the intuitive clarity of each of its links. Trust in Aristotelian logic is the source of contradiction (antinomy) as soon as we go beyond the bounds of finite pluralities, from which this logic is abstracted. That is why even the applicability of logical rules must ultimately be judged by intuition. But mathematical intuitionism, as distinct from philosophical intuitionism (see Intuitionism, Philosophical), does not oppose intuition to logic. The philosophical views of the mathematical intuitionist school were not scientific and did not gain wide recognition, but criticism of the concepts of proof and definition by intuitionists has played an important part in the development of constructive logic (q.v.) and constructive mathematics.

Intuitionism, Philosophical, an idealistic trend which had gained great influence in contemporary philosophy. I. counterposes to rational knowledge the immediate "perception" of reality based on intuition understood as a special ability of the mind irreducible to sensory experience and discursive cognition. I. is directly associated with mysticism (q.v.). Bergson (q.v.) and Lossky (q.v.) were the main proponents of I.

Invariance, the property of magnitudes, equations and laws to remain invariant, unchanged under certain transformations of co-ordinates and time. For example, the laws of motion in classical mechanics are invariant in relation of Galileo's space-temporal transformations; the laws of motion in the theory of relativity, in relation of Lorentz's transformations; laws of motion in theories of elementary particles, in relation of transformations reflecting the discrete nature of space-time. During the transition from an old theory to a new one the old property of I. either remains or is general-

ised, not discarded. I. follows from the material unity of the world, from the fundamental homogeneity of physical objects and their properties.

Inverse Relation, Law of, a law of formal logic fixing the dependence between the volume and content of concepts which are in a stable generic-specific co-ordination (see Genus and Species). It is formulated as follows: the content of the subordinating (generic) concept is part of the content of the subordinate (specific) concept, while the volume of the subordinate concept enters as part of the volume of the subordinating concept (another formulation is: the broader the volume of the concept, the narrower its content, and vice versa). For example, in the case of the concepts "triangle" and "isosceles triangle", the essential properties (content) of the first concept enter into, but do not exhaust, the essential properties (content) of the second concept; on the other hand, the objects encompassed by the second concept (its volume) are only part of the objects encompassed by the first concept (volume). The processes of generalisation (q.v.) and limitation, which lead to the formation of generic and specific concepts respectively, take place according to the L.I.R.

Irrational, not apprehensible by reason, by thought, not expressible in logical concepts. The term I. is used for characterising the philosophical trends which deny the role of reason in knowledge (see Irrationalism).

Irrationalism, an idealist trend which declares the world to be chaotic, irrational, and unknowable. Denying the cognitive power of reason, irrationalists put to the foreground faith (Fideistic I.), instinct (see Freudism), unconscious will (see Schopenhauer), intuition (see Bergson, James), existence (see Kierkegaard). The objective and social meaning of I. is denial of the possibility of adequate knowledge of the objective laws of social development.

Irreversibility, a quality which makes reversion to the original state impossible, determining the passage into a qualitatively new state. I. is inherent, to a greater or lesser degree, in

all processes in the world. This is determined: (1) by the infinity of matter, the inexhaustible complexity of its structure, and its countless potentialities for change, which cannot be fully realised in any finite period of time; (2) the fact that all the existing material systems are not closed in principle, the diversity of their external ties which are constantly changing and transfer the system into a new state. That is why every cyclical process includes an element of irreversible change, which is expressed in the general irreversible run of time from the past to the future. I. of change cannot be reduced to some kind of change in one direction. Development along an ascending line or, the reverse, the degradation of a system with its subsequent death, are specific cases of I. Change in one direction can occur only in finite systems. In the infinite Universe I. presupposes changes in the most diverse directions and never-ending emergence of fundamentally new possibilities of development.

Irritability, the quality of living matter to react instantly to the influence of internal and external environments. I. is one of the general biological forms of reflection of matter. The most elementary form of I., inherent in the protozoa is taxis—the movement to the source of I. (light, smell, etc.) or away from it. In the process of phylogenetic (historical) development I. gives rise to excitability. The latter is the result of the differentiation of tissues. As living creatures become more complex and the nervous system develops, the biological forms of reflection also become more complicated, unconditioned and conditioned reflexes appear. The processes of metabolism, the functioning of albuminous components form the basis of I. The teaching of I. provides abundant factual material in support of the Marxist theory of reflection.

Islam, or Mohammedanism, one of the world religions, the other most important ones being Christianity (q.v.) and Buddhism (q.v.), widespread chiefly in the Middle East, North Africa, and South-East Asia. I. arose in the

7th century in Arabia in the period of the Arab peoples' transition from the primitive-communal system to a class society and their unification in the feudal-theocratic state of the Arab Caliphate. I. was an ideological reflection of these processes and became the religion defending the interests of the ruling classes. The creed of I. is expounded in the "holy" book of the Moslems, the Koran; it is compounded of elements of primitive religions and also of Judaism (q.v.), Christianity (q.v.) and Zoroastrianism (q.v.). It is based on the dogma of the Almighty God (Allah). The pivot of I. is the doctrine of divine predestination. According to the Koran, the fate of every man is predestined by Allah. Advocating man's impotence in face of God, the Koran urges the faithful to be patient, to submit to Allah and his envoys on earth, promising in return heavenly bliss in the other world. Hostility to infidels (gyawurs), inferiority of women, and legalisation of polygamy are characteristic features of Mohammedanism. I. justifies social

inequality and leads people away from the revolutionary struggle into futile waiting for happiness in the next world.

Isomorphism (Gk. similar, equal in form), a relationship between objects having an equal, identical structure. Two structures (systems or pluralities) are isomorphic when every element of the first structure corresponds to only one element in the other and every operation (connection) of the first structure corresponds to only one operation (connection) of the other, and vice versa. As a rule, I. characterises one of the relations or properties of the objects compared. Full I. is possible only between two abstract objects, for example, between a geometric figure and its analytical expression in a mathematical formula. The concept I. is widely applied in mathematics and also in mathematical logic, theoretical physics, cybernetics, and other fields of knowledge. The concept I. is connected with concepts like "model" (see Analogue Simulation), "signal" and "image" (see Reflection; the Ideal).

J

Jacobi, Friedrich Heinrich (1743-1819), German idealist philosopher, president of the Munich Academy of Sciences. He criticised rationalism (q.v.) and founded the so-called "philosophy of feeling and faith". His philosophy is an attempt to delimit metaphysically immediate knowledge (q.v.) and mediate knowledge and to counterpose the former to the latter. According to J., the only true knowledge is sensory experience. The activity of reason does not go beyond the limits of sensory experience. Reason, dealing with subjective concepts, is powerless to prove the existence of things. According to J., religious feeling, which forms the foundation of philosophy, cannot be understood from the standpoint of rationalism. This led the philosopher to conclude that rational philosophy was linked with atheism. Some elements of J.'s philosophy were further developed in the philosophy of life (q.v.) and existentialism (q.v.).

Jainism 1. A heterodox system of Indian philosophy, an idealistic system of pluralism (q.v.) which emerged at the beginning of our era. J. is based on the doctrine of *tattva*, the essence. *Tattva* is the primary material of which the world is built; it is at once the fundamental truth of which knowledge is built. The two chief *tattvas* are *jīva* (the soul), whose basis is consciousness, and *ajīva* (all that is not soul). Matter is a variety of *ajīva* possessing the properties of tactility, sound, smell, colour, and taste. Matter is atomistic, perceptible to the sense-organs, subject to change, has no beginning and no end, and constitutes the result of divine creation. In addition, there is also the delicate, so-called

karma, which conditions the connection between soul and body. There is no single soul or supreme God; there are as many souls in the world as there are creatures. Every soul is potentially omniscient, all-permeating, and omnipotent, but its possibilities are limited by the concrete body in which it lives. The ethical side of J. is based on the doctrine of refraining from doing injury to any living being (*ahimsā*). 2. An Indian religion, believed to have been founded by a mythical sage Mahāvīra (great hero), who is said to have lived in the 9th-8th centuries B.C.

James, William (1842-1910), US psychologist and idealist philosopher, prominent exponent of pragmatism (q.v.), professor at Harvard (1889-1907). Opposed the materialistic world outlook. Conscious of the fallacies of the metaphysical method, J. also rejected dialectics and professed irrationalism (q.v.). His analysis of the mind, which J. described as "stream of conscience", laid emphasis on the volitional and emotional elements. J. substituted the pragmatic principle of utility for objective understanding of the truth and paved the way to fideism (q.v.), advocating the right to believe what cannot be proved or reasoned. J.'s "radical empiricism" is, in effect, a subjective reduction of reality to "pure experience", to consciousness. His "neutral monism" defines the material and the spiritual as two different aspects of one and the same "experience". J. championed religion and was active in a special organisation he founded in New York for the examination of mystical "experience". His main works are *The Principles of Psychology* (1890),

The Varieties of Religious Experience (1902), and *Pragmatism* (1907).

Japanese Philosophy The formation of the first philosophical doctrines in Japan began in the epoch of feudalism. Japanese philosophy developed under the influence of the natural philosophical ideas of ancient China, the ethico-political teachings of Confucianism (q.v.), Buddhism (q.v.) and later of Neo-Confucianism (q.v.). The founders of Neo-Confucianist idealism in Japan were Fujiwara Seika (1561-1619) and Hayashi Razan (1583-1657). Their school ("suse gakuha") propagated the doctrine of the Chinese philosopher Chu Hsi (q.v.). The Japanese Neo-Confucianists thought that *tai keku* or *mu keku*—the "Great Ultimate"—rules the Universe. It is a universal transcendental force, without qualities and forms, and beyond man's perception. The mystical absolute *tai keku*, the foundation of the ideal principle *ri* (*li*, q.v.), connected with the material principle *ki* (*ch'i*, q.v.), is able to create the physical nature of things and man. The Neo-Confucianists elaborated upon the dogmas of Confucianism on the eternal relations of subjection (the son to the father, the subject to the emperor, the wife to the husband, and so on). The schools of classical Confucianism led by Yamaga Soko (1622-85), Butsu (Ogiyu) Sorai (1666-1728) and those of the followers of subjective idealism of the Chinese philosopher Wang Shou-jên (Wang Yang-ming)—"Oyomeigakuha"—led by Nakae Tōju (1608-48) were also active during this period. Materialistic views were formed in defiance of the then dominant idealistic trends in Japanese philosophy. The acquaintance of the Japanese philosophers with the doctrines of West European thinkers (Bacon, Gassendi, Hobbes, Copernicus, Galileo, Newton, qq.v.) was of great importance for the development of materialistic philosophy in Japan and for the undermining of the role of Confucianist and Neo-Confucianist idealism and of Buddhist mysticism. The works of Kaibara Ekiken (1630-1714), Muro Kyūsō (1658-1734), Itō Jinsai (1627-1705), Yamagata Shūnan

(1687-1752) played a great role in developing the anti-feudal social thought and materialist and atheist ideas. The materialist philosopher and atheist Ando Shōeki was active in the epoch of feudalism (end of the 17th and beginning of the 18th century). He discarded the Neo-Confucian idea of the "limitless" ideal principle and defended the principle that "uninterrupted formation" is the real law of nature. There are some elements of dialectics in his statements on nature and its laws. According to Ando Shōeki, the world consists of five infinite material elements, which act of their own will. He was a resolute enemy of the feudal regime, and propagated the advanced ideas of Enlightenment. He denied the idea of the inborn inequality of men and considered private ownership the source of social evil; his demands in the social sphere, however, were utopian. In order to achieve equality people should pass on to collective cultivation of land, which would lead to social equality, to the flourishing of the arts and handicrafts. The prominent materialist elements in the works of the natural philosopher Miura Baien (1723-89) are a testimony to the definite rejection of Confucian scholasticism. The exponents of materialism and atheism in Japanese philosophy were Minagawa Wakein (1716-1804), Hiraga Gensai (1726-79), Yamagata Bantū (1761-1801), Kamada Ryūku (1754-1821). The incomplete bourgeois revolution of 1867-68 was an important factor influencing the development of Japanese philosophy in the second half of the 19th century. Philosophical ideas during this period developed in the struggle between the philosophers of "kanryō gakusha" ("scientists of the bureaucracy") and of "minkan gakusha" ("scientists of the people"). The representatives of the "kanryō gakusha" were Nishi Amane (1826-94) and Katō Hiroyuki (1836-1916). They thought their mission was to "develop culture according to the plans, tastes, and efforts of the top layers". They attempted to combine the elements of Confucianism and the ideas of West European idealist philosophy (Mill,

Bentham, Comte, Spencer, qq.v.). Nishi was the first to introduce the term "tetsugaku", or "philosophy". A prominent exponent of "minkan gakusha" was Fukuzawa Yukuchi (1830-1901). He denied the social-Darwinist ideas of Katō Hiroyuki and preached social equality. An ideologist of the Japanese monarchical regime was the idealist and eclectic Inoue Tetsujirō (1855-1944). He opposed English empiricism and tried to synthesise the ideas of Confucianism, Neo-Confucianism, Shintoism (q.v.), Buddhism with those of German classical philosophy (especially Hegel and E. Hartmann) and empirio-criticism (q.v.). His eclectic doctrine became the philosophical basis of the ideology of "Japanism". The opponent of Inoue's philosophy and of all idealism in general was the materialist and atheist philosopher Nakae (1847-1901), who had a great influence upon the development of Japanese progressive scientific and social thought. At that time chairs specially instituted in the universities spread the ideas of German classical philosophy and the latest idealism (phenomenology, q.v.; philosophy of life, q.v.; pragmatism, q.v.; and existentialism, q.v.). The most widespread was the philosophy of Nishida Kitarō (1870-1945), who tried to express the ideas of Zen-Buddhism (q.v.) in the concepts and principles of West European idealist philosophy. The ideas of the German classical philosophy of Neo-Kantianism, intuitionism, pragmatism, and existentialism were eclectically bound together in Nishida's teachings. The scientific Marxist world outlook in Japan was actively spread by Tosaka Gen (1900-45); Kawakami Hajime (1879-1946), translator of Marx's *Capital*; and Nagata Hiroshi (1904-47), author of a new and improved translation of Lenin's *Materialism and Empirio-Criticism*.

Jaspers, Karl (1883-), a leading exponent of German existentialism (q.v.), professor at Basle University. He started as a psychiatrist, and this determined in many ways his conception of philosophical problems. J. sees in psycho-pathological phenomena (*All-*

gemeine Psychopathologie, 1913) not the expression of individual disintegration, but man's intensified search for his individuality. Considering this morbid search as the core of real philosophising, J. comes to the conclusion that any rational picture of the world is still not knowledge. It can be only the "Chiffre für das Sein" (the cipher for being), which always needs interpretation. According to J., the inner content of philosophy is disclosed only by intimate "understanding" of the "cipher" and the task of philosophy is nothing but to comprehend the irrational that is dominating the world, and to understand it as the source of the highest wisdom (*Vernunft und Existenz*, 1935). The peculiarities of J.'s existentialism are most prominently seen in his doctrine of "borderline situations". According to J., the real meaning of existence becomes clear to men during periods of deepest shock (illness, death, unatonable guilt, etc.). Precisely at this moment "Scheitern der Chiffre" ("the downfall of cipher") takes place. Man becomes free from the burden of everyday cares ("*Vorhandensein in der Welt*") and of his ideal interests and scientific views of reality ("*das transzendente An-sich-sein*"). He faces a profoundly intimate existence ("*Existenzerhellung*") and his true experience of (a transcendental) God (*Philosophie*, 1932). The doctrine of "borderline situation" served J. to defend the "cultural psychological value" of the cold war (*Die Atombombe und die Zukunft des Menschen*, 1958).

Jeans, James Hopwood (1877-1946), English physicist and astrophysicist; a prominent exponent of modern "physical" idealism (q.v.); author of investigations in theoretical physics, astrophysics, and cosmogony. His hypothesis of the solar system originating from a collision between the Sun and another star was popular in the 20s and 30s. In the light of this hypothesis (which proved fallacious) planetary systems are a very rare and accidental phenomenon. J. sought to use the theory of relativity and the quantum theory to substantiate idealism.

Jevons, William Stanley (1835-82), English logician and economist, professor at Manchester and London universities, one of the first to employ the mathematical method in economic analysis. This did not free him from a crudely materialistic understanding of economics (e.g., of crises). In logic he was a follower of George Boole (q.v.), though he pointed out the flaws in Boole's logical calculations. J. was the author of the first and simplest logical machine. His theory of knowledge gravitated towards agnosticism. His most prominent works are *Theory of Political Economy*, *Elementary Lessons in Logic: Deductive and Inductive*, and *The Principles of Science*.

Joliot-Curie, Frédéric (1900-58), French physicist, Communist, Chairman of the World Peace Council (1949-58), member of the Paris Academy of Sciences, corresponding member of the Academy of Sciences of the USSR. His chief discovery was the phenomenon of artificial radioactivity; he also investigated the conversion of electron-positron pairs; and when the neutron was discovered he was one of the first to indicate the possibility of making practical use of atomic energy. He was an adherent of dialectical materialism.

Judaism, religion of the Jews. It arose out of the pagan polytheism (q.v.) of the ancient Jewish tribes and became a monotheistic religion in the 7th century B.C. The characteristic features of J. are: belief in one god, Jehovah, belief in the Messiah (saviour) and the dogma that the Jews are the chosen people. The sources of J. are the Old Testament (also recognised by Christianity) and the Talmud (an intricate scholastic system of commentaries on the Old Testament). Despite the assertions of modern Judaistic theologians about the special, "purifying" role of J., it is no less anti-scientific and reactionary than other religions. J. is the state religion of Israel and the religious basis of Jewish bourgeois nationalism (Zionism).

Judgement, an idea expressed in the form of a declarative sentence, which makes some assertion about objects

and which is objectively either true or false. Examples of J.: "All planets rotate around the Sun"; "If a number is divisible by 10, it is also divisible by 5"; "Smith will pass his exam with excellent marks". The first two Jj. are true, whereas the third may prove to be true or false (depending on Smith's marks), although the speaker may have assumed that he was expressing a truth. A hypothesis (q.v.) is also a J. and may be objectively either true or false, although it is not yet proved or disproved. The laws of science are Jj, the truth of which has been proved. Ideas which cannot be characterised as true or false are not Jj. (questions, orders, requests, etc.). Jj. may be divided into simple and complex. Simple Jj. are those which within the limits of a system cannot be reduced to other Jj. Complex Jj. are made up of simple ones through various logical connectives, e.g., conjunctions "and" (conjunction, q.v.), "or" (disjunction, q.v.), "if ... then" (implication, q.v.). The truth or falsity of complex Jj. is a function of the truth or falsity of simple Jj.: by knowing the value of simple Jj., we can determine the value (truth or falsity) of complex Jj. Four types of Jj. are usually regarded as simple in traditional formal logic (Aristotle formulated his syllogistic, q.v., in respect to these four): (1) General assertions: their structure is expressed in the formula "All S. are P.", where S. is subject; P.—predicate, and "are"—connective. Example of such J.: "All liquids are resilient"; (2) general negations; their structure: "No S. is P.", e.g., "No whale is a fish"; (3) particular assertions; their structure: "Some S. are P.", e.g., "Some metals are fluid"; (4) particular negations; their structure: "Some S. are not P.", e.g., "Some metals do not oxidise". The theory of Jj. was worked out in detail by Aristotle in his treatises *De Interpretatione* and *Prior Analytics* (see Statement).

Justice and Injustice, ethical concepts expressing diverse moral qualifications of social phenomena: the vindication and sanctioning of a social

phenomenon by recognising it as just, or its condemnation and negation by qualifying it as unjust. The concepts of J. & I. are usually set out in philosophical, ethical, political, and other theories. As a rule, their interpretation of J. & I. was considered as absolute and valid for all historical periods. In fact, however, these concepts change from one epoch to the next due to changes in social relations. Furthermore, in a class society members of the different classes interpret them differently. The ruling class vindicates the existing economic re-

lations, while the revolutionary class criticises and negates them. Marxism elucidated the concept of J. and measured it in relation to the vital needs of natural social development. Marxist ethics associates the concept of J. with the idea of liberating society from exploitation. Socialism alone creates genuinely just relations of equality, fraternal friendship, and co-operation between all peoples. Social J. attains its summit in communist society, in which all traces of social and economic distinctions disappear.

K

Kant, Immanuel (1724-1804), German philosopher and scientist, founder of German classical idealism. Was born, studied, and worked in Königsberg where he was docent (1755-70) and professor (1770-96) of the University. Founder of "critical" or "transcendental" idealism (q.v.). In the so-called "pre-critical" period (prior to 1770) K. formulated his "nebular" cosmogonic hypothesis, according to which the planetary system arose and developed out of a prime "nebula". At the same time K. advanced the hypothesis about the existence of a Great Universe of galaxies outside our Galaxy, developed the theories of the retardation of the Earth's rotation by tidal friction and the relativity of motion and rest. These studies, united by the materialist idea of natural development of the Universe and the Earth, played an important part in the shaping of dialectics. In the philosophical works of the "pre-critical" period K. designated, under the influence of the empiricism and scepticism of Hume (q.v.), the difference between real grounds and logical grounds, introduced in philosophy the concept of negative magnitudes and ridiculed the predilection of his contemporaries for mysticism and "spiritualism". In all these works the role of the formal deductive methods of thinking is restricted in favour of experience. In 1770, K. went over to the view of the "critical" period. His *Kritik der reinen Vernunft* appeared in 1781 and was followed by *Kritik der praktischen Vernunft* in 1788 and *Kritik der Urteilstkraft* in 1790. In them K. consistently expounded: the "critical" theory of knowledge, ethics, aesthetics, and

the doctrine of the expediency of nature. In his works of the "critical" period K. proved the impossibility of constructing a system of speculative philosophy ("metaphysics" in the terminology of those days), without a preliminary study of the forms of cognition and the boundaries of man's cognitive abilities. Their study led K. to agnosticism (q.v.), to the assertion that the nature of things as they exist of themselves ("things-in-themselves") in principle is inaccessible to human knowledge. Knowledge is possible only of "phenomena", i.e., the way through which things reveal themselves in our experience. True theoretical knowledge is available only in mathematics and natural science. This is determined, according to K., by the fact that in man's mind there are a priori forms of sensuous contemplation, like the a priori forms, or concepts, of reason and the a priori forms of the connection, or synthesis, between the sensuous multiformity and the concepts of reason. These, for example, are the basis for the law of constancy of substances, the law of causality, and the law of interaction of substances. According to K. an irrepressible striving for absolute knowledge stemming from higher ethical requirements is inherent in reason. Under the pressure of this striving, man's reason seeks to solve the problem of the finiteness or infinity of the world in time and space, the possibility of the existence of indivisible elements of the world, the nature of the processes taking place in the world, and of God as an absolutely essential being. K. held that opposite solutions are equally demonstrable: the world is finite and

is infinite; indivisible particles (atoms) exist and there are no such particles, all processes are causally conditioned, and there are processes (actions) that occur freely; an absolutely essential being exists and does not exist. Thus, reason is by its nature antinomic, i.e., is divided by contradictions. But these contradictions are merely seeming. A solution of the enigma is furnished by limiting knowledge in favour of faith, by differentiating between "things-in-themselves" and "phenomena", recognising that "things-in-themselves" are unknowable. Thus, man is simultaneously not free (as a being in a world of phenomena) and free (as a subject of the unknowable supersensual world); the existence of God is undemonstrable (for knowledge), and at the same time there is the necessary postulate of faith, on which our conviction of the existence of moral order in the world rests, etc. This teaching on the antinomic nature of reason, which served K. as the basis for the dualism of the "things-in-themselves" and "phenomena" and for agnosticism, gave an impetus to the development of positive dialectics in German classical idealism. On the other hand, in the understanding of knowledge, behaviour, and creative effort this teaching remained a captive of dualism, agnosticism, and formalism. For example, K. proclaimed as the basic law the categorical imperative (q.v.) which demands that man be guided by a rule which, being absolutely independent of the moral content of an action, could become a universal rule of behaviour. In aesthetics he reduced beauty to a "disinterested" pleasure which does not depend on whether the object depicted in a work of art exists or not and is determined solely by form. But K. was unable to apply his formalism consistently: in ethics, contrary to the formal nature of the categorical imperative, he put forward the principle of the self-value of each individual, which must not be sacrificed even for the good of society as a whole; in aesthetics, contrary to the formalism in understanding the beautiful, he declared poetry the highest form of

art because it is able to portray the ideal, etc. K.'s doctrine of the role of antagonisms in the historical process of social life and the need for eternal peace were progressive. K. considered international trade and contacts with their mutual benefit for different states as a means for establishing and maintaining peace. Though abounding in contradictions, Kantianism considerably influenced the subsequent development of scientific and philosophical thought. In their criticism of K. the founders of Marxism-Leninism demonstrated that the social causes of his delusions, contradictions, and inconsistency were rooted in the backwardness and weakness of the German bourgeoisie of that period. Idealist philosophers of the end of the 19th and the first half of the 20th century, discarding the materialist element in K.'s philosophy and his "thing-in-itself", exploited his inconsistencies and borrowed his erroneous theories to justify their own reactionary doctrines (see Neo-Kantianism; Socialism, Ethical; Marburg School; Baden School).

Karinsky, Mikhail Ivanovich (1840-1917), Russian logician and philosopher. In 1869-94 taught philosophy at the Petersburg Ecclesiastical Academy and other educational establishments. In his *Kritichesky obzor poslednego perioda nemetskoj filosofii* (*Critical Review of Recent German Philosophy*), 1873, K. attacked German idealism. Gravitated in his views towards materialism *Yavleniye i deistvitelnost* (*Phenomenon and Reality*), 1878; *Raznoglasiye v shkole novogo empirizma po voprosu ob istinakh samoochevidnykh* (*Differences in the School of New Empiricism on the Question of Self-Evident Truths*), 1914; *Logika* (*Logic*), 1884-85; and others. In his Doctor's thesis *Klassifikatsiya vyvodov* (*Classification of Inferences*), 1880, K. analysed syllogistic and inductive trends in logic and expressed original views on this question. In his *Ob istinakh samoochevidnykh* (*Self-Evident Truths*), 1893, criticised the dogmatism and apriorism (q.v.) of Kant's (q.v.) theory of knowledge. K. repeatedly attacked

Neo-Kantians (q.v.) including Vvedensky (q.v.) and also subjective idealists of the Berkeley type. K. is the author of original works on the history of ancient philosophy: *Tyemnoye svidetelstvo Ippolita o filozofe Anaksimene (Obscure Testimony of Hippolyte about the Philosopher Anaximenes)*, 1881; *Lektsii po istorii drevnei filozofii (Lectures on the History of Ancient Philosophy)*, 1885; *Lektsii po istorii novoi filozofii (Lectures on the History of New Philosophy)*, 1884, etc.

Kautsky, Karl (1854-1938), German historian and economist; Social-Democratic theoretician of the Second International, opportunist. Born in Prague, after 1880 lived in Germany. In 1881, met Marx and Engels. Actively contributed to the Social-Democratic press after the 1870s. In the 1890s became the recognised theoretician of German Social-Democracy. K. wrote a number of works—*Karl Marx ökonomische Lehren*, 1887; *Vorläufer des neueren Sozialismus*, 1895; *Die Agrarfrage*, 1899, *Der Ursprung des Christentums*, 1885; and others, which played a big part in spreading the ideas of Marxism. But in these works, K. made crass errors and distorted Marxism, for which he was criticised by Engels. K.'s pamphlet *Der Weg zur Macht*, published in 1909, was described by Lenin as K.'s best work. That pamphlet examined questions of a political revolution but did not say "a word about the *revolutionary* use of any and *every* revolutionary situation" (Lenin). Speaking about the proletarian revolution K. avoids the question of demolishing the bourgeois state machine and putting in its place organs of proletarian power. In 1910, K. formed a "central group" in the German Social-Democratic Party and after that openly came out against revolutionary Marxism. His work *Die Diktatur des Proletariats*, published in 1918, was called by Lenin a model of philistine distortion of Marxism and foul betrayal of it in deeds, while hypocritically recognising it in words. K. did not understand the tasks of the dictatorship of the proletariat (q.v.). In his philosophical views he was an eclectic,

combining elements of materialism and idealism. In his *Die materialistische Geschichtsauffassung* in two volumes, 1927-29, K. completely distorts the theory of dialectical and historical materialism. Thus, starting with deviations from some major propositions of Marxism and ignoring its creative application, K. lapsed into opportunism and renegacy.

Kavelin, Konstantin Dmitriyevich (1818-85), Russian idealist philosopher, historian, and political leader, professor at Petersburg and Moscow universities. In his youth was a Westerner and an admirer of Belinsky (q.v.) and Herzen (q.v.). In the 1850s became a liberal, which led to his break with the *Sovremennik (Contemporary)* and Herzen. Turned to philosophy in the 1860s to substantiate his political and ethical views. In his *Zadacha Psikologii (Aim of Psychology)*, 1872, and *Zadachi Etiki (Aims of Ethics)*, 1885, tried to adapt psychology in order to justify Christian ethics. Philosophy, in his opinion, should become the science of the individual human soul, the psychology which explains the moral, spiritual world regardless of the material substratum. To the "abstractness" of materialism and idealism, which study the general, K. counterposed the "concrete" knowledge of the individual soul. This supposedly eliminates the one-sidedness of philosophical systems. K. supported the idea of freedom of will (q.v.). The insolvency of K.'s theory was demonstrated by Sechenov (q.v.) in his remarks on K.'s *Aim of Psychology*.

Khomyakov, Alexei Stepanovich (1804-60), Russian writer and idealist philosopher, one of the founders of Slavophilism; graduated from Moscow University in 1820. In his works K. opposed materialism and criticised German classical idealism. He adhered to objective-idealist views which assumed the form of religious mystical voluntarism (q.v.). He regarded the ideal, rational, and free element as the first principle of all that exists. This element could not be cognised with man's usual means of knowledge, sensations and reason, but through

some "inner knowledge", "rational vision", i.e., with the help of religion. As regards society, K. adhered to the doctrine of providence. An ideologist of the Russian nobility, K., though criticising to some extent the Russian social order, proposed economic and political reforms to enable the Russian nobility to preserve its privileges in the period of historically inevitable changes—Russia's transition to the road of capitalist development.

Kierkegaard, Sören (1813-55), Danish mystic thinker and precursor of existentialism (q.v.). Principal works are *Either/Or* (1843), *The Concept of Fear* (1844), *The Sickness Unto Death* (1849). The subject of the first are "musical-erotic" problems, that of the other two—the concept of "original sin" and a description of the various kinds of doubt and despair. K. criticised the philosophy of Hegel (q.v.) from the standpoint of extreme subjectivism. Truth, for K., is always subjective. In ethics K. supported individualism (q.v.) and moral relativism, and preached despondency, fear, and hatred of the masses. Of the three types of human "existence" (aesthetic, ethical, and religious) he held religious existence to be the highest. K. originated the concept of existence (q.v.) as a "synthesis of the finite and infinite, the temporary and the eternal". In the late years of his life K. criticised the official church for "insufficient piety".

Kinship with the People in Art, an aesthetic category which expresses and summarises the totality of diverse relationships between art and the people, manifested above all in the fact that true art directly or indirectly embodies the aesthetical ideals of the people, their understanding of justice and beauty and the fervour of the people's revolutionary struggle for freedom and happiness. It is a historical concept and its content is determined by the specific conditions and stages of social development, the place and role of art in society. The people, as Gorky put it, are the first artists in point of time, beauty and genius, the true creators of world culture. Artistic

endeavour is an important sphere of the people's activity. The collective creative endeavour of the people is the basis and steady source of professional art, from which the subjects, ideas, and images of the finest works of art are drawn. In contrast to formalist and naturalist trends, realistic art is marked by kinship with the people, which is its main distinctive feature. This stems from the wisdom of the people and reflects their struggle for emancipation. All the great artists are part and parcel of the people, because by their creative work they help the people in their struggle often without being aware of it. "Art belongs to the people, it must extend its roots into the very depth of the working masses, it must be understandable by ... the masses and be loved by them." This statement by Lenin is one of the fundamental principles of socialist art.

Kireyevsky, Ivan Vasilyevich (1806-56), Russian publicist and idealist philosopher, one of the founders of Slavophilism (see Slavophiles). Edited the journals *Yevropeyets* (*European*), 1832, and *Moskvityanin* (*Muscovite*), 1845. According to K., who adhered to an anti-rationalist, religious, and intuitive theory of knowledge, the life of individuals, nations, and groups of nations, for example, the Slavs, West Europeans, etc., is founded on religion, which determines the education and the entire life of a nation. Since the Orthodox religion professed by the Slavs, chiefly the Russians, is the true religion, the future belongs only to the Slavs. The other peoples could make progress only if they accepted the Orthodox Christian civilisation. Otherwise civilisation will disintegrate (in K.'s opinion, this is what happened in Western Europe). K. regarded non-resistance to evil, the absence of class stratification, and communal life in the village (which he idealised) as distinctive features of the Russian people. Though he expressed some correct ideas about the fallacies of metaphysical thinking and the negative sides of bourgeois society, on the whole K.'s views were reactionary both in sociology and politics.

Knowledge, a product of the social labour and thinking of men, an ideal reproduction, in language form of objective, law-governed relations in the objective world that undergoes changes. The essence of K. cannot be understood without revealing the social nature of man's practical activity. Man's social power is concentrated and crystallised in K. In the history of philosophy, this furnished the basis for the ideas of objective idealist systems about the self-sufficient and self-determining significance of ideal products of man's social activity (Plato, Hegel). In the epistemology of pre-Marxist materialism K. was understood, contrariwise, as a product of the individual cognitive effort, of individual experience. But such a view, upholding the sensualistic principle, could not explain the fact that man begins the process of cognition possessing a "ready-made" apparatus of concepts and categories elaborated by society. It is a direct function of K. to convert scattered concept into a universal form, retaining in them that which may be passed on to others as a stable basis for practical action. From this angle K. is contrasted to opinion, the vulgar notions expressing empirical, changeable properties of things.

Komensky, Jan Amos, or Comenius (1592-1670), Czech pedagogue, humanist, and philosopher, opponent of the scholastic system of education, leader of a group of the Moravian Brothers, a sect formed in the course of the anti-feudal movement and national struggle against the German feudal lords and the Catholic Church. He was a Protestant close to pantheism (q.v.). There were considerable materialist tendencies in his sensualist theory of knowledge and didactics. Cognition, according to K., is an active process closely connected with rational education. All people, he asserted, are capable of knowledge and education. The ordinary people should be given access to knowledge. For the first time in the history of pedagogics K. created a system of didactics as a special science. His didactic principles (visual, presentation, gradation, imi-

tation, exercise) demanded deep knowledge of the laws of nature and a rationally organised assimilation of knowledge. K.'s progressive views exerted great influence on the subsequent development of pedagogics. His main works are *Januas linguarum reserata*, 1631, and *Didactica Magna*, 1657.

Kovalevsky, Maxim Maximovich (1851-1916), Russian sociologist, historian, jurist, and political leader, academician (since 1914). Taught law at Moscow University (was dismissed for progressive ideas) and Petersburg University and also at a number of universities in Europe and America. K. was a supporter of classical positivism (q.v.) and one of the organisers of the Moscow Psychological Society (1884). K. was familiar with the ideas of Marx and Engels, as shown by his interest in the history of landownership and the economic development of Europe: *Obshchinnoye zemlevladieniye. Prichiny, khod i posledstviya yego razlozheniya (Communal Landownership. Causes, Course and Consequences of Its Disintegration)*, 1879; *Ekonomichesky rost Yevropy do vozniknoveniya kapitalisticheskogo khozyaistva (Economic Growth of Europe up to the Rise of the Capitalist Economy)*, 1898-1903. Engels positively assessed K.'s studies on the history of the family. In his historical works which contained extensive factual material, K. elaborated the comparative historical method (q.v.). He analysed sociological doctrines in his books: *Sovremenniye sotsiologi (Contemporary Sociologists)*, 1905; *Sotsiologiya (Sociology)*, 2 volumes, 1910. K. was a proponent of the theory of social progress, which he perceived in the development of solidarity between peoples, classes and groups. This solidarity, according to K., arises by virtue of numerous causes (economic, social, political), among which it is impossible to single out the main and determining factor. A historian should limit himself to registering the interaction and co-relationship in the development of social phenomena. K. was influenced by theories which biologised social progress and also by bour-

geois economism and Socialism of the Chair (q.v.). Denial of revolutionary methods of reconstructing society was their common feature. In his sociological writings K. sought to justify Russian liberalism and reconciliation of democracy with the monarchy. His political activities were criticised by Lenin.

Kozelsky, Yakov Pavlovich (1728-94), Russian enlightener and philosopher. Taught mathematics and mechanics in the Artillery and Engineering schools. Later served in the Senate. Kozelsky is the author of *Filosoficheskiye predlozheniya* (*Philosophical Propositions*), 1768; *Rassuzhdeniya o chelovecheskom poznanii* (*Discourse on Human Knowledge*), 1788; *Arifmeticheskiye predlozheniya* (*Arithmetical Propositions*), 1764; *Mekhanicheskiye predlozheniya* (*Mechanical Propositions*), 1764. He advocated materialist ideas and criticised medieval scholasticism and mysticism, separated philosophy from theology and considered that philosophy should give "general knowledge of things and human deeds", i.e., is the "science of testing causes by truths". In his views of nature developed the ideas of 18th century mechanistic materialism. Declaring nature the "universal mother of all things", K. proved that nature consists of four material elements and that matter and motion are indestructible. The influence of C. Wolff and his followers is felt in some of K.'s logical categories. He considered sensory perceptions the initial element in the theory of knowledge, assigning a big role to experience and the activity of reason. He divided all knowledge into historical, philosophical, and mathematical, and the truths obtained by

people into natural, ethical, and logical. K. criticised the religious mystical aspects of the Wolffian theory of monads (q.v.), predestined harmony, and non-resistance to evil. He criticised the feudal system, idleness, and parasitism and extolled labour, a modest mode of life, and a humane attitude to people.

Kropotkin, Pyotr Alexeyevich (1842-1921), Russian theoretician of anarchism (q.v.) and geographer, member of a princely family. Took part in explorations (mainly in Siberia) and collected interesting material on physical geography. K. rationalised the theory of continental glaciation *Issledovaniye o lednikovom periodye* (*The Ice Age, an Enquiry*), 1876. In the 1870s, K. joined the Narodnik movement (see Narodism), was imprisoned in 1874, and escaped abroad two years later. In 1917, K. returned to Russia. In his works *Khleb i Volya* (*Bread and Freedom*), 1892; *Sovremennaya nauka i anarkhizm* (*Modern Science and Anarchism*), 1913; etc., he developed the theory of so-called communist anarchism. For K., the society of the future was to be a federation of free productive communities, formed as a result of a social revolution. K.'s philosophic views were a blending of positivism (q.v.) and mechanistic materialism. Contrary to the Marxist concept of history, K. proclaimed the concept of abstract mutual aid, which he considered to be the corner-stone of social development. Repudiating dialectics, K. considered the inducto-deductive method of natural science to be the only scientific method of thinking. He was considerably influenced by the positivism of Comte and Spencer (qq.v.).

L

Labour "Labour is, in the first place, a process in which both man and nature participate, and in which man of his own accord starts, regulates, and controls the material reactions between himself and nature." (Marx, *Capital*, Vol. 1, p. 177.) By acting on external nature, man changes both nature and himself. In changing nature he achieves his conscious purpose, adapts natural objects to his requirements. The L. process includes three things: (1) man's purposeful activity, or L. proper; (2) the object of L.; (3) the instruments of production with which man acts on this object. L. is the primary condition of human existence. L. supplies man with the necessary means of subsistence and, moreover, it created man himself. It was thanks to L. that man raised himself out of the animal world. One of the essential distinctions between man and the animal is that the animal makes use of ready products of nature, whereas man makes nature serve his purposes thanks to his labour, changes it and subordinates it to his needs. In different socio-economic formations (q.v.) L. appears in different forms which indicate the level of the development of the social relations at the given epoch. In the primitive-communal system (q.v.) L. is common, collective by its nature, and ownership of the means of production and its fruits is also common. Under this system there is no exploitation of the labour of others. In all the subsequent antagonistic socio-economic formations man's L. is subjected to exploitation: the slave's L. in slave society, the serf's L. under feudalism (q.v.), and the worker's under capitalism (q.v.). Only the socialist revolu-

tion (q.v.) releases the worker from exploitation. Under socialism (q.v.) and especially under communism L. has genuine purpose—to serve not only as the source of existence, but also as the source of creative inspiration and enjoyment (see Communist Labour; Antithesis of Mental and Physical Labour; Socialism and Communism).

Labriola, Antonio (1843-1904), first Italian Marxist; writer, and philosopher. L. became a Marxist after having rejected bourgeois democratism and the idealism of Hegel (q.v.). L. asserted that with the advent of historical materialism communism had ceased to be a "doubtful hypothesis" and could now be regarded as the inevitable "final result and outcome of the class struggle of our times". L. regarded the publication of the *Manifesto of the Communist Party* (q.v.) as a revolution in the social sciences. Referring to the derived character of the superstructure, L. nevertheless refuted economic materialism (q.v.), and held that only in the final count the economic element is instrumental in determining the trend of thinking in art, religion, and the various fields of human knowledge. He criticised the theories of Nietzsche, E. Hartmann, Croce, and Neo-Kantianism (qq.v.). His evaluation of colonialism was erroneous in certain respects. His best work, *Saggi intorno alla concezione materialistica della storia* (1895-98; 1925—posthumous edition), greatly influenced the thinking of Gramsci (q.v.) and Togliatti.

Lafargue, Paul (1842-1911), French socialist, active in the international working-class movement, disciple of Marx and Engels. His main work was

in philosophy and political economy, the history of religion and morals, literature and language. Lenin said that L. was one of the most gifted propagators of the ideas of Marxism. Having become a member of the First International in 1866, L. freed himself of Proudhonist and positivist views. He took an active part in the affairs of the Paris Commune; later associated with Jules Guesde; both of them became leaders of the French Workers' Party. L. fought anarchism and the opportunist theory of capitalism "growing peacefully" into socialism, and criticised the reformist and nationalist mistakes committed by Guesde. In his major philosophical work *Le déterminisme économique de Karl Marx* (1909) L. stressed the objective nature of the laws of history and revealed the interconnection between economics and the superstructure of society. He opposed revisionist attempts to "synthesise" Marxism with the doctrine of Kant and reconcile materialism with idealism. He also opposed Social-Darwinism and other unscientific theories. His book *Problems of Cognition* (1910) was a profound and witty repudiation of agnosticism. L.'s anti-religious pamphlets *Pius IX in Heaven*, *The Myth of Adam and Eve*, and *La religion du capital* exposed religion as a defender of capitalism. His reminiscences of Marx, giving a picture of the great fighter and thinker, are of considerable interest. L.'s works, despite a number of defects (oversimplification of certain problems, underestimation of the active part played by the superstructure, failure to fully comprehend the specific features of the imperialist stage of capitalism, etc.) played an important part in the struggle against reactionary ideology.

Lamarck, Jean Baptiste (1744-1829), French naturalist. In his *Philosophie Zoologique* (1809) he expounded the first comprehensive theory of the evolutionary development of the living world. Having summed up the results achieved by natural science in his day, L. advanced the proposition that changes in the environment cause orga-

nisms to acquire new qualities, which are transmitted by heredity. He thus attacked the metaphysical theory of the permanence of species and also the Cuvier (q.v.) catastrophe theory. According to L., the animate arises from the inanimate with the aid of special material "fluids". At first the simplest forms are evolved and from these more complex forms gradually develop. L. held, however, that matter is incapable of self-propulsion and that the development of both the animate and the inanimate is guided by a "divine innate purpose". The teleological side of Lamarck's doctrine was taken up by the Neo-Lamarckists, who maintained that the mind plays a predominant part in the process of evolution. L.'s idea of the role of environment and heredity in evolution was used by Darwin (q.v.) in his theory of evolution (q.v.).

La Mettrie, Julien Offroy de (1709-51), French materialist philosopher and doctor. His chief works were *L'homme machine* (1747) and *Le Système d'Épicure* (1750). He was victimised by both the clergy and the secular authorities. L.'s teaching is based on the physics of Descartes (q.v.) and the sensualism of Locke (q.v.). L. recognised an internally active material substance possessing extension and sensation. The forms of matter were the organic, vegetable and animal kingdoms (man being included in the animal kingdom), between which, according to L., there were no qualitative differences. L. denied the universality of thought, the ability to think being common only to man and arising as the result of a complex organisation of matter. L. understood the ability to think as the comparison and combination of conceptions arising on the basis of sensation and memory. A representative of the school of mechanistic materialism, L. gradually moved nearer to the theory of evolution. He held that the enlightenment and the actions of outstanding individuals are the main causes of historical development and advocated enlightened absolutism. His atheism was limited and he was in favour of preserving religion for the common people.

Langevin, Paul (1872-1946), French physicist, active in public life, Communist, advocate of dialectical materialism, professor of Paris University, member of the Paris Academy of Sciences, and foreign member of the Academy of Sciences of the USSR. Author of several major researches on the ionisation of gases, the theory of para- and dia-magnetism, etc., L. gave a scientific interpretation of the transformations propounded by Lorentz (q.v.), of the defect of mass, of the wave-corpuscular dualism (q.v.), of the statistical laws appertaining to microphenomena and other matters. He also criticised positivist theories, indeterminism, and subjectivist interpretations of the uncertainty principle (q.v.). Towards the end of his life he became acquainted with Marxism-Leninism and valued it as being of great importance to natural science. According to L., dialectical materialism makes it possible to widen and enrich the experimental method itself.

Language, sign-system of any physical nature, fulfilling the cognitive and communicative functions in the process of human activity. L. can be both natural and artificial. Natural L. is the L. of everyday life, serving as a form of thought expression and as a means of communication among men. Artificial L. is a L. created by men for some exclusive needs (the L. of mathematical symbols, the L. of physical theories, the different systems of signalling, etc.). L. is a social phenomenon. It arises in the course of development of social production, of which it is an indispensable aspect—a means of co-ordinating human activity. Physiologically, L. acts as a second signal system, which Pavlov (q.v.) called a specific addition to the human psyche. L. is a form of existence of thought and a form of its expression. At the same time it plays an important role in the formation of consciousness. Consciousness does not and cannot exist outside of L. The L. sign, conventional in relation to what it designates by virtue of its physical nature, is nevertheless socially conditioned by the content of conscious-

ness, which in L. is the linguistic content (the lexical and grammatical meaning of the L. sign). L. is a means of fixing and preserving the accumulated knowledge and passing it on from generation to generation. Only L. makes possible the existence of abstract thought. The presence of L. is a necessary condition for the thought's generalising activity (see Generalisation). "Every word (speech) generalises" (Lenin). And yet L. and thought are not identical. After it has arisen, L. becomes relatively independent, obeying specific laws differing from those of thought. For this reason there is no identity between concept and word, judgement and sentence. L., moreover, is a definite system, which has an inner "structure" outside which the nature and the meaning of a L. sign cannot be understood. In connection with the growing role of theoretical studies in recent decades, more interest is shown in the study of the laws of artificial, formal languages, of their logical syntax and logical semantics. Contemporary neo-positivism absolutises the role and significance of these studies and tries, incorrectly, to reduce the problems involved in philosophical studies to a logical analysis of L.

Lassalle, Ferdinand (1825-64), opportunist figure in the German working-class movement, who supported Bismarck. Born into a rich merchant family, he took part in the revolution of 1848. As one of the organisers of the All-German Workers' Union, he repudiated the class struggle and compromised with the Prussian reactionaries. His philosophy was idealist and eclectic. He interpreted Hegel (q.v.) scholastically and used his philosophy to justify his own conciliatory political line. In sociology L. held Malthusian views (see Malthusianism) and was one of the authors of the anti-scientific and reactionary "iron law of wages", according to which any struggle on the part of the workers for wage increases was considered futile. He regarded the state as an organisation standing above classes. L.'s views were criticised by Marx in his *Criticism of the Gotha Programme* (q.v.) and by Lenin in the

Philosophical Notebooks (q.v.). Their estimation of L.'s work as an agitator, however, was favourable.

Lavrov, Pyotr Lavrovich (1823-1900), theoretician of Narodism (q.v.), creator of the Russian "subjectivist school" in sociology, and writer. Son of a landowner. Participated in the work of such illegal revolutionary organisations as *Zemlya i Volya* (Land and Freedom) and *Narodnaya Volya* (People's Will). Member of the First International. While in London, became acquainted with Marx and Engels. Wrote and spoke on problems of philosophy, sociology, ethics, history of public opinion, and art. L.'s chief interest lay in the ways of the revolution in Russia. Admitting the validity of the theory of socialist revolution for the developed capitalist countries of Europe, L. was sceptical about its applicability to the conditions prevailing in Russia. His sociopolitical doctrine (influenced by Herzen, q.v.) rested on two interdependent concepts: (1) the socialist nature of the Russian peasant community, and (2) the special role of the intelligentsia in the Russian liberation movement. These concepts determined L.'s whole philosophico-historical conception. Referring to the characteristic features of history "as a process", L. distinguished the concept of culture and the concept of civilisation. Culture is of community origin and is reflected in a people's psychology and the characteristic features of its daily life and social relations. The degree of receptivity to reasoning rather than the nature of thinking is the criterion of culture. According to L., the culture of society is environment given by history for thinking. Civilisation is a conscious developing principle; it is manifested in a progressive replacement of cultural forms. "The critically thinking individuals" are the vehicles of civilisation. The measure of the critical enlightenment of human consciousness (primarily moral consciousness) is the criterion of progress. Social development implies the growth of the individual's consciousness and of the solidarity between individuals. Philosophically,

L. was eclectic, combining materialism and idealism. Influenced by positivism and agnosticism (qq.v.), he gravitated to subjective idealism. Main works: *Istoricheskiye pisma* (*Historical Letters*), 1869; *Tsel i znacheniyе klasifikatsii nauk* (*The Purpose and Importance of the Classification of Sciences*), 1886; *Zadachi pozitivizma i ikh resheniye* (*Tasks of Positivism and Their Solution*), 1886; *Vazhneishiyе momenty v istorii mysli* (*Essential Moments in the History of Thought*), 1899.

Law 1. An inner essential connection of phenomena which determines their necessary, natural development. L. expresses a definite order of causal, necessary and stable connections between phenomena or properties of material objects, of recurring essential relations, in which the change of some phenomena causes a definite change in others. The concept of L. is close to the concept of essence, which constitutes the sum total of inner connections and processes determining the major features and tendencies in the development of objects. Knowledge of a L. presupposes transition from appearance to essence (see *Essence and Appearance*) and always proceeds through abstract thinking, abstraction from many purely individual and non-essential features of phenomena. There are three main groups of L: (1) specific or particular; (2) general, for large groups of phenomena; (3) universal. The first group expresses relations between specific phenomena, or particular properties of matter. The second group is displayed in a wide range of conditions and characterises relations between general properties of large aggregates of objects and phenomena (for example, in physics, laws of the conservation of mass or the electric charge and in biology, L. of natural selection, etc.). The third group represents the main dialectical Ll. of the world which express the relations between universal properties or trends of development of matter. They act as the universal principles of all being, as the common elements which are manifested in many Ll. of the first and second group. But the distinctions

between these L1. are relative and mobile. The operation of general L1. is manifested in particular, specific L1. and the general L1. are cognised through the generalisation of concrete phenomena, including specific L1. Another distinction between L1. is that some operate differentially in time, in such a way that the ensuing consequences are fulfilled in each, sufficiently small, span of time, while others operate integrally, i.e., their consequences are fulfilled not at each given moment, but only over a sufficiently big span of time or when the system changes as a whole. Such are statistical L1. Operation of L. depends on the existence of the corresponding conditions. The creation of the latter helps to turn the consequences of L. from possibility into reality. In society, application of L1. presupposes the activity of people who are capable of creating or destroying—consciously or unconsciously—the conditions for the operation of L1. People, however, do not create L1., they only restrict or extend the scope of their operation according to their needs and interests. As for L1. as such, they exist objectively, independent of the consciousness of people, as an expression of the relations between properties of bodies or different tendencies of development.

2. The will of the ruling class as embodied in its own specific system of jurisprudence and determined by the material conditions and interests of that class. L. is drawn up as a system of rules and standards of behaviour, established or sanctioned by the state power. The specific feature of legal rules is that their fulfilment is forcibly ensured by the state power. Being part of the superstructure, L. is determined by the given society's dominant relations of production, which it sanctions together with the social relations based on them. The historical type of L. corresponds to the appropriate socio-economic formation (q.v.). The common feature of the slave-owning, feudal and bourgeois L. is the consolidation of the master and subordinate relations, the relations of exploitation, based on private property. A

qualitatively new legal system is found in socialist L., which legally embodies production relations as characterised by friendly collaboration and mutual aid and which, based on socialist ownership, provides a firm foundation for the building of communism. Socialist L. is the will of the people given the statutory force; for the first time in history it establishes and really guarantees truly democratic liberties. It differs from bourgeois L. in that it provides the working people with genuine rights guaranteed by all the means at the disposal of the state.

Laws, Statistical and Dynamic, forms of regular causal connection between phenomena. D.L. are a form of causal connection in which a given condition of a system determines unequivocally all its subsequent conditions, knowledge of the initial conditions allowing an accurate prediction of the further development of the system. D.L. operate in all autonomous systems which are but insignificantly dependent on outside influences and consist of a relatively small number of elements. For example, they determine the character of the motion of planets in the solar system. S.L. are a form of causal connection in which a given state of a system determines all its subsequent conditions not unequivocally but with a definite degree of probability, which is the objective measure of the possible realisation of the tendencies of change implanted in the system in the past. S.L. operate in all non-autonomous systems consisting of a large number of elements dependent on continuously changing external conditions. Strictly speaking, every law is statistical, since matter is inexhaustible and every system consists of a countless number of elements. Besides, every system is not closed and interacts with the surrounding medium. This is why every D.L. is statistical with a probability of realisation approaching 1, because external influences and many intrinsic connections in the system do not exert any substantial influence on it. S.L. cannot in principle be reduced to D.L., due to (1) the inexhaustibility of mat-

ter and the systems being not closed, (2) the impossibility of realising many of the tendencies of development, and (3) the emergence in the process of development of possibilities and tendencies of qualitatively new states. This is why every complex process of development is governed by S.L., whereas D.L. are no more than an approximate expression of separate stages of this process.

Leap, a stage in the radical changes in a thing or phenomenon, the moment or period when the old quality is changed into the new as a result of quantitative changes. In comparison with the preceding, evolutionary stage of development, the L. represents more or less apparent, relatively quick changes. The destruction of an old and the coming into being of a new quality, as also every possible qualitative change, can be accomplished only by a L. But the L. may take exceptionally diverse forms, depending on the character of a phenomenon and on the conditions in which it develops. Essentially, every phenomenon assumes a new quality in a way of its own. But all these developments can be divided into two relatively definite types: sudden and gradual L. The former take place in such a manner that the old quality is fully changed at once (e.g., the change-over of certain elementary particles into others; in social life, the October Revolution in Russia was an example of such a sudden and tempestuous leap). The latter takes place in such a way that the existing thing or phenomenon changes by parts, by individual elements, until, as a result of gradual mutation, it is transformed as whole. In social life, the first type of L. is characteristic of antagonistic formations, in which the dominant class is an obstacle to the historically urgent transition from the old to a new system. Such a transition (for instance, from capitalism to socialism) can be accomplished only by a political revolution. The second type of L. is typical of non-antagonistic systems, in which all the basic social forces are interested in society's progressive development. This is what

Marx had in mind when he foretold that in a classless society social evolution would cease to be a political revolution. The Programme of the Communist Party of the Soviet Union proceeds from the fact that gradual qualitative change is a law of communist construction. The creation of the material and technical basis of communism, the obliteration of class and other distinctions, the withering away of the state, the education of the new man, are all decisive revolutionary turns in the development of socialist society, which do not take place at once and all of a sudden, but gradually and continuously. Communism grows out of socialism, is its direct continuation. It would be incorrect and erroneous to think that communism will appear all of a sudden. The transition from socialism to communism takes place continuously. Nevertheless the gradual transition from socialism to communism must not be considered as a kind of slow motion. On the contrary, it is a period in which all aspects of social life develop rapidly. Besides, such a form of development does not preclude quick, sudden L. in some fields, for instance, in technology and science.

Lebedev, Pyotr Nikolayevich (1866-1912), Russian scientist, founder of the first Russian school of physicists. He conducted important researches in various fields of physics such as acoustics, electricity, and optics. His greatest achievement, which brought him world renown, was the discovery and measurement of the pressure of light on solid bodies and gases, which furthered the development of the electromagnetic theory of light. He showed that light is one of the forms of existence of matter. L.'s researches helped to reveal the falseness of energism (q.v.) and Machism (q.v.).

Left Hegelians, see Young Hegelians. **"Legal Marxism"**, the reflection of Marxism to be found in bourgeois literature, the liberal-bourgeois distortion of the actual doctrine. It arose in the 1890s, when Narodism (q.v.) had been ideologically routed by Lenin, Plekhanov (qq.v.), and other Marxists and

Marxism was becoming widespread in Russia. Certain bourgeois intellectuals became temporary "fellow travellers" of the working-class movement. Their writings were published in legal newspapers and journals, i.e., publications appearing with the sanction of the government, and they thus became known as "legal Marxists". They opposed the Narodniks in the name of Marxism. Lenin, however, said that for the "legal Marxists" the break with Narodism meant going over from petty-bourgeois or peasant socialism not to proletarian socialism but to bourgeois liberalism. Struve (q.v.), M. Tugan-Baranovsky, and Berdyayev (q.v.) were prominent representatives of "L.M.". They attempted to adapt the workers' movement to the interests of the bourgeoisie, lavished praises on the capitalist system, and instead of calling for revolutionary struggle advocated learning from capitalism. "L.M." repudiated the principal Marxist tenets (the doctrine of proletarian revolution and the dictatorship of the proletariat). Lenin conducted an irreconcilable struggle against "L.M.", though in order to hasten the downfall of Narodism he allowed a temporary agreement with the "legal Marxists". In his book *The Economic Content of Narodism and the Criticism of It in Mr. Struve's Book* (1894-95), Lenin showed the anti-Marxist essence of "L.M." and made a profound criticism of bourgeois objectivism, to which he counterposed the Party spirit of revolutionary Marxism. In philosophy the "legal Marxists" usually adopted the Kantian positions (see Vekhism).

Leibniz, Gottfried Wilhelm (1646-1716), German philosopher, an objective idealist. The first president of the Berlin Academy of Sciences. From 1676 till his death in 1716, he was librarian at Hanover. Combining a profound knowledge of both mathematics (he was one of the inventors of the differential calculus) and physics (he anticipated the law of the preservation of energy), he was also a geologist, biologist, and historian. The philosophy of L. should be regard-

ed as an attempt to achieve a synthesis between the ideas of mechanistic materialism (see Descartes and Hobbes) and the Aristotelian scholastic doctrine of active substantial forms. In explaining reality he strove to unite the mechanistic principle with the theory of monads (q.v.), which he propounded in his *Monadologie* (1714). The monads, according to L., are the indivisible, spiritual substances, of which the whole Universe is composed. Infinite in number, all monads are percipient and self-active. L. was one of the founders of German idealist dialectics. As Lenin observed, L. "through theology arrived at the principle of inseparable ... connection of matter and motion". (Vol. 38, p. 379.) In explaining motion, however, L. came up against a contradiction. The monads, in his view, cannot have any causal relation with each other and yet they form a harmonious developing and moving world, which is regulated by a "pre-established harmony" (q.v.) depending on the supreme monad (the absolute, God). The concept of pre-established harmony formed the most reactionary part of L.'s philosophy, as expounded in his *Théodicée* (1710). L.'s theory of knowledge—idealist rationalism—is aimed against the sensualism and empiricism of Locke. To Locke's postulate "There is nothing in the mind which has not been in the senses", L. added: "Except the intellect itself". Not sharing Locke's view that the mind is but a blank sheet (*tabula rasa*) and renouncing sensory experience as the source of the universality and necessity of knowledge, L. contends that only reason can provide this source, and that the soul has from time immemorial possessed the principles of the various concepts and postulates, which are only awakened, by external objects (*Nouveaux Essais sur l'entendement humain*, 1704, published in 1765). In effect, L. modified the Cartesian doctrine on innate ideas (q.v.), which he described as residing in the mind like the veins of rock in a slab of marble. L. held that the criteria of truth are clarity and absence of contradiction. Thus to

test the truths of reason it was enough to apply the logic of Aristotle, q.v. (the laws of identity, contradiction, and the excluded middle); while the law of sufficient reason (q.v.) was needed to test "truths of fact". L. is considered (by Bertrand Russell, q.v., and others) to have been the founder of mathematical logic. His view of the world expressed the ideology of the compromise between the German bourgeoisie and feudalism.

Lemma (Gk. proposition), in mathematics, a theorem proved for the sake of its use in proving another theorem; in logic, a conditional conclusion (premiss of a syllogism). Depending on the number of consequences involved in the larger premiss (according to the members of disjunctive propositions in the smaller), L. becomes a dilemma, trilemma or multilemma. The most common form of L. is the dilemma, implying the need to choose between two alternatives.

Lenin, Vladimir Ilyich (1870-1924), continuator of Marx and Engels, leader of the Russian and international proletariat, founder of the Communist Party of the Soviet Union and the Soviet state. Born in Simbirsk (now Ulyanovsk). After finishing the gymnasium (secondary school) in 1887, he entered the law faculty of Kazan University, but was arrested for his activities in the student movement, banished from the city and placed under police surveillance in the village of Kokushkino. In 1891, he graduated as an external student at St. Petersburg University. In Kazan (1888-89) and Samara (1889-93) L. studied Marxism and became a Marxist, organising the first Marxist circle in Samara. Arriving in St. Petersburg in 1893, he became leader of the St. Petersburg Marxists and was active in propagating Marxist teaching among the workers. In 1894, he wrote his first major work *What the "Friends of the People" Are and How They Fight the Social-Democrats*, in which he demolished the false theory and tactics of Narodism (q.v.) and showed the working class of Russia the true path of struggle. In 1895, he united the Marxist groups of St. Petersburg in the

League of Struggle for the Emancipation of the Working Class. Soon afterwards L. was arrested and imprisoned, then exiled to Siberia. Early in 1900, he emigrated. Abroad he founded *Iskra* (*The Spark*), the first Marxist newspaper to be widely circulated in Russia, which played an enormous part in forming a Marxist party of a new type and in working out its first programme, and in the struggle against reformists and opportunists. The Second Congress of the RSDLP in 1903 saw the inauguration of the Bolshevik Party, which under Lenin's leadership guided the proletariat and the toiling peasantry in the struggle to overthrow the tsarist autocracy and replace it by a socialist system. The milestones in this struggle were the bourgeois-democratic revolution of 1905, the February bourgeois-democratic revolution of 1917, and the October Socialist Revolution in 1917. The great service Lenin rendered was that he developed Marxist teaching creatively, with reference to the new historical conditions, and gave it concrete form on the basis of the practical experience of the Russian revolutions and the international revolutionary movement after the death of Marx and Engels. In *Imperialism, the Highest Stage of Capitalism* (1916) Lenin continued the analysis of the capitalist mode of production which Marx had made in *Capital* (q.v.) and discovered the laws governing the economic and political development of capitalism in the era of imperialism. The creative spirit of Leninism was expressed in his theory of the socialist revolution. He proved that under conditions of the uneven development of capitalism in the imperialist stage socialism could be victorious in one or several countries to start with, but not in all countries simultaneously. He evolved the doctrine of the party of the proletariat as the leading and organising force without which there could be no dictatorship of the proletariat or building of communist society. L. became head of the first proletarian state, which was able to survive the struggle against internal and foreign enemies and to

launch the peaceful building of socialism. Developing the ideas of Marx and Engels, L. drew up a concrete programme of socialist construction in the USSR, which became a working guide for the Party and the whole Soviet people. L.'s name is associated with the development of all aspects of Marxism, including its philosophy. From the outset he paid great attention to the further development of dialectical and historical materialism. Marxist philosophy was his means of solving every problem that confronted the working class and its Party in the new age, and he enriched that philosophy with many new ideas. In 1908, he wrote his fundamental philosophical work *Materialism and Empirio-Criticism*, in which he gave a profound analysis of the latest achievements of natural science in the light of dialectical materialism and developed the basic principles of Marxist philosophy, particularly its theory of knowledge. In Machism L. perceived the trend in contemporary philosophy that attempts by new methods to undermine the influence of materialism and to defend idealism by concentrating on epistemology and logic. His criticism of Machism has lost none of its significance today and teaches Marxists how to fight reactionary philosophy. With an urgency unprecedented in this field L. posed the question of partisanship in philosophy and demanded that Marxists fight consistently against any and every type of idealism or metaphysics. He worked particularly hard to develop and perfect materialist dialectics, which he called the "soul of Marxism", its "fundamental theoretical basis". He showed the versatility of dialectics as a theory of development and substantiated the extremely important and fruitful postulate on the unity of dialectics, logic, and the theory of knowledge. Pointing to Marx's *Capital* as a model of such unity, L. put forward a host of valuable ideas on this subject (see *Philosophical Notebooks*), which may be regarded as a programme of further work on dialectics. His works covering the most diverse fields of economics,

politics, strategy, and tactics provide unsurpassed models of the application of dialectics to real life. In his article "On the Significance of Militant Materialism" (1922) L. outlined important tasks that must be undertaken for the further development of Marxist philosophy, including the struggle against the religious view of the world. These directions retain their importance today. L. considered the materialist understanding of history the greatest achievement of Marxist philosophy. He regarded the theory of historical materialism as a scientific basis for getting to know the laws of social development and for revolutionary struggle for the socialist transformation of society. His creative study of the economic, political, and spiritual development of society in the new age developed all aspects of Marxist sociology. Of particular importance is his investigation of the problems of the classes and the class struggle, the state and revolution (see *The State and Revolution*), the role of the masses in the epoch of socialist revolution and the building of communist society, on the relationship between the masses, the Party and the leaders, his ideas concerning the new forms taken by the economic laws of social development during socialist construction, on the relationship between economics and politics, on culture and the cultural revolution, and on socialist morals and the principles of socialist art. L. also had valuable ideas in the field of Marxist historico-philosophical science and gave us penetratingly accurate assessments of many philosophers of the past (the philosophers of the ancient world, the French materialists, Kant, Hegel, qq.v., and others). He valued the work of the Russian revolutionary-democratic thinkers (Belinsky, Herzen, Chernyshevsky, qq.v.), and what he had to say about them and the processes of the development of the revolutionary movement and social thought in Russia, form a theoretical basis for the scientific history of Russian materialist philosophy. Leninism, as the continuation and development of Marxism, Marxism-Lenin-

ism as a single and undissoluble entity, has become in our day the watchword of progressive people all over the world who are fighting for peace, democracy, and socialism.

Lesevich, Vladimir Viktorovich (1837-1905), Russian positivist philosopher. Lenin called him the first and most outstanding Russian empirio-criticist (Vol. 14, p. 56). Till 1877, he was a supporter of Comte, q.v. (see his *Ocherk o razvitiu idei progressa* [*Essay on the Development of the Idea of Progress*], 1868). He then moved to the position of the neo-critical German school (Carl Göring, Alois Riehl, Richard Avenarius, q.v., Joseph Petzoldt, etc.), which he considered the highest stage of positivism. According to L., this school supplemented Comte's philosophy with a fully elaborated theory of knowledge constructed on the basis of "pure experience". Denying that philosophy could be a world outlook, L. declared that its task was merely to "unite" concepts produced by the specialised sciences. He explained the life of society from an idealist standpoint (see Subjective Method in Sociology). Main works: *Opyt kriticheskogo issledovaniya osnovonachal pozitivnoi filosofii* (*Critical Investigation of the Basic Principles of Positivist Philosophy*), 1876; *Pisma o nauchnoi filosofii* (*Letters on Scientific Philosophy*), 1878, and *Chto takoye nauchnaya filosofiya?* (*What Is Scientific Philosophy?*), 1890.

Lessing, Gotthold Ephraim (1729-81), German Enlightener and philosopher, publicist, playwright, critic, and art theorist. He was an active opponent of feudal policy and ideology and worked for the free and democratic development of the German people and their culture. In his philosophical work *Erziehung des Menschengeschlechts* (1780) L. envisaged a future society free of all coercion, in which religion would give place entirely to enlightened reason. In his philosophical play *Nathan der Weise* L. proclaims not only the idea of religious toleration but also the right of free thought, asserting the equality of nations and appealing for friendship among them.

L. expressed the contradictions in the German movement for enlightenment and his world outlook remained idealistic, though it contained some materialist features as well. In his *Laokoon* (1766) and *Hamburgische Dramaturgie* (1767-69), which constitute a landmark in the development of world aesthetic thought, L. upholds the principles of realism in poetry, drama, and acting and demolishes the classicist theory and practice of the nobility. L. limited the sphere of the fine arts to the beautiful. He strove to define the objective laws of composition in various types and genres of art, but could not see the historical character of these laws. Always opposed to dull moralising, L. attached enormous importance to the moral and educative function of art, particularly in the theatre. His writing for the theatre heralded the emergence of German classical literature, and his aesthetic views exercised a beneficial effect on its development.

Leucippus (c. 500-440 B.C.), a contemporary of Democritus (q.v.), with whom he founded the system known as atomistics (q.v.). Owing to the almost complete lack of texts and of information concerning the man himself, it was at one time suggested that L. was a literary myth (Erwin Rohde and Paul Tannery). Further data in the papyri discovered at Herculaneum exploded this assumption. L. contributed three new concepts to science: (1) absolute vacuum; (2) atoms moving in this absolute vacuum; and (3) the concept of mechanical necessity. On the basis of the one text that has been preserved it may be stated that L. was the first to establish both the law of causality (q.v.) and the law of sufficient reason (q.v.). "Nothing arises without cause, but everything arises on some grounds and by force of necessity."

Levy-Brühl, Lucien (1857-1939), French sociologist and ethnologist; professor at the Sorbonne from 1899. His sociological views were formed under the influence of Durkheim (q.v.). While studying primitive peoples, L.-B. arrived at the conclusion

that various social types had their corresponding patterns of thought. The thinking of the primitive man differed from the logical thinking of modern man in that it ignored the law of contradiction and made no distinction between the natural and the supernatural. L.-B. maintained that primitive man sees only the connection between first cause and final effect while failing to perceive the intervening relationships. This process he described as the operation of the law of participation. Some of L.-B.'s conclusions and the extensive ethnographical material he collected are of considerable interest. His basic postulate on the qualitative difference between primitive thinking and the thinking of the cultured man does not, however, stand up to scientific criticism. His main works are *Les fonctions mentales dans les sociétés inférieures* (1910) and *La mentalité primitive* (1922).

Li, the basic concept of Chinese philosophy signifying law, the order of things, form, and so on. The idealists interpreted it as the spiritual, immaterial principle in contrast to the material principle, *ch'i* (q.v.). In Confucianism (q.v.), another conception of L. was to be found, signifying the code of conduct of various social groups.

Life, a form of the motion of matter, the highest of the physical and chemical forms. Its specific features are expressed in Engels' famous definition: "Life is the mode of existence of protein bodies, the essential element of which consists in *continual metabolic interchange with the natural environment outside them.*" (*Dialectics of Nature*, p. 396.) "Protein body" or "protoplasm" is nowadays understood to mean the system of a series of substances specific to L. such as proteins, nucleic acids, phosphoric compounds, etc. L. exists in the form of separate living organisms, each of which arises from its own kind, passes through a cycle of individual development, reproduces its own kind, and dies. Organisms, by entering into relations with inanimate nature and with one another create systems of more complex orders and, ultimately, the uni-

fied system of life on earth, which has developed from the simplest forms to that of man. An essential feature of all living bodies is metabolism (q.v.), the destruction and rebuilding of organic structures, dissimilation and assimilation. The correct philosophical interpretation of the laws of L., including those which science has not yet discovered, plays an important part in determining the methods to be followed in investigating them. The vitalists (see Vitalism) attribute the specific features of L. (organisation, purposefulness, regulation, etc.) to the influence of a non-material life force, which is supposed to control "inert" matter. The mechanists regard L. merely as a more complicated system of physico-chemical processes and deny its specific features. From the point of view of dialectical materialism, physical and chemical laws play a subordinate part in L. Besides these, L. has its own specific biological laws. The study of L. involves a number of general theoretical, philosophical problems such as the relation of the part to the whole, form to content, the correlation of preformation and directed complication, the problem of the specific nature of biological determination, and the principles of self-constructing systems, the problems of evolution, etc.

Lilburne, John (1614-57), ideologist and leader of the petty-bourgeois democratic wing of the English revolution (the Levellers) in the middle of the 17th century. He was the son of a country gentleman. As a pamphleteer and orator he fought for the fulfilment of the bourgeois revolution in the political and social spheres. With his supporters Walwyn, Overton, and others, he pressed for bourgeois-democratic reforms and was the first to formulate the fundamentals of bourgeois-radical political doctrine, which he strove to put into practice by revolutionary means. He advocated popular sovereignty (on the basis of the theory of natural law, q.v.), universal franchise and referenda, republican government, the separation of legislation, administration, and judiciary, etc., and also peasant ownership of the land.

Linnaeus, Carolus (1707-78), Swedish naturalist, professor at Uppsala University. The historical service rendered by L. was his classification of the vegetable and animal world. He took as the basic unit for his classification the species. His system was artificial because it was based on the similarity of a small number of arbitrarily selected outward characteristics. His outlook was metaphysical. He denied the mutability of species and held that their number remained unchanged from the day of their "creation".

Lobachevsky, Nikolai Ivanovich (1792-1856), Russian mathematician who pioneered a new geometry known as the geometry of Lobachevsky. He graduated at the University of Kazan in 1811 and at the age of 23 became a professor. For 19 years he was Rector of Kazan University. His basic works are *O nachalakh geometrii* (*Principles of Geometry*), 1829, and *Noviye nachala geometrii s polnoi teoriyei parallelnykh* (*New Principles of Geometry with a Complete Theory of Parallels*), 1835-38. L.'s geometry was based on the idea of the close dependence of geometrical relations on the actual nature of material bodies. His discovery consisted, first, in proving the independence of the fifth postulate of Euclidean geometry (see Euclid) from its other postulates and, secondly, in constructing a new geometry free of logical contradictions, whose fifth postulate states: through a point lying outside a straight line not one but at least two parallel lines may be drawn. L. sought to prove the postulate on parallels by recourse to reality itself, to the nature of things. Developing modern geometry, L. showed that denial of the dependence between segments and angles in Euclidean geometry does not fully describe the qualities of space, and suggested that in reality there must be such a dependence. This is seen, for example, in the fact that there is a connection between the lateral dimensions of a triangle and its angles. For this reason, according to L., the sum of the angles of a triangle is actually less than two right angles. L. assumed that new geometrical relations could be discov-

ered either through astronomical research or in the field of microphenomena. The geometrical relations commonly used, however, are those existing within the limits of earthly dimensions for which Euclidean geometry remains valid. L.'s geometry was a convincing argument against Kant's a priori (q.v.) theory. Philosophically, L. was a materialist and considered our conceptions of the world the result of the impact of reality on the human consciousness. After L.'s discovery of the new geometry it was no longer possible to treat Euclidean geometry as proof of the apriority of spatial forms. Criticising the a priori theory, L. contended that knowledge is acquired through sense perception, and that innate concepts do not exist. By discovering and defending new ideas that revolutionised geometry L. rendered a great service to philosophy.

Locke, John (1632-1704), English materialist philosopher. The works of L. belong to the age of the Restoration. He joined the struggle of classes and parties as a philosopher, economist, and political writer. In his major work *Essay Concerning Human Understanding* (1690) he developed the theory of knowledge of materialist empiricism (q.v.), which had been complicated by the nominalism (q.v.) of Hobbes and the rationalism (q.v.) of Descartes. Rejecting the Cartesian doctrine of innate ideas (q.v.), L. declared experience to be the sole source of all ideas. Ideas come into being either through the influence of external objects on the sense-organs (ideas of sensation) or through attention being directed on the condition and activity of the soul (the idea of reflection). The latter alternative was a concession to idealism. Through the ideas of sensation we apprehend in things either primary or secondary qualities (see Primary and Secondary Qualities). Ideas acquired through experience are only the material of knowledge, not knowledge itself. To become knowledge the material of ideas must undergo the process of reasoning, which differs both from sensation and from reflection and is a matter of comparing.

combining, and abstracting. Through this activity simple ideas are transformed into complex ones. Following Hobbes, L. considers that universal knowledge depends entirely on language. Having defined knowledge as apprehension of the correspondence (or non-correspondence) between two ideas, L. considers all speculative knowledge, i.e., perception of the correspondence of ideas by means of the reason, as valid. On the other hand, experimental knowledge is only probable, for here perception of the correspondence of ideas is achieved by reference to the facts of experience. Our faith in the existence of external objects rests on the senses. L. places this type of knowledge ("sensitive knowledge") above simple probability but below the validity of speculative knowledge. Though convinced of certain limitations in our ability to know material and particularly spiritual substances, L. should not be considered an agnostic. According to L., our task is to know not everything but only what matters as far as our conduct and practical life are concerned, and for the attainment of such knowledge our abilities are ample. In his doctrine on state power and law L. develops the idea of transition from the natural to the civil condition and various forms of government. The purpose of the state, according to L., is to preserve freedom and property acquired through labour. Government cannot, therefore, be arbitrary. He divides it into (1) legislative, (2) executive, and (3) federative. L.'s doctrine of the state was an attempt to adapt theory to the political form of government that was adopted in England as a result of the bourgeois revolution of 1688 and the compromise between the bourgeoisie and the section of the aristocracy that had become bourgeois. His philosophy has had a great influence on many generations of thinkers. The idea that people themselves should change the existing social system if it does not provide the individual with proper opportunities for education and development was of great importance in justifying the bourgeois revolution. One of the

trends in French materialism takes its origin from L. His distinction between primary and secondary qualities was used by Berkeley (q.v.), the idealist, and Hume (q.v.), the agnostic.

Logic, see Logic, Dialectical; Logic, Mathematical; Logic, Formal.

Logic, Combinatory, a branch in mathematical logic (q.v.) analysing concepts which, within the framework of classical mathematical logic, are accepted without further study. Among them are the concepts: variable, function, rule of substitution, etc. In classical mathematical logic rules of two kinds are used. The first are formulated simply and are applied without any restrictions. Such, for instance, is the rule of *modus ponens*. It is formulated as follows: "Given A and A B to infer B." This rule is accessible for a one-act automatic performance. Other rules (for example, the rule of substitution) are very intricately formulated and presuppose a number of restrictions and reservations (without which they cannot be applied purely formally). One of the purposes of C.L. is to construct a formal system having no rules like the rule of substitution. The beginning of C.L. was laid by the Soviet mathematician M.I. Sheinfinkel (his main results were published in 1924). Independent of him, A. Church also constructed a lambda conversion calculus closely linked with C.L. Important results were also obtained by the American logician H. Curry. Problems of C.L. are studied by J.B. Rosser, W. Craig, R. Feys, and others.

Logic, Constructive, a trend in mathematical logic. C.L. derives from the intuitionist school, though it is not connected with philosophical intuitionism (q.v.). It was first propounded in the works of L. Brouwer, H. Weyl, and A. Heyting. The central concept of C.L. is the impermissibility of extending to infinite numbers the principles valid for finite numbers (see Numbers, Theory of), such as the principle that the whole is greater than its parts, the law of the excluded middle, etc. Traditional logic and C.L. differ in their views of the concept of infinity: the former considers it as actual, com-

pleted, whereas the latter sees it as potential, becoming (see Infinity, Real and Potential). Characteristic of C.L. is the inductive construction of objects. The principles of C.L. are used in attempts to revise the principal results of modern mathematical logic and mathematics. Such Soviet scientists as A.N. Kolmogorov, A.A. Markov, and P.S. Novikov, have made notable contributions to the development of C.L.

Logic, Dialectical, the logical teaching of dialectical materialism, science of the laws and forms of the mental reflection of the development and change of the objective world, and of the laws governing the cognition of truth. Scientifically, D.L. arose as part of Marxist philosophy. However, elements of it were already in evidence in antique philosophy, particularly the doctrines of Heraclitus, Plato, Aristotle (qq.v.), and others. For historical reasons, formal logic (q.v.) reigned for a long time as the sole teaching on the laws and forms of thought. Approximately in the 17th century the requirements of developing natural science and philosophy revealed its insufficiencies and the need for a truer teaching on the general principles and methods of thought and cognition (see Francis Bacon, Descartes, Leibniz, and others). This tendency emerged most clearly in classical German philosophy. Kant, for instance, distinguished between general and transcendental logic, the latter differing from the former, i.e., formal logic, in that it examined the development of knowledge and did not abstract itself, as the former, from the content. Special credit in the development of D.L. goes to Hegel (q.v.), who produced the earliest comprehensive system which was, however, permeated with his idealistic outlook. The Marxist teaching on logic absorbed all the valuable elements of the preceding development, moulding the vast experience of human knowledge into a harmonious science of cognition. D.L. does not reject formal logic, but demonstrates its limits as a necessary though inexhaustive form of logical thinking. D.L.

combines the teaching on being with the teaching on its reflection in the mind. It is a substantive logic. Inasmuch as the world is in constant motion and development, the forms of thought, and the concepts and categories, too, should be based on the principle of development, for otherwise they cannot be ideal forms of objective content. The cardinal task of D.L. is, therefore, to investigate how best to express in human concepts motion, development, the internal contradictions of phenomena, their qualitative change, and the passage of one into another; it is to investigate the dialectical essence of the logical categories, their mobility and flexibility, "reaching to the identity of opposites". (Lenin, Vol. 38, p. 110.) The reason why dialectics is a logical teaching is that it investigates the logical, cognitive functions of general laws and categories of development. With this is linked also the other basic task of D.L., examination of the process of coming into being and the development of cognition itself. D.L. is based on the history of cognition. It is a generalised history of human thought and of the historical practice of society. From the standpoint of D.L., the laws of cognition are laws governing the development of thought from the external to the internal, from appearance to essence, from less profound to more profound essence, from the immediate to the mediate, from the abstract to the concrete, and from relative truth to absolute truth. Every proposition of D.L. is, like all science, permeated with this historicity. D.L. overcomes the division of analysis and synthesis, induction and deduction, and empirical and theoretical into independent forms of cognition typical of the preceding theories of knowledge. These, like all other forms of cognition, are examined by D.L. in the highest synthesis, as interpenetrating opposites. The method of ascent from abstract to concrete (see the Abstract and the Concrete) is prominent as the general logical principle of D.L., completely embodying the unity of the historical and the logical (q.v.). D.L. is a system

of logical categories which synthesise the fruits of man's cognitive and practical activity. This system, in which categories are arranged in their order of subordination and co-subordination, has not yet been studied exhaustively enough, but the approach based on the principles of unity of the logical and the historical, and of the development of knowledge from appearance to essence, from the simple to the complex, and so on, appears to be the most probable and fruitful. Lenin, who contributed very greatly to the development of D.L., laid a strong accent on this aspect of the matter. In contemporary science a big part is played by formalised logical systems and formal substantive logical theories which study the various aspects and tasks of thought. D.L. is the general logical basis of human cognition, the general logical theory which can and must be employed to explain all the particular and concrete logical theories, their significance and role.

Logic, Formal, a science which studies acts of thinking (see Concepts, Propositions, Inferences, and Proof) as regards their logical structure or form, i.e., by abstraction of the concrete content of thoughts and singling out only the general means by which the parts of that content are linked. The main task of F.L. is to formulate laws and principles whose observance is a requisite for achieving valid results in obtaining knowledge by deduction. The foundation of F.L. was provided by the works of Aristotle, who elaborated syllogistic (q.v.). Contributions to its development were made by the early stoics (q.v.) and the scholastics in the Middle Ages—Duns Scotus (q.v.), William of Occam (q.v.), Albert von Sachsen, Raymond Lulle, and others. The departure from the long-standing tradition of studying problems of deductive logic was connected with the study of induction (q.v.) and attempts to formulate rules of inductive inferences (Francis Bacon, q.v., and later John St. Mill, q.v.). But a turning point took place only in the second half of the 19th century, when the mathematical (symbolic)

logic (q.v.) received its modern form.

Logic, Inductive, that part of traditional logic concerned with logical processes of conclusions from the particular to the general (see Induction). Traditional inductivists saw the task of I.L. in analysing the process of obtaining general theoretical knowledge from the single, empirical. There were also other concepts of the subject-matter of I.L., limiting its tasks to analysing logical criteria for verifying universal laws. William Whewell, a 19th century British logician, was the first to formulate such an understanding of I.L. The hypothetical deductive method (q.v.) was considered as the means of such verification. This concept is now shared by neo-positivist logicians and many other specialists in I.L. It stems from the inadequacy of the inductive method for obtaining theoretical propositions, which require the singling out of new thought-content and the formation of new scientific abstractions. The shortcoming of this concept is its unjustified renunciation of logical study of the processes for obtaining scientific knowledge in general, i.e., their analysis as socially necessary processes independent of individual consciousness and determined by the objective content of the cognitive processes. Modern I.L. widens the sphere of its application and examines not only conclusions from the particular to the general, but all logical relationships in general when the truth-value of the knowledge we want to verify cannot be reliably established on the basis of the knowledge whose truth-value is known to us, when we can only determine whether it is confirmed by further knowledge, and if so, to what extent. Therefore, one of the central concepts of modern I.L. is the degree of confirmation which is usually interpreted as the probability of the hypothesis with available empirical knowledge. Modern I.L. thereby utilises methods of calculating probabilities and the logic of probability (q.v.).

Logic, Many-Valued, a formal logical system whose propositions in

interpretation assume more than two meanings (in the case of only two meanings—"true" or "false"—we have classical two-valued logic), but in the general case we have any finite or infinite multitude of meanings. The first such systems—the tri-valued logic of propositions and the n -valued logic of propositions—were built by J. Lukasiewicz (q.v.) in 1920 and E. Post in 1921. Today there is a series of different systems of M.V.L. and a general theory of such systems. Among the works on the general theory of M.V.L. the most important are those by J. B. Rosser and A. R. Turquett, and also the investigations by S. V. Yablonsky, dealing with functional constructions in n -valued logic. These systems of M.V.L. have been elaborated with a view to solving concrete problems of scientific research, both general logical ones and specifically scientific ones. For instance, the tri-valued and four-valued logic of propositions elaborated by Lukasiewicz were constructed with a view to creating a modal logic (q.v.), while the tri-valued calculus by D. A. Bočvar was aimed at solving the paradoxes of classical mathematical logic. Other most important applications of M.V.L. include the attempts to study it in order to explain quantum mechanics (works by G. Birkhoff, J. Neumann, H. Reichenbach) and also the attempts in the sphere of technology and the theory of relay-schemes (works by V. I. Shestakov, G. Moisil, T. D. Maistrova).

Logic, Mathematical (or symbolic logic) appeared as a result of the application of mathematical methods in the realm of formal logic, of the use of a special language of symbols and formulas. M.L. investigates logical thinking (reasoning and proof) as reflected in the systems of formal logic or calculi (q.v.). Thus M.L. has for its subject-matter logic and for its method mathematics; it contains far-reaching generalisations. Typical of the present stage of formal logic is the development of the ideas and methods of traditional formal logic. Contemporary M.L. includes a whole series of logical calculi, and is the the-

ory of such calculi, their premisses, properties, and applications. Besides its study of the formal structure of logical calculi (see Logical Syntax) M.L. also examines the relations between calculi and those substantive fields which serve as interpretations (q.v.) and models (q.v.). This task reflects the problems of logical semantics (q.v.). Logical syntax and semantics belong to metalogic (q.v.), the theory of the means of describing the premisses and properties of logical calculi. The discovery of the formal investigation of logic is attributed to Aristotle (see Syllogistic). The Megarian school of stoics (3rd century B.C.) already knew some of the initial concepts of M.L., whereas the idea of logical calculi was first formulated by Leibniz (q.v.). As an independent branch of science M.L. established itself only in the mid-19th century, thanks to the works of Boole (q.v.), who founded the algebra of logic (q.v.). Later Ernst Schröder summed up and systematised the results of such development in his *Algebra der Logik* (1890-95). Another trend in M.L. appeared at the end of the 19th century, arising from the need of mathematics to provide a foundation for its concepts and methods of proof. The sources of this trend are to be found in the works of Frege (q.v.). The main contribution to its development was made by Russell and Whitehead, qq.v. (*Principia Mathematica*, 1910-13), and Hilbert (q.v.). Two fundamental logical systems—the classical propositional calculus (q.v.) and functional calculus (q.v.)—were elaborated at the time. Today M.L. investigates the various types of logical calculi and takes interest in semantical problems and metalogic in general, as well as in the problems of special scientific and technical application of logic. Alongside the studies by classical logic, constructive logic (q.v.) was created in order to substantiate mathematics. An analysis of the foundations of logic promoted the research into combinatory logic (q.v.). The theory of many-valued logic (q.v.) was also created. Attempts to solve the problem of formalising logical thinking led to

the formation of the calculations of strict and material implication (q.v.). The foundations of modal logic (q.v.) were laid as well. At the same time M.L. exerted great influence upon contemporary mathematics itself. The essential sections of contemporary mathematics sprang up from M.L., e.g., the theories of algorithms (q.v.) and recursive functions (q.v.). M.L. is applied in electrical engineering (the study of relay-contacts and electronic systems), in computers (programming), in cybernetics (theory of automatic devices), in neurophysiology (simulation of the neuron nets), and linguistics (in structural linguistics and semiotic). Such close interlacing of logical problems with the solution of special scientific problems and use of logic in concrete scientific studies were unknown to formal logic.

Logic, Modal, a logical system which formulates such relations as "necessity", "reality", "possibility", "chance", and their negations (see Modality). The first attempt to construct M.L. was undertaken by Aristotle (see Syllogistic), who formulated a number of important definitions and principles. The development of mathematical logic (q.v.) gave a new stimulus to the elaboration of M.L. The result was the construction of a number of M.L. systems, the best known of which are: the tri-valued and four-valued systems of Lukasiewicz, the axiomatic systems of strict implication (q.v.) of C. Lewis, and the systems of relative modality of G.H. Wright. In the systems of Lukasiewicz and Lewis the modalities are absolute, i.e., they are assigned to one proposition independently of any others. In Wright's systems the modalities are relative, i.e., they are assigned to one of the propositions under certain conditions, which are expressed in other propositions. At the same time there is not yet any satisfactory general theory of M.L., although the demand for its elaboration is obviously felt in some branches of knowledge (e.g., mathematics, linguistics).

Logic of Relations, department of mathematical logic dealing with relations (q.v.).

Logical and Factual Truth, logical concepts dating from Leibniz (q.v.), who distinguished between necessary truth, or "truths of reason", and incidental truths, or "truths of fact". The truth of the former is derived from the laws of logic, the truth of the latter, from correspondence with the actual state of affairs. Leibniz, who regarded the laws of logic as absolute, held that "truths of reason" are true in all possible worlds (i.e., worlds that are not contradictory to logic), whereas truths of fact are true only in some worlds (including the world we live in). A similar distinction was made by Hume and Kant, qq.v. (see Synthetic and Analytic). Modern logic maintains this distinction without regarding it as absolute. Thus, the Carnap-Kemeny logical semantics (q.v.) considers statements to be logically true that are true in all admissible interpretations (see Interpretation and Model) of the given formalised language (q.v.), while statements that are true in a particular interpretation but not in all admissible interpretations are only factually true.

The Logical and the Historical, see the Historical and the Logical.

Logical Atomism, a conception formulated by Russell (q.v.) in *Our Knowledge of the External World* (1914), *The Philosophy of Logical Atomism* (1918), and other works, and by Wittgenstein in *Tractatus logico-philosophicus*. According to L.A., the whole world is a totality of atomic facts (q.v.). The philosophy of logical atomism, as Russell himself has admitted, is an extreme pluralism (q.v.), because it asserts the existence of a multiplicity of individual things and denies them any unity or integrity. To some extent L.A. was a reaction to the absolute idealism of F. Bradley, who held that only the absolute, the whole was real and that individual things were merely apparent. In Wittgenstein's *Tractatus* L.A. forms a kind of ontological argument for a definite logico-epistemological conception which regards all knowledge as a totality of "atomic" propositions connected by logical operations and infers the struc-

ture of the world by analogy with the logical pattern of knowledge. L.A. absolutises the discrete and the individual. The unsoundness of the theory was ultimately acknowledged even by its advocates.

Logical Empiricism, a trend in contemporary idealist philosophy stemming directly from the logical positivism (q.v.) of the late twenties and early thirties and forming one of the varieties of analytical philosophy (q.v.). The main exponents of L.E. are Carnap, Reichenbach (qq.v.), Feigl, Hempel, Bergman, and Frank (q.v.). L.E. preserves the basic ideas of logical positivism—reduction of philosophy to the logical analysis of language (now not only syntactical, as in the early thirties, but also semantic—see Logical Semantics) and the proposition that it is impossible to provide theoretical proof of the existence of objective reality, etc.; but it has been slightly modified in comparison with the earlier logical positivism. The logical empiricists have repudiated the extreme subjectivism of the Vienna circle (q.v.). As an “empirical language of science” they offer a so-called physical-object language expressing sensually perceptible physical phenomena instead of a language of the personal experience of the subject. This does not mean, however, the adoption of materialist positions, since for L.E. the acceptance of a physical-object language does not involve recognition of the theoretical assertion of the objective existence of the world of things. L.E. also rejects the principle advanced during the period of the Vienna circle that scientific knowledge may be reduced to what is empirically given. In scientific concepts, however, L.E. sees only “purposive” forms of organising the data obtained by the senses, not the reflection of objective reality. Recognition of the fact that besides the data scientific knowledge has its own specific content is essentially at variance with the basic epistemological ideas of the Vienna circle, i.e., the principle of verification (q.v.), etc., to which L.E. seeks to remain loyal. This gives rise to internal contradictions and

eclecticism in its epistemological doctrine. As a philosophical trend L.E. is undergoing a profound internal crisis, as is shown by its abandonment of the widely proclaimed programmes characteristic of the early logical positivism, by its acceptance of watered-down versions, and by its gravitating away from the broad philosophical problems to specifically logical and specifically methodological researches in which representatives of L.E. have performed good service.

Logical Fallacies, mistakes caused by an incorrect step in the process of reasoning. L.F. are of various kinds. They may arise through an erroneous interpretation of a proposition or through its incorrect use as a premiss (e.g., a proposition which is true under certain circumstances is taken to be unconditionally true); or through violation of the rules of logic in the process of reasoning (e.g., the *quaternio terminorum* or four-term fallacy in syllogisms, when the premisses appear to be connected by a common term, the middle term, which is in fact ambiguous); or through drawing a conclusion from a proposition that cannot, in fact, be drawn (e.g., *ignotio elenchi*, etc.). L.F. may be divided into the unintentional (paralogisms, q.v.) and the deliberate (sophisms, q.v.).

Logical Forms, ways of constructing, expressing, and connecting ideas (and partial ideas) in the process of cognition, irrespective of their concrete meaning. These forms have taken shape in the course of man's socio-historical development and have a universally human character; they are forms of the reflection of reality in thought and themselves reflect the most general features of reality (e.g., the fact that every object has certain qualities, exists in certain relations to other objects, that objects form classes, that certain phenomena cause other phenomena, etc.). L.F., such as concepts, judgments, inferences, proofs and definitions (qq.v.), are studied in formal logic (q.v.). In cognition, the use of one or another L.F. is determined by the character of the content reflected in

thought. In language, L.F. are expressed by the grammatical structure of the expressions involved and also by the use of particular words ("all", "no", "certain", "or", "if ... then", "only", etc.), which indicate a corresponding logical structure of thought. In mathematical logic, L.F. are expressed by constructing logical calculi (q.v.) whose formulas correspond to expressions in the natural language; the structure formulas and the rules for operating them in a calculus reproduce L.F., so that these calculi act as special logical, or formalised languages (see Formalisation, Logical Syntax). In dialectical logic, L.F. are studied from the point of view of how the changing and developing reality and the development of cognition itself are reflected in thought.

Logical Positivism, a variety of neo-positivism (q.v.). Originating in the 1920s with the Vienna circle (q.v.), its leading figures were R. Carnap (q.v.) and Otto Neurath, who were closely associated with the Berlin Society for Scientific Philosophy (H. Reichenbach, q.v., C. G. Hempel, and others). By the early thirties it had become widespread as the ideological basis of the neo-positivist "scientific philosophy". Since the late thirties the stronghold of L.P. has been in the USA, where it is found in a considerably modified form as compared with the days of the Vienna Circle and is known as logical empiricism (q.v.). L.P. takes its successions from Machism (q.v.) and the generally subjective-idealist tradition originating from Berkeley and Hume. Logical positivists, however, repudiate the old and discredited psychological and biological approach to knowledge that was adopted by positivism (q.v.) and try to combine subjective-idealist empiricism with a method of logical analysis. According to L.P., a genuinely scientific philosophy is possible only through the logical analysis of science. The function of this logical analysis is, first, to get rid of "metaphysics" (i.e., philosophy, in the traditional sense), and on the other hand, to investigate the logical structure of

scientific knowledge in order to determine the "protocol-statement", or the empirically verifiable meaning of scientific concepts and assertions. The ultimate aim of this investigation was held to be the reorganisation of scientific knowledge within a system known as "the unity of science", which would describe the "protocol-statement" and eliminate the distinctions between the separate sciences—physics, biology, psychology, sociology, etc.—both as regards the concept and the method of their formation. Logic and mathematics are regarded as "formal sciences", not as knowledge of the world, but as a collection of "analytical" assertions which formulate the agreed rules of formal transformation. In the early thirties, L.P. attempted to free itself of some of the more unpleasant consequences of the principle of the "protocol-statement". It accepted the concept of physicalism (q.v.), but this did not change the subjective nature of the philosophy. The enforced repudiation of consistent subjective-idealist sensationalism (q.v.) brought the logical positivists to equally untenable conventional concepts (Neurath and Carnap's coherence theory, q.v.). The subjective-idealist essence of L.P. disposes of its claim to be a "philosophy of science". Nevertheless, some representatives of L.P. (Carnap, Reichenbach, and others) have achieved valuable results in the field of logical research.

Logical Positivism in Ethics, a neo-positivist interpretation of morality. Widespread since the twenties in the United States, Britain, Austria, Scandinavia, and Latin America. There are a number of schools of L.P. in ethics (emotivism, q.v., the Oxford school, etc.). The neo-positivists ignore the fact that morality is a social relationship and a special form of social consciousness; they regard it merely as a "moral language". Ethics is replaced by a purely logical analysis of moral judgements and "terms". The "meta-ethics" of the neo-positivists is an abstract and scholastic theory divorced from life and may be treated as a department of logic rather than a theory of

morality. Instead of an objective investigation of the categories of ethics the neo-positivists seek to elucidate how and in what sense moral judgements and such terms as "good" and "evil" and "duty" are used. The neo-positivists approach morality from the standpoint of the natural sciences and frequently draw the wrong conclusions. For example, assuming that good and evil are not characteristics of any phenomena that can be perceived by the sense-organs or determined by experiment, they infer that these concepts have, therefore, no meaning at all and are merely "pseudo-concepts". The neo-positivists fail to realise that good and evil are not natural but social characteristics of actions, and that these characteristics are determined by the social import of the latter. They cannot, therefore, be seen or "touched", and can be determined only by rational means. In general, logical positivism has a destructive influence on ethics (see Neo-Positivism).

Logical Semantics, the department of logic that studies the meaning of linguistic expressions, or more precisely, a department of metalogic (q.v.) which studies interpretations (see Interpretation and Model) or logical calculations (see Formalised Language). The basic concepts of L.S. can be divided into two groups: (1) concepts included in what is called the theory of the designation, their application to the expressions of the given language depending to a great extent on choice of interpretation (concepts of truth, designation, decidability, q.v., name, q.v., extension, synthetic truth, etc.); (2) concepts belonging to what is known as the theory of meaning (see Denotation and Sense) synonymy, analytical truth, etc., are determined in relation to all the possible interpretations of the given language. Semantic analysis must be used when considering formalised languages from the standpoint of metatheory (q.v.) because many essential facts (e.g., those regarding the completeness and non-contradiction of the language) cannot be established within the framework of a purely syntactical examination (see Logical Syn-

tax). As Tarski (q.v.) has shown, the description of the semantic properties of a language within the framework of the language itself leads to semantic antinomies (q.v.) of the "liar" type. The semantic properties of any language must, therefore, be analysed in the logically richer metalanguage (see Metalanguage and Object Language). The problems of L.S. were pioneered by Frege (q.v.), significant contributions in this field being made by the Lvov-Warsaw school (q.v.) of Polish logicians, and by R. Carnap (q.v.), W. Quine, A. Church, and J. Kemeny. Investigation of the semantic properties of the language of science and the natural languages is increasingly applied in connection with the development of mathematical linguistics, machine translation, and the automatic processing of information, etc.

Logical Symbols, modern formal logic makes extensive use of a language of symbols to achieve a precise and simple interpretation of the object and to enable the investigator to apply the formal mathematical method. The symbols used for constructing, according to definite rules, the formulas of a system in formal logic are of three basic types: (1) those denoting the elementary logical objects of the system; (2) those denoting logical connections or operations; (3) auxiliary symbols, e.g., brackets and stops. Several systems of symbolic notation are accepted in modern logic, as a result of which different symbols may represent the same logical concepts. The meanings of the most important of these symbols are given below:

1. A, B, C ... X, Y, Z ... (also used with indices) denote variable propositions (q.v.).

a, b, c ... x, y, z ... (also used with indices) denote variable objects.

P(.), R(...), S(..., ...) (also used with indices) denote variable predicates (q.v.)

2. —, \neg , \sim —symbols of negation, q.v. ("no")

\vee , \vee —symbols of disjunction, q.v. ("or")

\cdot , \wedge —symbols of conjunction, q.v. ("and")

\supset , \rightarrow —symbols of implication, q.v. ("if ... then")

\sim, \leftrightarrow —symbols of equivalence, q.v.
 (“if and only if ... then”)

\exists, E —symbols of the existential quantifier (q.v.)

\forall, U —symbols of the universal quantifier.

Logical Syntax 1. Set of rules governing the construction and transformation of the expressions of a calculus (q.v.). 2. Branch of metalogic (q.v.) concerned with studying the structure and properties of uninterpreted calculi. The main problems arising from the syntactical examination of logical calculi are the problems of non-contradiction, completeness (see Non-Contradiction and also Axiomatic Theory, Completeness of), independence (see Axiomatic System, Independence of), decision (see Decision Problem), and provability. The problem of provability is to find the algorithm (q.v.) which provides the proof for any demonstrable. L.S. thus includes the theory of proof. The concept of L.S. was introduced by Wittgenstein in 1919, although the problems of L.S. had been considered by many representatives of mathematical logic (q.v.) by the end of the 19th century (Frege, Russell, q.v., Hilbert, Gödel, q.v., Church, Kleene, and others). Carnap (q.v.) gave a systematic exposition of the problems and concepts of L.S. in *The Logical Syntax of Language* (1934), which shows the fertility of the syntactical investigation of the languages that formalise the various branches of the natural sciences (see Formalised Language).

Logicism, the thesis that mathematics is reducible to logic. Although this idea was originally advanced by Leibniz (q.v.), it was only at the end of the last century that Frege (q.v.) attempted to put it into practice. Frege set himself the aim of (1) defining the basic concepts of mathematics in terms of pure logic, and (2) proving its principles while restricting himself entirely to the principles of logic and employing only logical proofs. Further work in this direction (Russell and Whitehead, q.v., 1910-13, Ramsey, 1926, Quine, 1940) failed to produce the desired results, due to the fundamentally

incorrect methodological assumption of L. that mathematics is independent of the real world and the objects of its investigation. The development of mathematical logic (q.v.) has, on the contrary, led to the conclusion, as in Gödel's (q.v.) theorem, that even the comparatively elementary departments of mathematics cannot be reduced to logic.

Logistic, originally applied to the art of arithmetical calculation. Leibniz (q.v.) occasionally spoke of mathematical logic as “logistica”. The use of L. as a synonym for symbolic or mathematical logic (q.v.) was accepted at the Geneva International Congress of Philosophy of 1904, where it was proposed by Itelson, Lalande, and Couturat, q.v. (see Logicism).

Logistic Method, in modern mathematics and logic, a method of building formalised systems (see Formalisation) and calculations (q.v.). In logical syntax (q.v.), the term “syntactical system” is used. Such systems are built on a purely formal basis without reference to the meaning of the expressions involved. The construction of a logistic system requires: (1) a list of primitive symbols of the system; (2) a determination of what kind of sequence of primitive symbols forms the correctly constructed formulas of the system, the first two requirements being regarded as rules of formation; (3) a determination of what correctly constructed formulas can be classed as axioms; (4) a determination of the rules of inference (or rules of conversion) by which a correctly constructed formula is immediately inferred from the set of formulas taken as premisses. A finite sequence consisting of one or more correctly constructed formulas is regarded as a proof (q.v.) if each formula in the sequence is either an axiom (primitive formula) or can be immediately inferred according to the rules of inference from the preceding formulas of the sequence. The correctly constructed formulas for which proofs exist are called theorems of the system. Sometimes the L.M. includes interpretation as well as construction of a formal system (see Logical Seman-

tics). This purely formal construction of a system does not, of course, imply complete disregard for content, particularly the class of logical laws employed, which must always be taken into account when constructing a calculus.

Logos (Gk. discourse, reason), a term whose original meaning in philosophy was universal law, the basis of the world. Heraclitus (q.v.) speaks of L. in this sense when he says that everything proceeds according to L., which is eternal, universal, and essential. The idealists (Hegel, Windelband, Trubetskoi, qq.v., etc.) wrongly regarded the L. of Heraclitus as universal reason. Among the stoics (q.v.) the term L. denotes the law of the physical and spiritual worlds insofar as they merge in a pantheistic unity (see Pantheism). Philo of the Alexandrian school (1st century A.D.), developed the doctrine of the L. as the totality of platonic ideas and also as a creative force acting as mediator between God and the created world. We find a similar interpretation of L. in Neo-Platonism (q.v.), among the gnostics (q.v.), and later in Christian literature and scholasticism (see Erigena, for example). Hegel in his philosophy described L. as an absolute concept. An attempt was made by representatives of religious idealist philosophy in Russia (Trubetskoi, V. Ern, 1881-1915, and others) to revive the idea of a divine L. In oriental philosophy concepts analogous to L. are *tao* (q.v.) and, in a certain sense, *dharma*. The term L. is not used in Marxist literature.

Lokāyata, a materialist doctrine in ancient India. The earliest information on L. is to be found in the Buddhist canonical texts known as the Vedas (q.v.) and in the Sanskrit epics. Traditionally, the origin of the L. is supposed to have been connected with the mythical sage Brihaspati. Certain atheistic attacks on the Vedas are attributed to the legendary Chārvāka, and in a number of ancient texts this materialism is known as the Chārvāka. The teaching of L. on the nature of being is founded on the idea that

everything in the Universe consists of four elements—earth, fire, water, and air (in some texts the fifth element of ether is added). Every element has its particular type of atoms, which are immutable, indestructible, and have existed from the beginning of time. The properties of an object depend on the types of atoms it consists of and in what proportion they are combined. The consciousness and sense-organs are also the result of a certain combination of atoms; after the death of a living being this combination disintegrates into elements which join up with the atoms of the corresponding type existing in inanimate nature. Some texts contain a notion of evolution, treating certain elements as originating from others with earth as primordial. The epistemology of L. is sensory, the sole valid source of knowledge being sense perception. The sense-organs can apprehend objects to the extent that they themselves are composed of the same elements ("like is known by like"). L. completely denies the validity of any indirect knowledge. Inference and conclusion are considered as false instruments of cognition, as is evidence offered by the Vedas. L. denies the existence of God, the soul, karma, and the transmigration of souls. The predominant feature of the ethics of L. is hedonism (q.v.). L. evidently exercised a certain influence on ancient Indian methods of government. Not a single text written by the followers of L. has come down to us in modern times. L. is most fully expounded in the philosophical treatises and compendiums (darsana) written by the idealist opponents of L., who upheld the Vedas between the 9th and 16th centuries.

Lomonosov, Mikhail Vasilyevich (1711-65), Russian encyclopaedist, founder of materialist philosophy in Russia. Son of a peasant. As the best pupil of the Slavonic-Greco-Latin Academy in Moscow, which he entered in 1731, he was sent to the St. Petersburg Academy of Sciences in 1736, then abroad, to Marburg University. In 1741, L. returned to Russia. A think-

er of immense versatility, L. made a great contribution to the development of physics and chemistry. He also did much for Russian philology, history, and poetry. The materialist tradition of Russian philosophy stems from L. As a materialist, he contested the various speculative views that dominated science in his day. In opposition to idealist theories he insisted on the natural origin of natural bodies. In his treatise *O sloyakh zemnykh* (*On the Strata of the Earth*), 1763, he anticipated the theory of the evolution of the vegetable and animal worlds, stressing the need to study the causes of change in nature. Basing his explanation of natural phenomena on the transformation of matter, which, he held, consisted of minute particles or "elements" (atoms) united in "corpuscles" (molecules), L. always regarded matter as being in motion. He expressed this idea in his law of the conservation of matter and motion, which he formulated in a letter to Eiler of July 5, 1748 (see Conservation of Energy, Law of). L. firmly opposed the unscientific views dominating natural science in the 18th century. In *Razmyshleniya o prichine teploty i kholoda* (*Reflections on the Cause of Heat and Cold*), 1749, he rejects the concept of heat as being caused by a special type of heat-giving material (the thermogen) and shows that the cause of heat processes is to be found in the movement of particles of matter. This leads him to the assumption that the variety of natural phenomena is due to the various forms of the motion of matter. The basic properties of matter, according to L., are: extension, power of inertia, shape, imperviousness, and mechanical motion. L. considered a "first push" to be one of the causes of the development of nature; in this respect, too, he was following the interpretation given by mechanistic materialism. In epistemology L. was a materialist. Considering the effect of the external world on the sense-organs to be the source of knowledge, he opposed the theory of innate ideas (q.v.), and the doctrine of secondary qualities (see Primary and

Secondary Qualities). Though he attached great importance to experience as a source of knowledge, L. postulated that only the combination of empirical methods and theoretical generalisations could reveal the truth. L. was the founder of physical chemistry. He was the first to provide evidence of the existence of an atmosphere surrounding the planet Venus, and introduced quantitative analysis as a systematic method of research in chemistry. He also played a great part in the geological and geographical study of Russia and in setting up the mining and porcelain industries. As the founder of Moscow University (1755), L. was responsible for the emergence of the eminent Russian scientists and scholars who carried forward the development of the natural sciences and materialist philosophy in Russia. In the field of social studies L. advocated enlightenment and moral improvement as the sole means of improving the life of society and pointed to the ignorance of the priests as one of the causes of the widespread ignorance of the people. In his struggle against the clergy he adopted rationalist positions, with a tendency towards deism (q.v.). His poetry and historical writing have a strong patriotic vein. In his *Drevnyaya rossiiskaya istoriya* (*History of Ancient Russia*), published in 1766, he proved the falsity of the theory, held by some historians, that the Russians were descended from the Scandinavian peoples.

Lorentz, Hendrik Antoon (1853-1928), Dutch mathematical physicist, professor at Leyden University. L. pioneered electronic theory, evolved the hypothesis of ether (q.v.) at rest and anticipated the theory of relativity (q.v.). His ideas constituted a tremendous step forward in the development of the electromagnetic theory and led directly to the modern physics of the 20th century. He was the first to show the invariance (q.v.) of the laws of electromagnetic phenomena, their independence of various systems of measurement moving with uniform velocity and rectilinearly. His transformations connecting spatial co-ord-

inates and time in moving systems, being a generalisation of the transformations of Galileo (q.v.), have become a permanent fact in the mathematical apparatus of the theory of relativity. L. held materialist views and opposed the denial of causality and other idealist conclusions concerning quantum mechanics and the theory of relativity.

Lossky, Nikolai Onufriyevich (1870-), Russian idealist philosopher; professor at the Russian Orthodox Seminary in New York, once a professor at St. Petersburg University. Emigrated in 1922. In co-operation with another Russian philosopher, S. L. Frank (1877-1950) he attempted to create a system of "integral" intuitionism (q.v.). This system is an eclectic combination of the ideas of Plato and Bergson (qq.v.), of the immanentists, and the mysticism of Solovyov (q.v.). L. holds that philosophy should evolve a theory of the world as a single whole. He attempts to build this "theory" on the basis of religious experience and a doctrine of God as a kind of supratemporal substantial agent. Epistemologically, L. is close to immanence philosophy (q.v.). Objects are to be apprehended by means of intellectual or mystical intuition. Though he distinguishes between the content of knowledge and the act of knowing, L. never emerges from the framework of subjective idealism. His *History of Russian Philosophy* (1951), besides being a complete distortion of the history of materialism, aims many false charges at Soviet Government. His works include: *Obosnovaniye intuitivizma (The Intuitive Bases of Knowledge)*, 1906; *Mir kak organicheskoye tseloye (The World as an Organic Whole)*, 1917; *Dostoyevsky i yego khristianskoye mirovozzreniye (Dostoyevsky and his Christian Outlook)*, 1945.

Lotze, Rudolf Hermann (1817-81), German philosopher, professor at Göttingen University. L.'s philosophy is a compromise between materialism and idealism, in which the latter predominates. His knowledge of the natural sciences, including medicine, is combined with idealism in the vein

of Leibniz (q.v.). His best known work was *Mikrokosmos* (1856-64). L.'s ideas paved the way for the "phenomenology" (q.v.) of Husserl (q.v.). His *Logik* influenced Karinsky (q.v.).

Lucretius, Carus (c. 99-55 B.C.), Roman poet and materialist philosopher, continued the work of Epicurus (q.v.), author of *De Rerum Natura*. L. set out to reveal the path to happiness for the individual thrust into the vortex of social conflict and disaster and haunted by fear of the gods, death, and punishment after death. Release from fear was to be had through acceptance of the philosophy of Epicurus regarding the nature of things, man, and society. The soul, L. maintains, is mortal, for it is merely a temporary combination of particles and, when the body dies, it disintegrates into atoms. Realisation of the mortality of the soul eliminates not only belief in the after-life but also in punishment after death. It releases man from his fear of hell. The fear of death is similarly dismissed. While we are alive there is no death, when death comes we no longer exist. Lastly, even fear of the gods disappears as soon as we realise that the gods live not in this world but in the empty spaces between worlds; living a life of bliss in these regions, they can have no influence on the life of man. L. gave a vivid materialist picture and interpretation of the world and the nature of man, the development of material culture and technology. He was a great Enlightener of the Roman world and his poem had an immense influence on the development of the materialist philosophy of the Renaissance (q.v.).

"**Ludwig Feuerbach and the End of Classical German Philosophy**" (1886), a philosophical work by Engels, which played a prominent role in the substantiation and development of dialectical and historical materialism. The author appended to it Marx's "Theses on Feuerbach". Engels begins with an analysis of the essence of Hegel's philosophy and the contradictions inherent therein and shows that Marxist dialectics and Hegelian dialectics are opposites. Engels gives a clas-

sical definition of the fundamental question of philosophy (q.v.), its two aspects, and criticises agnosticism, q.v. (above all that of Hume and Kant, qq.v.), showing that practice is the most decisive refutation of it. Giving a scientific definition of materialism and idealism, Engels analyses the views of the 17th-18th century English and French materialists and of Feuerbach (q.v.), and proves that the old mechanical, metaphysical materialism is limited and that its understanding of social phenomena is idealistic. Engels underscores the significance of Feuerbach's criticism of idealism, but at the same time criticises his attempt to create a new religion and his idealistic views on ethics. Having established the fundamental difference between dialectical materialism and all previous philosophies, Engels, in the latter part of his work, expounds in a concise form the materialist conception of history. Developing the theory of historical materialism, he emphasises the idea that the superstructure is relatively independent. This was of great importance for the critique of economic materialism (q.v.), which sprang up at the time. Engels' analysis of the causes, content, and significance of the radical revolution wrought in philosophy by Marxism and his popular exposition of the essence of dialectical and historical materialism make this work (which Lenin placed on the same level as *The Manifesto of the Communist Party*) an indispensable manual for the study of the origin and history of the basic ideas of Marxist philosophy.

Lukasiewicz, Jan (1878-1956), Polish logician, professor at Lvov and Warsaw universities, and towards the end of his life at the Royal Irish Academy. In his philosophical views L. aligns positivist tendencies with Catholic ideas. He is one of the most eminent representatives of the Lvov-Warsaw school (q.v.) of logic.

Lunacharsky, Anatoly Vasilyevich (1875-1933), Soviet statesman and public figure, writer on the theory of art, and journalist. Joined the working-

class movement in the 1890s, became a Bolshevik in 1903. In the years of reaction following the defeat of the Russian revolution of 1905-07 he turned away from Bolshevism and professed Machism (q.v.) and god-building, q.v. (*Sotsializm i religiya* [*Socialism and Religion*], Part 1, 1908; Part 2, 1911). In 1917, he was readmitted to the Bolshevik Party, and from 1917 to 1929 was People's Commissar for Education. In 1930, he was elected to the Academy of Sciences. L.'s early works *Osnovy pozitivnoi estetiki* (*Fundamentals of Positivist Aesthetics*), 1904, etc., showed the influence of positivism, q.v. (Spencer, Avenarius, Bogdanov, qq.v.). But in his best pre-revolutionary writings, *Dialog ob iskusstve* (*Dialogue on Art*), 1905; *Zadachi s.-d. khudozhestvennogo tvorchestva* (*Tasks of Social-Democracy in the Arts*), 1907; *Pisma o proletarskoi literature* (*Letters on Proletarian Literature*), 1914, he criticises decadence and attempts to elaborate from a proletarian standpoint such problems as partisanship in art (q.v.), the influence of the revolution on the development of culture, the significance of art in the class struggle of the proletariat, the connection between the artist's world outlook and his art, etc. After the revolution, as a large-scale organiser of socialist culture, L. displayed his talent to the full in the theory of art. Adopting the standpoint of dialectical materialism, he contributed to the history of literature (his writings on the Russian and Soviet classics, on the revolutionary democrats, on West European writers, and so on), to aesthetics, e.g., *Kultura na Zapade i u nas* (*Culture in the West and in Our Country*), 1928; *Klassovaya borba v iskusstve* (*The Class Struggle in Art*), 1929; *Lenin i literaturovedeniye* (*Lenin and Literary Studies*), 1932, and to theatrical and musical criticism. He paid particular attention to the elucidation of problems that were of great importance to the theory of art and creative work: Lenin's ideological legacy, scientific aesthetics, the Party's guidance of the arts, the task of Marxist criticism, socialist realism

(q.v.), the connection between proletarian art and the classical heritage, and the struggle against bourgeois modernism and vulgar sociology (q.v.) in the study of art. He also wrote a number of dramatic works.

Luther, Martin (1483-1546), eminent leader of the Reformation (q.v.) and founder of Protestantism (q.v.). He influenced all spheres of spiritual life of Germany in the 16th-17th centuries. His translation of the Bible played an important role in the formation of the German language. L. was a supporter of moderate burgher reformation. He denied that the church and the clergy were mediators between man and God. He affirmed that the "salvation" of man does not depend upon the performance of "good deeds", mysteries, and rituals, but upon man's sincere belief. According to him, religious truth is based not on the "sacred tradition" (decrees of oecumenical councils, papal judgements, etc.), but on the Gospel itself. These demands reflected the conflict between the early bourgeois world outlook, on the one hand, and the feudal ideology and the church, on the other. At the same time L. opposed the doctrines which expressed the material interests of the German burghers, criticised the theory of natural law (q.v.), the ideas of early bourgeois humanism, and the principles of free trade. L. stood on the side of the ruling classes during the Great Peasant War (1525). "Luther," Marx wrote, "has conquered slavery based on *belief in God* only by substituting for it slavery based on *conviction*". (Marx and Engels, *Works*, Russ. ed., Vol. 1, p. 422.)

Lvov-Warsaw School, group of Polish logicians and philosophers (J. Lukasiewicz, q.v., T. Kotarbiński, K. Ajdukiewicz, S. Leśniewski, L. Chwistek, Tarski, q.v., and others), who worked in the inter-war period mainly in Warsaw, Lvov, and Cracow. Its founder was K. Twardowski. Philosophically, the school was representative of widely varying trends (from the materialism of Kotarbiński to the Neothomism, q.v., of Salamuja and Bo-

cheński, q.v.). Characteristic of the majority of its representatives were: (a) rejection of irrationalism (q.v.), concrete enumeration through mathematical logic (q.v.) of the basic ideas and principles of traditional rationalism (q.v.); (b) stress on precise research into the logic of scientific reasoning; (c) interest in logical semantics (q.v.). Representatives of the school made a considerable contribution to the development of mathematical logic, the fundamentals of mathematics, the methodology of the deductive sciences and the history of logic and logical semantics. J. Lukasiewicz, M. Wajsberg, and J. Slupecki, pioneered many-valued and modal logic (q.v.), and Chwistek, Leśniewski, Sobocinski, Lukasiewicz, Tarski, and others investigated the fundamental concepts of metalogic (q.v.). The logicians of this school also dealt with the problems of the logic of relations (q.v.), axiomatisation, the set theory (q.v.), the name theory, etc. The philosophers and logicians of People's Poland base much of their work on the progressive ideas of the L.W.S.

Lyceum, the name applied to the sacred garden adjoining the temple of Apollo near Athens and to the gymnasium erected there in the 5th century B.C. It was there in 335 B.C. that Aristotle (q.v.) founded his school of philosophy, which was to exist for nearly eight centuries. After Aristotle the L. was taken over by his pupil Theophrastus. The most outstanding representatives of the school were Eudemus of Rhodes, Dicaearchus, and Strato. By the 1st century B.C., however, the L. had ceased to be a creative centre of philosophy and was merely publishing and commenting on the works of Aristotle. With the collapse of the slave-owning system the L. also ceased to exist.

Lyell, Charles (1797-1895), British geologist and naturalist. In his *Principles of Geology* (3 vols., 1830-33) he opposed Cuvier's (q.v.) catastrophe theory. L. attributed geological changes to the slow transformation of the Earth under the influence of constantly operating causes (atmospheric precipi-

tation, earthquakes, etc.). Though essentially a materialistic theory, it had the defect of reducing the whole development of the Earth to changes of only one kind. On the other hand, it had a damaging effect on the teleological view of the absolute immuta-

bility of nature and paved the way for the collapse of the metaphysical way of thinking. In later life L. acknowledged Darwin's theory of evolution (q.v.), which he had rejected in earlier editions of his *Principles*.

M

Mably, Gabriel Bonnet de (1709-85), French historian and political thinker. He was a passionate defender of the system based on common property. He left a great literary heritage. M. expressed his approbation of the communist system which, in his opinion, existed at the dawn of human history. Before long, however, society witnessed the rise of private ownership, the cause of all the depravities, lies, and delusions in the world. Humanity strayed so far that it could not return again to the communistic order. This statement did not prevent M. from declaring that the system founded on private ownership contradicts natural equality and man's social instinct. Only equal status for man in society permits him to live in happiness. M. favoured measures directed towards the equalisation of fortunes. He recognised the right of the people to revolution whenever they realise that they are subject to unjust and irrational laws. He did not consider revolution, however, a prerequisite to the achievement of the communist ideal, believing that it was only a means for achieving more limited aims. M. was not a consistent utopian socialist; but many aspects of his social philosophy promoted the dissemination of socialist ideas.

Mach, Ernst (1838-1916), Austrian physicist and philosopher, subjective idealist and one of the founders of empirio-criticism (q.v.). By acknowledging a thing to be a "complex of sensations", M. counterpoised his teaching to philosophical materialism. Proceeding from the philosophy of Hume (q.v.), he rejected the idea of

causality, necessity and substance, since these are not given in "experience". In line with the Machian "principle of the economy of thought", the description of the world, in M.'s opinion, should include only the "neutral elements of experience"; only these "elements" (which M. identified with sensations) and their functional connections are real. The distinction between the physical and the psychical was reduced to what he calls "functional relation", in which the "elements" are investigated: physical investigation, according to him, involves an analysis of the interrelation of the "elements"; and psychological investigation, an analysis of the relations of the human organism with their "elements". M. regards concepts as symbols denoting "complexes of sensations" ("things"), and science in general as the totality of hypotheses which can be replaced by direct observation. Lenin's *Materialism and Empirio-Criticism* (q.v.) exposed and refuted the subjective idealism of M.'s philosophy. Main works: *Die Analyse der Empfindungen und das Verhältnis des Physischen zum Psychischen* (1886), and *Erkenntnis und Irrtum* (1905). His philosophy influenced the shaping of neo-positivism (q.v.) as well as the basic Machian revision of Marxism (F. Adler, Bazarov, Bogdanov, Yushkevich, qq.v.).

Machiavelli, Niccolo di Bernardo (1469-1527), Italian thinker and ideologist of the rising bourgeoisie. Society, according to M., develops not by the will of God but by natural causes. The driving forces of history are "material interest" and power. He noted the con-

flict of interests between the masses of the people and the ruling classes. M. demanded the creation of a strong national state, free from feudal internecine conflicts and able to suppress popular riots. He considered permissible the employment of all means in political struggle, justifying cruelty and treachery in the struggle of rulers for power. The historical merit of M., to use Marx's words, was that he was one of the first to see the state through the human eyes and to deduce its laws from reason and experience and not from theology. Main work: *Il Principe* (1531).

Machine, in the narrow sense of the word, a system created by man's effort to transform one form of energy into another for the purpose of deriving useful effect in production. Alongside the employment of M. in the field of material production to replace the physical labour of man, it was also employed as early as the 17th century to replace mental work (mechanical computers). With the development of automation, particularly with the advent of cybernetics (q.v.) the concept of M. was extended to a wider range of phenomena: the term of M. is applied not only to systems created by man, but also to living organisms; and cybernetics as a science of control and communication is, in essence, a science of machines. Such an understanding of M. has nothing in common with the mechanism of the 17th-18th centuries. If Descartes (q.v.) regarded the animals as M., devoid of soul, and La Mettrie included man in the category of M., this distorted not the concept of M. but the concept of man and animals, because these were likened to a system working on the basis of the laws of mechanical motion. In contemporary science, the concept of M. is undergoing changes which has no more connection with any concrete form of the motion of matter; science, in studying the laws of M., investigates the structures of the systems of operation, the properties and functions of these structures, leaving aside their material substrata. Hence, the scientific knowledge of M.

can be used in the study of the functioning of the human organism, but only where man has "machine-like" motions. The concept of M. must be analysed as an economic category as well, and this was done by Marx.

Machism, see Mach, Empirio-Criticism.

Macrocosm and Microcosm, two specific spheres of objective reality. The sphere of macrophenomena is the world in which man lives and acts (planets, terrestrial bodies, crystals, large molecules, etc.). Here the length of objects is measured in centimetres, metres or kilometres, and time intervals are measured in seconds, hours, years, that is, they are directly observable. The microcosm (atoms, nuclei, elementary particles, etc.) is qualitatively different. Here the measurements of objects are less than a thousand-millionth part of a centimetre, and time intervals are measured in thousand-millionths of a second. Both M. & M. are characterised by their peculiar structure of matter, spatio-temporal relations, and law-governed movement. Thus macrocosm material objects have a clearly discernible discontinuous, corpuscular structure, or a continuous wave structure, and their movement is subject to the dynamic laws of classical mechanics. Microcosm phenomena, on the other hand, are characterised by a close-knit connection between corpuscular and wave properties, this being expressed in the statistical laws of quantum mechanics (q.v.). A border dividing the macrocosm and microcosm has been established with the discovery of Planck's constant (see Planck). Modern "physical idealism" (q.v.) makes absolute the distinctions between the macrocosm and the microcosm, the peculiarities of their cognition and denies the objectivity and knowability of the microworld. The penetration of physics into the world of atoms, and then into the atomic nuclei and elementary particles, was brilliant proof of Lenin's conclusion on the "infinite depth of matter in depth", a confirmation and enrichment of the principles of dialectical materialism.

Magic (Gk. sorcery, witchcraft), one of the forms of primitive religion; a set of rituals which aim to affect people, animals, and imaginary spirits in order to obtain definite results. M. is based on the belief in a supernatural relation between man and the surrounding world. There is M. for labour, for doing harm, and for treating ailments, etc. The belief in M. persisted up to the latter part of the Middle Ages (see Alchemy). In our days it reappears in occultism (q.v.). Elements of M. can be found in such world religions as Christianity (q.v.), Islam, q.v. (prayers, anointing of the living or the dead, etc.).

Magnitude, in mathematics, a basic concept originating as an abstraction of the numerical designations of physical qualities. The concept of M. is used for the exact definition of quantitative relations between the objects and processes of reality. It may, therefore, be regarded, like the concepts of number, continuity, etc., as a closer definition of the category of quantity. A distinction is made between Mm. of scale (characterised by number alone, e.g., length, area, volume, etc.) and vector Mm. (embracing, besides number, direction, e.g., force, speed, etc.). M. is also divided into constants and variables. The concept of variable was introduced into mathematics by Descartes (q.v.) and played an important part in the development of modern mathematics and science.

Maimonides or Moses ben Maimon (1135-1204), Jewish philosopher, adherent of the teachings of Aristotle (q.v.) and one of the leaders of the rationalistic school of Judaism (q.v.). M.'s philosophy is a synthesis of Judaistic theology and Aristotelianism; he tried to reconcile religion with philosophy by way of a "sublimated" (allegorical) interpretation of the Bible and isolated dogmas of Judaism. According to the theory of knowledge of M., man's ultimate aim was to provide a rational basis for the supreme truth. M. was persecuted by religious fanatics for his rationalistic ideas. His main work *Moreh Nebouchim* (*Guide for the Perplexed*) gained wide pop-

ularity in Western Europe and exerted considerable influence upon later scholasticism (q.v.). His ideas were also spread in old Russia.

Malebranche, Nicolas de (1638-1715), French idealist and adherent to occasionalism (q.v.). From an idealistic position he attempted to eliminate dualism in Descartes' (q.v.) system. M.'s philosophy attributes an exclusive role to God, who not only creates all existing things but also contains all of them within himself. The permanent interference of God is the only cause of all changes; there are no so-called "natural causes" and "interactions" between spatial and thinking substances. In the theory of knowledge, too, Malebranche adheres to the idealistic position: man gets to know things not through their effect on the sense-organs; cognition is human contemplation of ideas about all existing things, while God is the source of these ideas. Main work: *Recherche de la vérité* (1674-75).

Malthusianism, an unscientific theory founded by the English clergyman Malthus (1766-1834), who claimed that the population (q.v.) increases in geometrical progression, while the means of subsistence grow only in arithmetical progression. According to Malthus, the discrepancy arising between the amount of the means of livelihood and the size of the population is regulated by means of wars, epidemics, limitation of marriages, and other means of controlling the growth of the population. Relative overpopulation is a biological law. Some contemporary Malthusians (G.F. McCleary and others) consider that the reason for the growing discrepancy is that the prices of foodstuffs are "too low", while the wages of the workers are "high". M. serves to justify capitalist exploitation and the policies of imperialism. Whereas "classical" M. considered excessive birth rates to be the cause of overpopulation, Neo-Malthusianism sees that cause in "insufficiently low" death rates, resulting from the achievements of medical science. Marx and Engels said that overpopulation and the attendant poverty of the masses

are caused by the capitalist system and showed that Malthus' theory is completely untenable and reactionary. The progress of science and technology leads to an enormous growth of productive forces, so that the output of social production grows considerably faster than the population. The experience of the socialist countries has shown the historically transient character of overpopulation. Increase in food production is attained on the basis of technological and agronomical progress, which affords the possibility of creating not only sufficiency but an abundance of foodstuffs for the fast-growing population.

Man, a social being. From the biological viewpoint M. is regarded as the highest stage in the development of animals on Earth. He differs from the most developed animals by his mind and articulate speech. While the behaviour of an animal is fully determined by instincts, reactions to the environment, the behaviour of M. is directly determined by thinking, emotions, will, degree of knowledge of the laws governing nature, society, and himself. By raising this distinction to an absolute, idealists see the essence of M. in reason, in subjective, conscious aspirations, religious belief, etc. Actually, the fundamental difference between M. and animal consists above all in that M. produces instruments of labour with the object of acting on nature and transforming it. While the animal adapts itself to natural conditions, M. adapts nature to himself in his productive activity. M. cannot exist in isolation from other people, he is moulded in definite social conditions. "... The human essence," Marx wrote, "is no abstraction inherent in each single individual. In its reality it is the ensemble of the social relations." (Marx, Engels, *Selected Works*, Vol. II, p. 404.) Marxism for the first time explained that the real objective motives determining M.'s activity are ultimately rooted in the material conditions of his life. The specific features of M., expressing his essence as "man"—consciousness, spiritual life, ability to use the most

diverse instruments of labour, etc.—are a product of social labour. Marx replaced the old philosophical doctrines of "human nature" in general by the teaching on man's concrete nature, determined by a definite historical system of society. At the same time, at any stage of society M. is a product of development of all mankind; he assimilates and processes the knowledge gained throughout history. The forms of assimilating all preceding culture and the specific way in which M. is influenced by the historically given social conditions, are ultimately determined by the nature of production. In conditions of the division of labour, inherent in antagonistic class formations, M. could not freely develop his physical and spiritual capabilities; he inevitably developed one-sidedly, which was expressed above all in the antithesis between mental and physical work. M. turned, as under capitalism, into an appendage of the machine, and so on; the majority of people, represented by the working masses, were subjected to exploitation and were barred from active social life, from the cultural treasures accumulated by mankind. Only under socialism and especially under communism will M. receive every opportunity for all-round development, for the maximum display and development of his individual gifts and inclinations.

Man (Ger. *Man*, an indefinite personal pronoun), one of the main concepts of existentialism (q.v.) introduced by Heidegger (q.v.). The concept of M. denotes "social reality", and is manifested in laws, moral standards, cultural traditions, and public opinion. M., according to Heidegger, is always inimical to the concrete human being, obstructs his freedom of action and deprives him of his individuality. In order to break away from the power of M. and become free, the human being, according to existentialism, should isolate himself from society and place himself in a "border-line situation" (q.v.) between life and death. The individual is able to break away from "day-to-day existence" only by

fear of death; then he becomes free and can be responsible for his actions. The concept of M. reflects the irrational solution to the problem of the interrelation between the individual and bourgeois society—the antagonism between the individual and society inherent in the capitalist system. By holding that the human being is only an "individual", by denying that man is essentially a sum total of social relations, the adherents of existentialism inevitably arrive at unscientific and reactionary conclusions.

"**Manifesto of the Communist Party**", the first programmatic document of scientific communism, expounding the foundations of Marxism, written by Marx and Engels and published at the beginning of 1848. The first chapter—"Bourgeois and Proletarians"—discloses the laws of social development, proves the inevitable and law-governed nature of the replacement of one mode of production by another. Proceeding from the fact that the history of all hitherto developing society, except the primitive-communal system, was the history of class struggle, Marx and Engels proved that the fall of capitalism was inevitable and pointed the way to the formation of a new social system—communism. In this same chapter they elucidated the historic mission of the proletariat as the revolutionary transformer of the old society and the builder of the new, the champion of the interests of all toiling masses. In the second chapter—"Proletarians and Communists"—Marx and Engels highlighted the historic role of the Party of Communists as part of the working class and as its vanguard. The immediate aim of the Communists is the "formation of the proletariat into a class, overthrow of the bourgeois supremacy, conquest of political power by the proletariat". (Marx and Engels, *Selected Works*, Vol. I, p. 46.) In this chapter Marx and Engels advanced the idea of the dictatorship of the proletariat, explained the relation of the Communist to the family, property, and the motherland and outlined the economic measures which the proletariat must take

upon coming to power. In the third chapter—"Socialist and Communist Literature"—they made a profound criticism of bourgeois and petty-bourgeois trends masquerading under the banner of socialism and defined their own attitude to the systems of utopian socialism and communism. In the fourth chapter—"Position of the Communists in Relation to the Various Existing Opposition Parties"—Marx and Engels set forth the tactics of the Communists regarding various opposition parties. *Manifesto of the Communist Party* concludes with the immortal slogan: "Working Men of all Countries, Unite!" Of the invaluable historic significance of the work Lenin wrote: "This booklet is worth whole volumes: to this day its spirit inspires and guides the entire organised and fighting proletariat of the civilised world." (Vol. 2, p. 24.)

Marburg School, one of the trends in Neo-Kantianism (q.v.). The main exponents of this school were Hermann Cohen (q.v.), Paul Natorp, Ernst Cassirer (q.v.) and Rudolf Stammler. Having discarded the materialistic tendency in Kant's (q.v.) teaching, these thinkers subscribed to consistent subjective idealism. The exponents of the M.S. held that philosophy does not provide knowledge of the world, but consists only of the methodology and logic similar to those of special sciences. They denied objective reality, tried to separate knowledge from sense data and considered cognition a pure logical process of producing concepts. This methodology is but the insipidity in general principles, which are ascribed to special sciences. The most important of these principles is the so-called principle of obligation, which the school spread to sociology as well. The adherents of M.S. denied that the laws of social development were objective and considered socialism exclusively as a moral phenomenon, as an "ethical ideal" standing above the classes. The theorists of the M.S. demanded that Marxism be "supplemented" with Kantianism, emasculated scientific communism of its economic and political content and denied the

revolutionary struggle and the dictatorship of the proletariat. The sociological ideas of this school influenced "legal Marxism" (q.v.) in Russia and later served as the basis for the revision of Marxism by the opportunists of the Second International (Bernstein, Kautsky, qq.v., M. Adler, and others). In our days these ideas are being used by the Right Socialists to combat Marxism-Leninism.

Marcel, Gabriel (1889-), French philosopher and writer, professor at Sorbonne; chief exponent of the so-called Catholic existentialism (q.v.). His main works are *Journal Métaphysique* (1925), *Etre et Avoir* (1935), and *Les hommes contre l'humain* (1951). Among the existentialists M. stands closest to the teaching of Kierkegaard (q.v.). He believes that philosophy is at variance with science, which studies the world of objects but does not touch upon existential experience, i.e., the inner spiritual life of the individual. Existential experience is irrational in its essence, contains "secrets" in which the individual is involved and serves as an object of belief. For M., it is precisely through existential experience that one can comprehend God; for this reason it is necessary to renounce rational proof of God's existence. M.'s ethics is built upon the Catholic doctrine of predestination and the freedom of the will.

Marcus Aurelius (121-180 A.D.), philosopher-stoic (q.v.) and Roman Emperor. His only work *Meditations* expresses his philosophy in the form of aphorisms. The impending crisis of the Roman Empire dominated M.A.'s philosophy. In his interpretation of stoicism, M.A. ultimately abandoned all materialistic features and became a religious mystic. For him God, the prime basis of all that is living, is universal reason, in which all forms of individual consciousness are dissolved after physical death. His ethics was permeated with fatalism (q.v.), preaching of humility and asceticism. He appealed for moral perfection and purification, for self-consolation through the cognition of the fatalistic

necessity which rules the world. M.A.'s philosophy greatly influenced Christianity (q.v.), despite his harsh treatment of Christians.

Maréchal, Pierre-Sylvain (1750-1803), representative of the plebeian-democratic wing of French materialism and atheism. M. recognised that existing nature was eternal, believing that only its concrete expressions, i.e., "forms" appeared or disappeared. M.'s theory of knowledge is based on sensationalism (q.v.), while materialism is the theoretical basis for his atheism. God, to him, is synonymous with nature. Out of fear man invented a supreme being and endowed that being with the properties of nature. M. joined the Babouvist movement (see Babouvism) and became a utopian communist. M.'s main work: *Manifeste des égaux* (1794). M. stood above the Encyclopaedists (q.v.) in his atheistic outlook. He associated the final removal of religion with a revolution, the overthrow of the exploiting system and the establishment of communism.

Maritain, Jacques (1882-), leader of Neo-Thomism (q.v.), French ambassador to the Vatican from 1945 to 1948; in his later years he taught at Princeton University (USA). Initially M.'s outlook was closely related to the philosophy of Bergson (q.v.) and vitalism (q.v.). In 1906, he went over to Catholic philosophy. For M., science, metaphysics, and mysticism are independent forms of knowledge which complement each other. In his various works he elucidated problems of psychology, sociology, aesthetics, ethics, and pedagogics from the standpoint of orthodox Thomism.

Markovitch, Světozar (1846-75), Serbian revolutionary democrat, materialist philosopher and utopian socialist, who studied in Russia. M.'s world outlook was developed at a time when Serbia was faced with the critical problem of completing her bourgeois-democratic revolution. He was greatly influenced by the ideas of the Russian revolutionary democrats. Basing himself on Marx's works, he severely criticised the capitalist system and came out

openly in the defence of the Paris Commune. M., however, did not reach the level of dialectical and historical materialism and scientific socialism in spite of his knowledge of the main works of Marx and Engels and his participation in the work of the First International. He held the mistaken notion that after the victory of a popular revolution, based on the *zadruga* (a big patriarchal family) and the rural commune, it was possible to pass on to socialism, bypassing capitalism. His philosophical ideas formed the theoretical foundation of his revolutionary democratic programme. In his work, *The Real Trend in Science and Life* (1871-72), M. upheld his materialistic line in philosophy, ethics, and aesthetics. He popularised Darwin's theory; in his understanding of society remained an idealist.

Marx, Karl (1818-83), founder of scientific communism, the philosophy of dialectical and historical materialism, and scientific political economy, the leader and teacher of the world proletariat. He was born in Trier where in 1835 he finished the secondary school. Later he enrolled at the University of Bonn and the University of Berlin; by that time his world outlook had begun to take shape. The Left trend (see Young Hegelians) in Hegel's philosophy made its imprint on Marx's spiritual evolution. Adhering to revolutionary democratic ideas, M. took an extreme left position among the Young Hegelians. In his early work, his Ph.D. thesis on *Differenz der demokritischen und epikureischen Naturphilosophie* (1841), M. draws, in spite of his idealism, very radical and atheistic deductions from Hegel's philosophy. In 1842, Marx became a staff member of *Rheinische Zeitung*, and later its chief editor. M. converted the newspaper into an organ of revolutionary democracy. In the course of his practical activities and theoretical investigations M. clashed head-on with Hegelian philosophy, because of its conciliatory tendencies, conservative political conclusions, and of the discrepancy between its principles and the actual social relations and the

tasks of transforming those relations. In this clash with Hegel and the Young Hegelians M. switched to the materialist position, his knowledge of real economic developments, and the philosophy of Feuerbach (q.v.) playing the decisive role in the process. A final revolution in M.'s world outlook was wrought by the change in his class stand and his passage from revolutionary democracy to proletarian communism (1844). This transition was brought about by the development of the class struggle in Europe (M. was greatly influenced by the Silesian uprising of 1844 in Germany), by his participation in the revolutionary struggle in Paris, where he had emigrated after the *Rheinische Zeitung* was closed down (1843), and by his study of political economy, utopian socialism, and history. His new stand found expression in two articles published in the *Deutsch-Französische Jahrbücher* (1844), entitled "Zur Kritik der Hegelschen Rechtsphilosophie" and "Zur Judenfrage". Here M. for the first time discloses the historic role of the proletariat and arrives at the conclusion of the inevitability of the social revolution and the necessity of uniting the working-class movement with a scientific world outlook. M. and Engels had been drawn together by that time, and they began systematically elaborating a new world outlook. The results of scientific research and the main principles of the new theory were generalised in the following works: *Ökonomischphilosophische Manuskripte* (1844), *The Holy Family* (1845), q.v., and *The German Ideology* (1845-46), q.v., written in collaboration with Engels, *Theses on Feuerbach* (1845), q.v., and the first work of mature Marxism—*The Poverty of Philosophy* (1847), q.v. Marxism was formed as an integral science, reflecting as it did the unity of all its component parts. In 1847, M. lived in Brussels, where he joined a secret propaganda society called the Communist League and took an active part in the 2nd Congress of the League. At the Congress' request M. and Engels drew up the famous *Manifesto*

of the Communist Party (1848), q.v., in which they completed the elaboration of Marxism. This work "outlines a new world-conception, consistent materialism, which also embraces the realm of social life; dialectics, as the most comprehensive and profound doctrine of development; the theory of the class struggle and of the world-historic revolutionary role of the proletariat—the creator of a new, communist society". (Lenin, *Works*, Vol. 21, p. 48.) Dialectical and historical materialism is a truly scientific philosophy, in which materialism and dialectics, the materialist understanding of nature and society, the teaching about being and knowledge, theory and practice are fused organically. This made it possible to overcome the metaphysic nature of pre-Marxian materialism, with its inherent contemplation (q.v.), anthropologism (q.v.), and the idealistic understanding of history. M.'s philosophy is the most adequate method of cognition and transformation of the world. The development of practice and science in the 19th-20th centuries have convincingly proved the superiority of Marxism over all forms of idealism and metaphysical materialism. M.'s doctrine as the only form of proletarian ideology was steeled in the fight against all sorts of unscientific, anti-proletarian and petty-bourgeois currents. Marx's activities are characterised by partisanship and irreconcilability with any digression from scientific theory. Being a revolutionary in science, M. took an active part in the liberation struggle of the proletariat. During the revolution of 1848-49 in Germany he was at the forefront of the political struggle. He resolutely defended the proletarian stand in his capacity as chief editor of the *Neue Rheinische Zeitung*, which he founded. Banished from Germany in 1849 he settled permanently in London. After the Communist League was dissolved (1852), M. continued his activities in the proletarian movement, working for the creation of the First International (1864). He was active in this organisation, followed

closely the progress of the revolutionary movement in all countries, and took particular interest in Russia. To the very last day of his life M. was in the thick of contemporary events. This afforded him the indispensable material for the development of his theory. The experience of the bourgeois revolutions of 1848-49 in Europe was of great importance for the development by Marx of the theory of socialist revolution and class struggle, of the idea of the dictatorship of the proletariat, the tactics of the proletariat in the bourgeois revolution, the necessity of worker and peasant alliance (*The Class Struggles in France*, 1850, q.v.), the inevitable destruction of the bourgeois state machine (*The 18th Brumaire of Louis Bonaparte*, 1852, q.v.). On examining the experience of the Paris Commune (*The Civil War in France*, 1871, q.v.), M. discovered a state form of the dictatorship of the proletariat and profoundly analysed the measures adopted by the first proletarian state power. In his *Critique of the Gotha Programme* (1875), q.v., M. further developed the theory of scientific communism. His main interest lay in the sphere of political economy, and he devoted all his life to his basic work *Capital* (q.v.): Volume I was published in 1867; Volume II was published by Engels in 1885, and Volume III, in 1894. The creation of political economy laid a scientific basis of communism. The philosophical importance of *Capital* is unequalled. It embodies the dialectical method of investigation in a brilliant form. In his preface to *Zur Kritik der politischen Ökonomie* (1859), one of his earlier works in economics, M. set forth, in a concise form, the essence of the materialist understanding of history. In *Capital* this understanding was transmuted from a hypothesis into a science. M.'s correspondence contains much of what characterises his philosophy. Never before has any other doctrine been so confirmed in practice as that created by Marx. Lenin, together with his disciples and followers, developed Marxism further under

new historical conditions. It was embodied in the victory of socialist revolutions in a number of countries, and it now furnishes the scientific foundation for the activities of the parties of the proletariat and all international communist and working-class movement.

Marxism-Leninism, the revolutionary doctrine of Marx, Engels, and Lenin, which represents an integrated and harmonious system of philosophical, economic, and socio-political views. Marxism was born of the liberation struggle of the working class in the 40s of the 19th century, and it became the theoretical expression of the fundamental interests of that class, the programme of its struggle for socialism and communism. The appearance of Marxism signified a great revolution in the science of nature and society. The founders of Marxism have accomplished an unprecedented scientific feat in such fields of human knowledge as philosophy, political economy, scientific socialism, etc., and formulated a truly revolutionary science whose object is not only to explain the world correctly but also to change it. Lenin pointed out that Marx's teachings are comprehensive and integrated; they give people a purposeful world outlook. It is omnipotent, because it is true. The main feature of Marxism is that it substantiates the historic role of the working class as the builder of a classless, communist society. Scientific communism, which is an essential component part of M.L., has its profound economic foundation in Marx's political economy, which disclosed the laws of the capitalist mode of production and proved that socialism must replace capitalism. Philosophically, M.L. is based upon dialectical and historical materialism. It develops as a living and creative science, and is incompatible with any form of dogmatism; it draws its creative power from life, from the revolutionary practice. A feature of M.L. is a close link between theory and practice, distinguishing it from all reformist and revisionist theories. Marx and Engels were untiring in

their striving to develop their teaching, to enrich it with new propositions and conclusions, testing their value through the revolutionary experience of the masses and the new achievements of science. A new stage in the creative development of Marxism is inseparably associated with the name of Lenin, the true continuator of Marx's teaching. The contribution of Lenin to the Marxist teaching is so great that it is rightfully called now the doctrine of Marxism-Leninism. A new historical epoch which set in towards the beginning of the 20th century—the era of imperialism and socialist revolutions—confronted the international communist movement with new problems in the theory and practice of the revolutionary struggle. Lenin expertly applied Marxist dialectics to an analysis of the developments of that epoch and continued Marx's analysis of capitalism. He produced a scientific theory of the imperialist stage of capitalism and developed the theory of the socialist revolution. He drew the conclusion that initially socialism could win in one individual country. Lenin's theory was translated into reality after the victory of the socialist revolution in Russia. The Communist Party of the Soviet Union drew up a plan for the building of socialist society and ensured its practical realisation. The further development of M.L. is inseparably linked up with the experience of building socialism in the USSR and other countries and the formation of a world socialist system, and with the entry of the USSR in the period of full-scale communist construction. The M.L. doctrine was further advanced in the decisions of the 20th, 21st, 22nd, and 23rd CPSU Congresses, of the Communist and Workers' Parties of other countries, and in the decisions of the Moscow Meetings of the Representatives of Communist and Workers' Parties concerning the problems of contemporary world development and the struggle for peace, democracy and socialism. One of the main conditions for the creative development of the M.L. theory in 1956-66 was the overcoming

of the harmful consequences of the cult of Stalin's personality and the restoration of the Leninist standards of Party, government, and public life. The CPSU Programme as worked out and adopted by the 22nd Congress signifies a new landmark in the development of M.L. The Programme synthesises the Marxist-Leninist knowledge of all fundamental contemporary problems. While taking stock of the new phenomena in modern capitalism, it generalises the experience of the class and national liberation struggles at their present stage and constructively resolves the problems of the socialist revolution, the issue of war and peace, and the fundamental problems of building communism. All the spirit and all the contents of the CPSU Programme reflect the unity of the theory of Marxism-Leninism and the practice of communist construction. Such problems as the creation of the material and technical basis of communism, the formation of communist social relations and the education of the new man are, indeed, the main problems of both the theory of M.L. and the practice of communist construction. For the first time in the history of M.L. the Programme outlines the concrete ways of building communism, the tasks in industry and agriculture, and the development of the state, science, culture, and communist education. Today M.L. is not only the theory but also the practice of the hundreds of millions of people building socialism and communism. The role and significance of the theory of M.L. immeasurably grows under socialism and in the period of building communism, because socialism and communism are built consciously and in a planned way. The CPSU Programme stresses that the Party's prime duty is to develop further M.L. on the basis of a study and generalisation of new phenomena in the life of Soviet society and the experience of the international working-class and liberation movements, and creatively to combine theory with the practice of communist construction. Today, as in the past, one of the main conditions for the further

development of M.L. is the fight against revisionism (q.v.), dogmatism (q.v.) and sectarianism, against any distortion of the revolutionary theory of Marx, Engels, and Lenin and for a creative application of this theory in practice.

Material and Technical Basis of Communism, the level of the productive forces indispensable for the transition from socialism to communism, the material basis for the existence and the development of communist society. Every social formation has its corresponding M.T.B. Thus under capitalism it is represented by large-scale industrial production, based on private ownership of the means of production and the exploitation of man by man. The M.T.B. of socialism, which is the first and lower phase of communism, is distinguished by planned large-scale industrial production in all branches of the economy, based on social ownership of the means of production and freed from the exploitation of labour. In the process of building communism the M.T.B. of socialism is gradually transformed into the M.T.B. of communism. The creation of the M.T.B. of communism implies the complete electrification of the country; the comprehensive mechanisation of the production processes and their progressive automation; the widespread use of chemistry in the national economy; a vigorous development of new, economically effective branches of production, new sources of power and new materials; all-round and rational utilisation of natural, material and labour resources; organic fusion of science and production, and rapid scientific and technical progress; a high cultural and technical level for the working people. The most important condition for the victory of the communist system is a substantial superiority over the more developed capitalist countries in the productivity of labour. The M.T.B. of communism will be created in the USSR by 1980, as planned and stipulated in the Programme of the CPSU. This constitutes the chief economic task for Soviet society. In the course of building the

M.T.B. of communism, the USSR will occupy first place in the world in per capita production and will emerge victorious in the economic competition with capitalism. The creation of the M.T.B. of communism will be the basis for the transformation of the socialist social relations into communist social relations, for a radical change in people's mode of life, the moulding of the new man—full man of communist society. With the creation of the M.T.B. of communism the production of material goods will rise to such a level as will allow gradual transition to the communist principle of distribution according to needs.

Material Incentive, the basic principle of the socialist economy, in accordance with which the level of material prosperity of the members of socialist society depends upon the quantity and quality of their work. Material interest under capitalism leads to the growth of selfishness among individual proprietors and to fierce competition. Socialism, on the other hand, brings forth new stimuli for the development of production, far more powerful than those existing under capitalism. The M.I. of the workers under socialism lies in the fact that they work for themselves and for their society. This encourages them to improve working methods, eliminate shortcomings in the organisation of production, and do all in their power to raise labour productivity. At the same time M.I. is combined with moral stimuli (q.v.) to labour, since only in this case does it become a genuine means for accelerating the growth of socialist production. This principle will remain in force until the building of communist society is completed. The CPSU Programme points out that "communist construction must be based upon the principle of material incentive. In the coming twenty years payment according to one's work will remain the principal source for satisfying the material and cultural needs of the working people".

Materialism, the only scientific philosophical trend, opposed to idealism. We distinguish two kinds of M., the

spontaneous belief of all mankind in the objective existence of the external world, and the philosophical world outlook, which scientifically deepens and develops spontaneous M. Philosophical M. maintains that matter is primary and mind, consciousness, secondary. This implies that the world is eternal, not created by God, and is infinite in time and space. Maintaining that consciousness is a product of matter, M. considers it as the reflection of the external world, and thereby asserts the knowability of the world. In the history of philosophy M. was, as a rule, the world outlook of the progressive classes and strata in society, who were interested in correctly understanding the world and in increasing man's power over nature. In summing up achievements of science, M. promoted the growth of scientific knowledge, the improvement of scientific methods; this, in its turn, favourably influenced man's practical activity and the development of the productive forces. In the process of the interaction between M. and the concrete sciences M. itself underwent changes. The first materialist theories made their appearance with the rise of philosophy as a result of the progress of scientific knowledge in astronomy, mathematics and other fields in the slave-owning societies of ancient India, China and Greece. The general feature of ancient M., which for the most part was naive (*Lao Tsü*, *Wan Chung*, the Charvaka school, Heraclitus, Anaxagoras, Empedocles, Epicurus, qq. v., and others), was recognition of the materiality of the world and its independent existence outside of man's consciousness. Representatives of M. tried to find in the diversity of natural phenomena the common source of origin of all that exists or takes place (see Element). It was the merit of ancient M. to create a hypothesis on the atomic structure of matter (Leucippus, Democritus, qq.v.). Many of the ancient materialists were spontaneous dialecticians, but some of them did not make a clear-cut distinction between the physical and the psychic, attributing all the properties of the latter to nature (see Hylozoism).

In the development of materialistic and dialectical principles in ancient M. there was still an admixture of the influence of mythological ideology. In the Middle Ages and during the Renaissance, materialistic trends appeared in the form of nominalism (q.v.), pantheistic doctrines (see Pantheism) and the teaching that nature and God are co-eternal. M. developed in Europe in the 17th-18th centuries (see Bacon, Galileo, Hobbes, Gassendi, Spinoza, and Locke). This form of M. developed on the basis of nascent capitalism, and the attendant growth of production, technology and science. Speaking for the then progressive bourgeoisie, the materialists combated medieval scholasticism and ecclesiastical authority, looking to experience as their tutor and to nature as the object of philosophy. The M. of the 17th-18th centuries developed in conjunction with the then rapidly progressing mechanics and mathematics, as a result of which it was mechanistic. Another of its features was a desire to analyse, to divide nature into more or less isolated and mutually unrelated fields and objects of investigation, and to study these without regard for their development. French M. of the 18th century occupied a special place in the materialist philosophy of this period (La Mettrie, Diderot, Helvetius, and Holbach, qq.v.). The French materialists maintained on the whole the mechanistic conception of motion, considering it, like Toland (q.v.), as a universal and inalienable property of nature, and completely rejecting the deistic inconsistencies characteristic of most 17th century materialists. The organic link existing between all kinds of M. and atheism was particularly apparent in the French materialists of the 18th century. The peak in the development of this form of M. in the West was the "anthropological" M. of Feuerbach (q.v.). At the same time contemplation (q.v.) characteristic of all pre-Marxist M. was more manifest in Feuerbach than in any of his contemporaries. A further step in the development of M. was made in the second half of the 19th century in Russia and other countries

of Eastern Europe by the philosophy of the revolutionary democrats (Belinsky, Herzen, Chernyshevsky, Dobrolyubov, Markovitch, Botev, qq.v., and others), a philosophy which rested upon the traditions of Lomonosov (q.v.), Radishchev (q.v.), and others. In some respects the revolutionary democrats rose above the limited horizon of anthropologism and the metaphysical method. The highest and most consistent form of M. was dialectical materialism (q.v.) created by Marx and Engels in the middle of the 19th century. It overcame not only the aforementioned shortcomings of the old M. but also the idealistic understanding of history common to all its representatives. In its later development M. split into two main trends: dialectical and historical materialism (q.v.), on the one hand, and a number of simplified and vulgarised varieties of M., on the other. The most typical variety was vulgar M. (q.v.) which gravitated to positivism; and to this latter gravitated those varieties of vulgar M. which appeared at the turn of the century as a distortion of dialectical M. (mechanical revision of Marxism, and others). During the second half of the 19th century the mature forms of M. proved to be incompatible with the narrow class interests of the bourgeoisie. Bourgeois philosophers hold that adherents of M. are immoral, that they fail to comprehend the nature of consciousness, and identify M. with its primitive varieties. While repudiating militant atheism and theoretico-cognitive optimism, some of these philosophers were compelled to admit some elements of materialistic world outlook in order to meet the interests of the development of production and natural science. On the other hand, not a few of them, who had made declarations in favour of idealism or eschewed "all philosophies" in a positivist way, took the M. position in the study of special scientific research (e.g., the natural-historical M. of Haeckel, and Boltzmann, qq.v.). Some leading scientists turn from natural-scientific to conscious M., and in the last analysis to dialectical M. (Langevin, q.v.,

Joliot-Curie, q.v., Kotarbinski, Yanagida, Lamont, and others). An important peculiarity of the development of dialectical M. is its enrichment with new ideas on the strength of the criticism of the contemporary forms of idealism and many weak points in the theories of the naturalist materialists. The contemporary development of science demands that the natural scientist become a conscious adherent of dialectical materialism. At the same time socio-historical practice and science call for continued progress in M. philosophy.

"Materialism and Empirio-Criticism. Critical Comments on a Reactionary Philosophy", Lenin's fundamental philosophical work, written in 1908 and published in May 1909. The book was written during the period of reaction brought about by the defeat of the 1905-07 Russian revolution. At that time the Marxists were confronted with the urgent political and theoretical task of defending dialectical and historical materialism against the onslaught of revisionism (q.v.) and of refuting the reactionary philosophy of empirio-criticism (q.v.) which was being vigorously propagated by the revisionists, *M. & E.* criticises exhaustively the subjective-idealistic philosophy of empirio-criticism and shows that dialectical and historical materialism is entirely opposed to the former in all problems of philosophy. Lenin points out that the Russian Machists, in their desire to "supplement and develop" Marxism through Machian philosophy, were in fact only echoing the reactionary ideas of subjective idealism (q.v.) and agnosticism (q.v.). The experience of all mankind, together with the data of natural science, completely refutes all the "latest" concoctions of the idealists. Lenin criticised in detail the idealistic theories of Mach (q.v.), Avenarius, q.v. (see Principal Co-ordination), Pearson (q.v.), Petzoldt, and others, as well as the Russian Machists—Bazarov, Bogdanov, q.v. (see Empirio-Monism), Yushkevich, q.v. (see Empirio-Symbolism), and the like. Lenin's book shows the sources of empirio-criticism and its

place in the development of bourgeois philosophy: beginning with Kant (q.v.), the Machists went from him to Hume and Berkeley (qq.v.) and were unable to go beyond their views. A typical feature of Machism was its closeness to the most reactionary philosophies of the type of the immanence school (q.v.). For the first time in Marxist philosophy Lenin discovered the true interrelation between empirio-criticism and natural science. Claiming the role of philosophy in contemporary natural science, empirio-criticism in fact adversely influenced the development of science, using and amplifying the idealist vacillations of some physicists brought about by the crisis in physics at the turn of the century. Lenin's discovery of the social roots and the class role of Machian philosophy is of exceptional importance. Resolutely and persistently pursuing the line of partisanship (q.v.) in philosophy, Lenin gave the lie to the "stupid claims" of the Machists and of the whole trend of positivism (q.v.), to be above materialism and idealism, and pointed out that empirio-criticism served the forces of reaction, religion, and was hostile to science and progress. Apart from his exhaustive criticism of Machism and its Russian followers and fellow-thinkers, Lenin substantiated and developed further the most important tenets of dialectical and historical materialism. Lenin gave an all-round analysis of the fundamental question of philosophy (see Fundamental Question), and the most important categories of Marxist philosophy (e.g., matter; experience; time and space; causality; freedom and necessity, qq.v.), creatively developed the Marxist theory of knowledge, q.v., especially the theory of reflection, q.v., the role of practice in cognition, the place and role of sensations in cognition, objective truth, q.v., the interrelation between absolute and relative truth, q.v., and the basic problems of historical materialism (q.v.). Lenin's generalisation of the new data accumulated by natural science is of particular importance. The outstanding discoveries in physics at the end of

the 19th and the beginning of the 20th century marked the beginning of a revolution in natural science. These discoveries, however, gave birth to an acute crisis in the development of natural science, which was intimately connected with "physical" idealism (q.v.). Exposing the class and epistemological roots of "physical" idealism, Lenin proved that the new discoveries in physics, far from refuting materialism, supplied, on the contrary, further confirmation of dialectical materialism. Lenin's dialectical-materialistic generalisation of the great achievements of science outlined the way out of the crisis in natural science and convincingly proved that the only method in that science was the dialectical-materialistic method. The significance of Lenin's book lies in the fact that in it materialism is given a new form, corresponding to the new level achieved in the development of science. Even today Lenin's *M. & E.* serves as an ideological weapon in the fight against idealist philosophy and revisionism, in the philosophical generalisation of contemporary progress in natural science. Lenin's work is a masterpiece of the creative development of Marxist philosophy and a model of devotion to communist principles in theoretical questions.

Materialism, Dialectical, the scientific philosophical world outlook, component of the Marxist doctrine, its philosophical basis. D.M. was evolved by Marx and Engels and further developed by Lenin and other Marxists. It originated in the 1840s and developed in intimate association with scientific progress and the practice of the revolutionary labour movement. Its emergence was a revolution in the history of human thought, the history of philosophy. But this revolution included continuity and critical acceptance of all the advanced, progressive elements already attained by human thought. The two mainstreams of preceding philosophical development merged in D.M. and were fructified by the new approach, the new, profoundly scientific outlook. There was the development, on the one hand, of mate-

rialist philosophy, which went back to the remote past, and, on the other, of the dialectical outlook, which also had deep-rooted traditions in the history of philosophy. The development of philosophical thought in close association with science and the historical practice of mankind led inevitably to the triumph of the materialistic outlook. But despite glimmers of dialectics, the doctrines of the old materialists were metaphysical or mechanistic, and combined materialism in their view of nature with idealism in their explanation of social phenomena. The philosophers who developed the dialectical outlook were essentially idealists, as is shown by Hegel's system. Marx and Engels did not merely borrow the teaching of the old materialists and the dialectics of the idealists. They did not merely synthesise the two, but proceeding from the latest discoveries in natural science and from the historical experience of mankind they proved that materialism can be scientific and consistent only if it is dialectical, and that dialectics, in turn, can be genuinely scientific only if it is materialistic. The development of a scientific outlook on social development and its laws (see Materialism, Historical) was a most essential element in the formation of D.M. It was impossible to defeat idealism in its last retreat, in the explanation of the essence of human society, without the dialectical materialistic outlook, and just as impossible to create a consistent philosophical world outlook and explain the laws of human cognition without a materialistic approach to society, without an analysis of socio-historical practice and, above all, of social production as the basis of being. The founders of Marxism solved this problem. D.M. emerged, therefore, as an imposing philosophical synthesis, embracing the intricate complexity of natural phenomena, the phenomena of human society and thought, and combining its philosophical method of explaining and analysing reality with the idea of a practical revolutionary reconstruction of the world. The latter fact distinguished D.M. from old

philosophy, which confined itself essentially to explaining the world. This reflected the class roots of Marxist philosophy as the world outlook of the most revolutionary class, the working class, with its mission of building classless, communist society. The emergence of D.M. essentially was the culminating point in the historical process by which philosophy became a separate science with a specific object of research. This object comprises the most general laws governing the development of nature, society, and thought, the general principles and foundations of the objective world and its reflection in human consciousness, which yield the correct scientific approach to phenomena and processes, a method of explaining, cognising, and reconstructing reality. The teaching that the world is material, that there is nothing in the world besides matter and the laws of its motion and change, is the corner-stone of D.M. It is a determined and irreconcilable enemy of all conceptions of supernatural essences, no matter what garb they are clothed in by religion or idealist philosophy. Nature develops, attaining its highest forms, including life and thinking matter, through causes inherent in itself and in its laws, and not by any supernatural power. The dialectical theory of development (see Dialectics), which is part of D.M., defines the general laws governing the processes of motion and mutation of matter, the passage from lower to higher forms of matter. Contemporary physical theories concerning matter, space, and time, which recognise the mutability of all matter and the inexhaustible capacity of material particles for qualitative transformations, are in complete agreement with D.M. More than that, D.M. is the only possible source of the philosophical ideas and methodological principles which these physical theories require. The same applies to the sciences investigating other phenomena of nature. Contemporary historical practice confirms the principles of D.M., for the world is turning sharply from the old, outmoded forms of social life to new, socialist forms.

D.M. combines the teaching on being, on the objective world, and the teaching on its reflection in the human mind, thus constituting a theory of knowledge and logic. The fundamentally new advance made by D.M. in this field, which provided the teaching on cognition with an enduring scientific foundation, consisted in practice being included in the theory of knowledge. "All the mysteries which lead theory to mysticism are rationally resolved in human practice and in the understanding of this practice" (Marx). D.M. has applied the dialectical theory of development to cognition, established the historical nature of human concepts; it revealed the interconnection between the relative and the absolute in scientific truths, and elaborated the question of the objective logic of cognition (see Logic, Dialectical; Cognition). D.M. is a developing science. Every major discovery in natural science and the changes in social life serve to concretise and develop the principles and propositions of D.M., which absorbs the new scientific evidence and the historical experience of mankind. D.M. is the philosophical basis of the programme, strategy, and tactics, and all activities of the Communist Parties.

Materialism, Economic, a one-sided conception of history, according to which economics is the only force in social development. It does not recognise the significance of politics and political institutions, ideas, and theories in the historical process. E.M. arose as a result of vulgarising the materialist understanding of history. Exponents of E.M. were E. Bernstein (q.v.) in the West, and the "legal Marxists" (q.v.), the Economists (q.v.) in Russia. Historical materialism is basically different from E.M. Historical materialism holds that material production is the main motive force of social progress and explains the genesis of political institutions, ideas, theories in terms of the economic structure of society and the conditions of its material life. At the same time historical materialism stresses the immense importance of political institutions, ideas, and theories in social de-

velopment (see Economics and Politics).

Materialism, French 18th Century, an ideological movement representing a new and higher stage in the development of materialist thought on a national, and also a world scale as compared with 17th century materialism. In contrast to English 17th century materialism, which largely reflected a compromise between the bourgeoisie and the nobility, F.M. was the outlook of the progressive French bourgeoisie; their doctrine aimed to enlighten and arm ideologically a broad section of society—the bourgeoisie, artisans, bourgeois intellectuals, and the progressive part of the aristocratic intelligentsia. The leading French materialists—La Mettrie, Helvétius, Diderot, and Holbach (qq.v.)—expounded their philosophical views not in Latin treatises but in widely accessible publications written in French—dictionaries, encyclopaedias, pamphlets, polemic articles, and so on. The ideological sources of F.M. were the national materialist tradition represented in the 17th century by Gassendi (q.v.) and mainly by the mechanistic materialism of Descartes (q.v.) and English materialism. Of particular importance were the doctrine of Locke (q.v.) on experience as a source of knowledge, criticism of the Cartesian doctrine of innate ideas (q.v.), and also an understanding of experience as such, which was materialist on the whole. Locke's pedagogical and political ideas exerted no less influence. He held that the perfection of the individual is determined by education and the political structure of society. But F.M. did not simply assimilate Locke's theory of materialist sensualism and empiricism but discarded vacillations towards Cartesian rationalism. Medicine, physiology, and biology, side by side with mechanics, which retained its leading significance, became the scientific basis for the French materialists. Because of this, the doctrines of the French materialists contained many new ideas as compared with 17th century materialism. Elements of dialectics in Diderot's teaching on nature

were the most important of them. The ethical and socio-political theories of F.M. were highly original. Developing the ideas of Hobbes, Spinoza, and Locke (qq.v.) in this sphere, F.M. largely cleared their ethical doctrines and their socio-political views from their abstract, naturalist limitations: in contrast to Hobbes, who deduced man's striving for self-preservation from an analogy with the mechanical inertia of a physical body, Helvétius and Holbach regarded this "interest" as a specifically human motive of behaviour. F.M. rejected the compromise forms of pantheism and deism and openly preached atheism based on the conclusions of the natural and social sciences. The French materialists' lucid and witty criticism of religion was highly assessed by Lenin, who advised the use of specimens of this criticism in contemporary atheistic propaganda. A concise and meaningful essay of the history of F.M. was given by Marx in the *Holy Family*. In *Materialism and Empirio-Criticism* Lenin showed how great was the role of F.M. in elaborating philosophical principles for any materialism. He also demonstrated its theoretical limitations, its metaphysical nature and idealism in explaining phenomena of social development.

Materialism, Historical, a component part of Marxist-Leninist philosophy, the science which studies the general laws of social development and the forms of their realisation in the historical activity of people. H.M. is scientific sociology (q.v.) which constitutes the theoretical and methodological basis of concrete sociological investigations (q.v.) and all the social sciences. All the pre-Marxist philosophers, including materialists, were idealists in their understanding of social life, inasmuch as they did not go beyond noting the fact that, whereas in nature blind forces are in operation, in society people, intelligent beings, act guided by ideal motives. In this connection Lenin noted that the very idea of materialism in sociology was a stroke of genius (see Lenin, Vol. 1, p. 139). The development of H.M. caused a fundamental revolution in social thought. It made

it possible, on the one hand, to formulate a consistently materialistic view of the world as a whole, society as well as nature, and, on the other, to reveal the material basis of social life and the laws governing its development and, consequently, also the development of all the other aspects of social life determined by this material basis. Lenin stressed (Vol. 1, p. 138) that Marx elaborated his main idea of the law-governed historical process of social development by singling out the economic sphere from all the different spheres of social life and the relations of production from all social relations as the main ones which determine all others. Marxism takes its point of departure in what lies at the basis of every human society, namely, the method of obtaining the means of livelihood and establishes the connection between that method and the relations into which people enter in the process of production. In the system of these relations of production (q.v.) it sees the foundation, the real basis of every society, on which there rises a political and legal superstructure and different trends of social thought (see Basis and Superstructure). Each system of production relations, arising at a definite stage in the development of the productive forces (q.v.), is subordinated both to general laws common to all formations and to particular laws inherent only in one formation, which determine how that system arises, functions, and passes on into a higher form. The actions of people within each socio-economic formation (q.v.)—infinitely diverse and individualised and seemingly not susceptible of calculation and systematisation—were summed up and reduced to actions of big masses, and in a class society — to actions of classes (q.v.) who express the pressing requirements of social development. The discovery of H.M. removed the two main shortcomings of all pre-Marxist sociological theories. In the first place, these theories were idealist, i.e., they limited themselves to examining the ideological motives of human activity but did not study what material causes engendered these motives. Sec-

ond, they studied only the role of outstanding personalities in history, but did not examine the actions of the masses, the real makers of history. H.M. demonstrated that socio-historical process is determined by material factors. In contrast to vulgar materialist theories which deny the role of ideas, political and other institutions and organisations, H.M. stresses their retroactive influence on the material basis which produced them. H.M. constitutes the scientific historical foundation of Marxism, which equips the Marxist-Leninist parties, the working class and all the working people with knowledge of the objective laws governing society's development and an understanding of the role of the subjective factor, the consciousness and organisation of the masses, without which the realisation of historical laws is impossible. The main features of H.M. were expounded for the first time by Marx and Engels in *The German Ideology* (q.v.). A classical formulation of the essence of H.M. was given by Marx in the preface to the *Critique of Political Economy* (1859). But H.M. became a "synonym for social science" only with the publication of *Capital* (see Lenin, Vol. 1, p. 142). As history develops and new experience is accumulated, H.M., like Marxism as a whole, is necessarily developed and enriched. Lenin quoted a remarkable example of such development in the epoch of imperialism and proletarian revolutions. In the present epoch, that of transition from capitalism to socialism, when the full-scale building of communist society in the Soviet Union becomes a practical matter, the new experience of the world communist movement, particularly the experience of building communism in the Soviet Union, was summed up in the new Programme adopted by the 22nd Congress of the CPSU. The Programme develops the doctrine of the socio-economic formation by giving a concrete characteristic of the communist formation, the laws of its emergence and development; it also develops the teaching on the state, Party, and many other questions. The Programme

provides the Soviet people with a precise plan for building communist society, which includes a triple task: building communism's material and technical basis (q.v.), shaping communist social relations, and educating the members of communist society.

Materialism, Natural-Historical, or scientific materialism, the concepts used by Lenin to define the spontaneous "philosophically unconscious conviction shared by the overwhelming majority of scientists regarding the objective reality of the external world". (Vol. 14, p. 346.) The general acceptance of N.H.M. by scientists shows that cognition of nature leads to recognition of the materiality of the world. If N.H.M. is not formulated as a consistent theory, however, it cannot escape the limitations of a one-sided mechanistic, metaphysical materialism and declines into vulgar empiricism (q.v.) and positivism (q.v.). Its limitations become most apparent in periods when scientific theories are revolutionised. At such times it is unable to explain the new facts of knowledge that contradict established notions. For this reason the difficulties of interpreting new scientific facts often lead scientists to abandon their spontaneous materialist convictions in favour of idealism (see Idealism, Physical). True philosophical generalisation of the conclusions arrived at by specialised sciences can be achieved only from the standpoint of dialectical-materialist philosophy.

Materialism, Vulgar, a trend in mid-19th century philosophy; it oversimplified the basic principles of materialism. Stimulated by the rapid development of natural science, each new discovery destroying the prevailing idealistic and religious conceptions, V.M. arose as a positivist reaction to idealist, especially the classical German, philosophy by the spontaneous materialism of natural science. Exponents of V.M., such as Vogt, Büchner and Moleschott, took pains to disseminate current natural science theories, which they opposed to what they styled as philosophical "chicanery". They rejected philosophy in general

and set out to resolve all philosophical problems by concrete scientific investigations. Like the exponents of metaphysical materialism, they believed that consciousness (q.v.) and other social phenomena were the effect of exclusively physiological processes, that they depended on diet, climate, etc. The vulgar materialists considered physiological processes the cause of consciousness and identified consciousness and matter, inferring that thought was a material secretion of the brain. Later, too, vulgar materialist interpretations appeared in different forms, especially in some philosophical generalisations of natural science, mostly in the field of physiology. Some philosophers and natural scientists, who do not understand that man's consciousness is a social product and that the content of all psychical processes is causally governed by social being, look for the specific physiological processes determining our thoughts, senses and conceptions.

Materialist Understanding of History, see Historical Materialism.

Mathematical Hypothesis, an essential method of cognition in contemporary physics. The development of those branches of physics which study the microcosm (q.v.) came up against the loss of "rough" sensual visibility by physical objects. In consequence, the chief means of describing the results of experiments in physics and making heuristic, prophetic generalisations became possible above all in mathematical form. Accordingly, M.H. began to play a leading role in the progress of the physical theory in the shape of extrapolation, generalised mathematical schemes, and juxtaposition of mathematical theories with reality. New physical objects or their new properties are cognised by M.H. by comparing the known empirical and certain theoretical data concerning a deeper level of matter with the generalised and supplemented mathematical scheme of the previous level. M.H. is possible in principle, because the mathematical apparatus of any physical theory is an adequate reflection of the corresponding level of matter and

because there is an inner interdependence and unity between the different levels of matter.

Mathematics, the science of mathematical structures (sets between whose elements there are some relations). Engels gave the following definition: "Pure mathematics deals with the space forms and quantity relations of the real world." (*Anti-Dühring*, p. 58.) M. arose in the remote past to meet the requirements of practice. Initially, it had as its subject-matter the simple numbers and geometrical figures. This situation basically prevailed up to the 17th century, and right up to the second half of the 19th century M. developed mainly as mathematical analysis, discovered in the 17th century. M. was completely reconstructed with the discovery of non-Euclidean geometries (q.v.) and the creation of the set theory (q.v.). As a result of this, new branches of M. came into being. Mathematical logic (q.v.) assumed great importance in contemporary M. The mathematical methods are extensively used in the exact natural science. Until now the application of M. in biology and the social sciences was quite accidental. The development of such branches as linear programming, game theory, information theory under the impact of practice and the appearance of electronic computers have opened up entirely new prospects. The philosophical problems of M., the origin of mathematical abstraction and its peculiarities, have always been the venue of struggle between materialism and idealism. Of great importance are the philosophical problems that arose in the 20th century in connection with the problems of foundations in M. (see Formalism, Intuitionism).

Matriarchy, a historical stage in the development of the primitive-communal system (q.v.), where woman occupied the dominant role in social economy. M. existed among all peoples without exception. During the lowest stages of social development where the group marriage was the rule it was not known who was the father of children; only the mother was known.

Thus descent could be ascertained only on the mother's side; only the female lineage was acknowledged. The whole tribal economy was in the hands of women. Hunting, the occupation of the men, did not always provide a reliable means of livelihood. Initially it was generally the women who did the more productive agricultural work. Care of the children and the home, the laying in of provisions, work in the garden, cooking, etc., were women's functions. With the development of cattle-breeding the role of the woman began to decline. The man became the main productive power in society, the owner of the means of production, of livestock and, later, of slaves. Hence, he became the head of the gentile commune (see Patriarchy).

Matter, a philosophical category denoting the objective reality, which exists independent of, and is reflected in, consciousness (see Lenin, Vol. 14, p. 130). M. is the infinite plurality of existing phenomena, objects and systems; it is the substratum of all diverse properties, relations, interactions, and forms of motion. Matter exists only in the infinite variety of concrete forms of structural organisation, each of which possesses diverse properties and interactions and complexity of structure and is an element of some more general system. Hence, it would be incorrect to look for "M. as such", as some immutable primary substance (q.v.) outside its concrete forms. The inherent essence of M. is revealed through its diverse properties and interactions, to know which is to know M. itself. The more complex M. is, the more diverse and differentiated are its interconnections and properties. At the highest level of complexity, to which corresponds the appearance of reasonable beings, some of the properties of M., e.g., consciousness, seem so unusual, so unlike M. that at first glance they appear to be something having no relation at all with M. The carrying of this concept to the absolute, the inability to disclose the relation between consciousness and M. has led to the various idealistic and dualistic doctrines. From the point of view of

dialectical materialism the opposition between consciousness and M. is relative and conditional. It assumes meaning only in the light of the fundamental problem of philosophy (q.v.) being raised and solved, and outside that problem it loses all its absolute significance. The active transforming influence of society results in certain groups of material objects in the surrounding world (such as means and instruments of production, buildings, products of chemical synthesis, consumer goods, and the like, because of their origin and of the organisational form of the matter they are composed of) depending to a certain degree upon man's consciousness, insofar as they embody man's designs. As science and technique develop, the quantity of material objects will go increasing, their properties and forms of organisation and even origin being dependent upon the transforming conscious activity of man acting upon natural materials. It was in the sense that Lenin remarked that "man's consciousness not only reflects the objective world but creates it". (Vol. 38, p. 212.) The philosophical understanding of M. as objective reality (q.v.) is concretised and complemented by the views of natural science on its structure and properties. It would be incorrect, however, to identify M. as a philosophical category with this or that viewpoint on the structure of M., since these viewpoints change in the light of new scientific discoveries, while the philosophical definition of M. remains unchanged. It is just as erroneous to identify M. as a philosophical category with any of its concrete forms, e.g., substance, field (see Substance and Field), or with any of its properties, e.g., mass, energy (q.v.), etc. The dialectical materialistic understanding of M. differs from the metaphysical one in that according to the former M. is considered not only as existing objectively, as independent of man's consciousness, but also as inseparably connected with motion (q.v.), time (q.v.), and space (q.v.), as capable of self-development, as infinite both quantitatively and qualitatively in all scales of its existence

(see Unity and Diversity of the World; Matter, Forms of Motion of).

Matter, Forms of Motion of, main types of motion and interaction of material objects. In a scientific classification of F.M.M., one must consider: (1) the specific features of material objects, in which the motion takes place; (2) the existence of general laws for the given form of motion; (3) the laws governing the historical development of matter and motion from the simplest to the most intricate forms. In accordance with these demands and the data of modern science three main groups of F.M.M. are distinguished: (1) inorganic nature; (2) organic nature; (3) society. In each of these groups there are many F.M.M. owing to the inexhaustibility of matter. The F.M.M. of inorganic nature include: spatial displacement of various bodies; movement of elementary particles and fields (electromagnetic, gravitational), nuclear interaction, processes of transmutation of elementary particles, etc.; motion and transformation of atoms and molecules, including chemical F.M.M.; changes in the structure of microscopic bodies—thermal processes, changes in aggregate states, sound oscillations, etc.; changes in cosmic systems of various orders—planets, stars, galaxies, etc. In animate nature the F.M.M. include the diverse manifestations of life; metabolism, functional links within organisms, processes of reflection of external conditions, intra-species and inter-species relations, interaction of the entire biosphere (q.v.) with inorganic nature. In animate nature there are integral systems of various complexity: viruses and bacteria, monocellular organisms, multicellular organisms, diverse species of plants and animals, and, lastly, the entire biosphere. Within the framework of the general manifestations of life each group has its specific F.M.M., the laws of which are determined by the structure and functioning of the systems. Social F.M.M. include diverse manifestations of man's activity: development of the productive forces and production, class, state, national and other relations, the process of cognition

of the world, and so on. Historically, higher F.M.M. arise on the basis of relatively lower ones, embodying them in a transformed way—in conformity with the structure and laws of development of a more intricate system. Unity and reciprocal influence exist between them. But the higher F.M.M. qualitatively differ from the lower and are not reducible to them. Disclosure of the relationship between F.M.M. is of great importance for understanding the development of nature, getting to know the essence of intricate phenomena, and for practically controlling them.

Means of Production, the aggregate of objects and means of labour employed in material production. The objects of labour are things and elements of nature which are processed in production and serve as objects for the application of human labour. The means of labour are all the things and sets of things whereby man acts on the object of his labour and alters it with the purpose of producing material values (the stick and stone axe in the case of primitive man, and the instruments, tools, benches, machines, etc., of our time). The means of labour also include land, production premises, roads, canals, warehouses, pipes, vessels, and the like. The determinative role in M.P. belongs to the instruments of production (machines, lathes, equipment, etc.), which Marx described as the bone and sinew of production. The level and development of the instruments of production serve as a measure of the productive forces (q.v.). At the same time, means of labour are an indication of the social relations in which the labour is performed. It is not the articles made, Marx showed, but how they are made, and by what instruments, that enables us to distinguish different economic epochs.

Measure, a philosophical category expressing the organic unity of quality and quantity (q.v.) of a given object or phenomenon. Every qualitatively distinct object has its own quantitative attributes, which are mobile and mutable. This very mutation, however, is of necessity bound by certain

limits, beyond which quantitative changes lead to qualitative changes (see Transition, etc.). These limits are M. itself. In its turn the qualitative change of a given object leads to a change of its quantitative attributes and M. The connection and unity of quantity and quality is conditioned by the nature of a given object. Once the development of this object is approached, the points of transition from one qualitatively different stage of this process to another appear as nodal points in the change of M. Usually such a system of the nodal points is called the nodal line of measures. Hegel (q.v.) was the first to elaborate M. as a philosophical category.

Measurement, a cognitive process aimed at determining characteristics (weight, length, co-ordinates, speed, etc.) of material objects by means of the appropriate measuring instruments (q.v.). In the final count, M. amounts to comparing the measured magnitude with some similar magnitude accepted as a unit. By means of one system of units or another M. gives quantitative expression to the properties of bodies, which is an important element of knowledge. M. makes our knowledge more exact. Positivists wrongly interpret the increasing role of M. in the study of microphenomena and regard it as "preparation of the object by the subject" ("instrumental idealism") or reduce the content of physical concepts to separate operations of M. (see Operationism).

Mechnikov, Ilya Ilyich (1845-1916), Russian biologist and physician, public figure and thinker. From 1888 on he lived abroad. He upheld the materialist line in biology and firmly defended and popularised Darwinism. M. criticised the Malthusian errors of Darwin (q.v.). The studies of M. in the fields of zoology, embryology, microbiology, pathology, and anthropology bear the mark of spontaneous dialectical thought; they developed Darwinism in some directions and helped disclose the dialectics of animate nature. His works in evolutionary embryology facilitated the establishment of the general laws of the embryonic develop-

ment of different animal groups, proved their genetic kinship and the unity of origin of the organic world. His works initiated the study of evolutionary pathology and immunology in contradistinction with the metaphysical conceptions of J. Cohnheim and R. Virchow which were dominant at the time. M.'s idea that advantage must be taken of the antagonism of microbes was subsequently realised in antibiotic medicine. His materialist views of nature combined with the idealistic conception of history. In combating social evils he based his hopes on scientific progress, which he considered the decisive force in the development of society and the key to the solution of all social problems. Main works: *Etyudy o prirode cheloveka* (*Studies in Human Nature*), 1903; *Etyudy optimizma* (*Studies in Optimism*), 1907; *Sorok let iskaninya ratsionalnogo mirovozzreniya* (*Forty Years' Quest for a Rational World Outlook*), 1913.

Mechnikov, Lev Ilyich (1838-88), Russian sociologist, geographer, and publicist; brother of I. Mechnikov (q.v.). M. took part in the national liberation movement in Italy and was a volunteer in Giuseppe Garibaldi's "Thousand". He contributed to Herzen's (q.v.) *Kolokol* and Chernyshevsky's (q.v.) *Sovremennik*. From 1883 to 1888 M. headed the chair of comparative geography and statistics at the Academy of Neuchâtel (Switzerland). He planned a sociological work devoted to the history of the world civilisation, but had only time to write the introduction, which was published in 1889 under the title *Tsivilisatsiya i velikiye istoricheskiye reki* (*Civilisation and the Great Historical Rivers*). He was a partisan of geographical determinism (q.v.). Social development, he held, was determined by the physico-geographic, principally hydrospheric, environment. River, sea, and ocean routes created, in their time, ancient, medieval, and modern civilisations. M. came forward against Spenser (q.v.) who extended the laws of biology to society. He considered the free co-operation of people as a specific characteristic of society and the growth of soli-

arity and freedom in a society developing from oppression to anarchy as the criterion of social progress. He was influenced by Bakunin (q.v.); fought against tsarism.

Mediation, a definition of a thing (concept) by revealing its relation to another thing (concept). The properties of things are revealed in their interconnection with other things. Only through its relation to another thing can a thing be what it is, can it be defined as the given concrete thing. M. is a basic category in the philosophy of Hegel (q.v.) The profound dialectical surmise contained in the Hegelian treatment of the unity of the mediated and the immediate was highly assessed by Lenin (see Vol. 38, p. 103). The category of M., in unity with the category of the immediate, expresses the universal interconnection of things as a requisite for their concrete definiteness and their very existence as the given finite things.

Medieval Philosophy in Western Europe, philosophy of the West European feudal society which developed from the fall of the Roman Empire (5th century) to the emergence of the early forms of capitalist society (14th-15th centuries). The collapse of antique slave society was attended by a decline of philosophy. The antique philosophical heritage was lost and was unknown to West European scholars until the latter half of the 12th century. Religion was the dominant ideology—the Muslim in the Near East, Arabia, and the Arab-speaking countries, and two varieties of Christianity (Roman Catholicism and Greek Orthodoxy) in Europe. The school and education fell into the hands of the church, whose dogmas formed the basis of all notions about nature, the world, and man. The development of lay and clerical schools, and the establishment of the first universities in the mid-12th century (in Italy, England, Bohemia, and France) prompted philosophers to devise philosophical explanations, even justifications, for the religious dogmas. For a number of centuries, philosophy was thus the "handmaiden of theology". This is

the role it played in the hands of the apologists, the champions of Christianity against heathens, and then in the writings of the "Fathers of the Church". The most prominent of these, St. Augustine (354-430), q.v., introduced Neoplatonism (q.v.) into the system of Christian philosophical doctrines. Eastern Neo-Platonists, such as Pseudo-Dionysius the Areopagite (5th century), were another Western source of Neoplatonic influence adapted to the needs of the Christian ideology. Johannes Scotus Erigena (q.v.), was prominent in formulating M.P. In elucidating religious dogma, the medieval philosophers had to tackle the complex problems concerning the relation of the individual to the general, and the reality of the general. According to the way these problems, were solved, scholasticism (q.v.) developed several points of views, the most prominent of which were the antagonistic doctrines of realism (see Realism, Medieval) and of nominalism (q.v.). In the 12th century, Pierre Abélard (q.v.) opposed the extremism of both these schools of thought. From the mid-12th century onward, the main writings of Aristotle were translated into Latin. The church received them with hostility at first, but soon the Aristotelian doctrines were recognised as the philosophical foundation of Christianity. The scholastics became interpreters and protagonists of Aristotle. They adapted Aristotelian ideas to their own religious and philosophical concepts, turned outworn aspects of the Aristotelian doctrine into dogma (e.g., the geocentric system, the principles of Aristotelian physics) and rejected all search for the new in science. The chief protagonists of scholasticism in the 13th century were St. Albert the Great, Thomas Aquinas and John Duns Scotus (qq.v.). Thomas Aquinas was canonised by the church which declared his teaching its official philosophical doctrine (see Neo-Thomism) in the latter half of the 19th century. A prominent contemporary of the three 13th century scholastics was Roger Bacon (q.v.), who objected to the social basis of feudal society. The development in the 13th

century of medieval towns, the arts and crafts, commerce and trade routes, and the contacts with the East extended by the crusades, stimulated a certain uplift of philosophy, particularly of nominalism (q.v.), whose most prominent protagonists were William of Occam and his followers of the Parisian school of Occamism. The ideological struggle proceeded not only within scholasticism. Opposed to the latter was mysticism, which placed the authority of the church and its doctrines beneath the testimony of man's senses and subjective consciousness. In the spiritual life of feudal society, mysticism was often a form of opposition to the official and obligatory religion: the personal attitude of the believer to God grew into criticism of, and even struggle against, the feudal ideology and the feudal social system. But there was also a reactionary wing of mystics, such as Bernard of Clairvaux and Bonaventure (q.v.). A strong anti-scholastic movement emerged in the 13th century, fructified by the teaching of Averroës (q.v.) on the mortality of man's soul and of a reason common to all. These notions were courageously developed in the University of Paris by Siger of Brabant, a fighter against scholasticism, who was assassinated in 1282. The Dominican and Franciscan orders were founded in the early 12th century to fight against heresies, anti-clericalism, and the new philosophical ideas. In the 12th century, the scholars of these two orders carried out the project of Pope Gregory IX, "correcting" the teaching of Aristotle to suit the Catholic ideology. Despite the relative uplift of M.P. in the 13th century, the results of its more than one thousand years of development were meagre both for philosophy and for science, because even the great thinkers were less concerned with the truth than with ways and means of justifying religion; the clerical regime of medieval society fettered the initiative and thought of those who were audacious enough to go beyond its hidebound framework. It was not until the appearance of the new, capitalist mode of production and

the new appreciation of the practical and theoretical tasks of science that the thinking of the foremost men of Western Europe was gradually freed from the bonds of M.P.

Megarian School, a philosophical trend which existed in Greece in the 4th century B.C. Euclid of Megara (450-380 B.C.), disciple and friend of Socrates (q.v.), founded this school. After the death of Socrates the Megarians tried to synthesise the teaching of Parmenides (q.v.) on the eternal and immutable One being and the supreme concept of Socratic ethics and theology—the idea of the good. Euclid asserted that there exists only one good, which is immutable and is identical to itself, and known also under the names of truth, reason, god, etc. The one and only virtue, of which the others are only forms, is the knowledge of the good. A plurality and diversity of things are opposed to the one good, and are, therefore, non-existent and unreal. The exponents of the M.S. continued the traditions of Zeno of Elea (q.v.) and the sophists by using dialectics and the heuristic method (q.v.) as their main method of philosophising. The later Megarians (Stilpo and others) were very close to the cynics (q.v.) in their ethical views. Together with the cynics Zeno the Stoic (q.v.), a disciple of Stilpo, transformed the M.S. into the Stoic school (see Stoics).

Mehring, Franz (1846-1919), leader of the working-class movement in Germany and a Left-winger of German Social-Democracy, and one of the founders of the German Communist Party (end of 1918); historian, literary critic, and publicist. M.'s outlook took shape under the influence of German classical philosophy and some of Lassalle's (q.v.) ideas. The class struggle of the late 1880s and his study of the works of Marx and Engels made him take the proletarian stand. In the words of Lenin, M. not only wished but was able to be a Marxist. He denounced the revisionist and reformist critics of Marxism (Bernstein, q.v., P. Kampfmeyer, and others); his tireless fight against bourgeois sociology (L. Brentano, P. Bart, and others), against

Neo-Kantianism, q.v. (see Ethical Socialism) played a big role in the defence of Marxist philosophy from the attacks of the ideologists of capital (*Über den historischen Materialismus*, 1893; *Kant und Sozialismus*, 1900; *Kant, Dietzgen, Mach and Historical Materialism*, 1910; and many others). He exposed the reactionary essence of the ideas of Schopenhauer (q.v.), Nietzsche (q.v.) and E. Hartmann (q.v.) fashionable at the turn of the century. The historical works of M. (like *Geschichte der deutsche Sozialdemokratie*, in 4 vols., 1897-98; *Karl Marx*, 1918), while containing some incorrect propositions, are of great scientific value. Engels called M.'s *Lessing-Legende* (1892) the best of all available accounts of the origin of the Prussian state. M. published the earlier works of Marx and Engels. As a literary critic (*Aesthetical Search*, 1898-99; *Schiller*, 1905; and others), he lampooned Kantian aesthetics, the theory of "art for art's sake", and naturalism. But M. made some serious mistakes: he underestimated, for instance, the role of the Marxist party as the political leader and the tutor of the masses; and he could not understand the importance of a principled break with opportunism. In philosophy, he was wrong in maintaining that the mechanical materialist outlook suffices for understanding nature. Under the influence of the October Revolution of 1917, which he welcomed, he overcame many of his mistakes.

Mellier (Meslier), Jean (1664-1729), materialist philosopher, founder of a revolutionary trend in French utopian socialism (q.v.). *Le Testament* by M., a village curé from Champagne, represents the first example of a teaching about society and its future. His exposure of religion and the church led him to consistently materialistic and atheistic deductions; he addressed himself to the "residents of town and country", criticising social injustices and appealing for the building of a society based on collective ownership. For him, insurrection by the united labouring people against their oppressors is the affair of the people

themselves; it is the prerequisite of transition to a new society wherein there will be neither rich nor poor, neither oppressors nor oppressed, neither idlers nor people exhausted by backbreaking labour. Although *Le Testament* was published in full only in 1864, it was widely read in manuscript form in 18th century France. Many representatives of French social thought from the deists of the first half of the 18th century, from Voltaire (q.v.) to the materialist Enlighteners and the Babouvist C. Maréchal (q.v.) spread his ideas. They each took from M. what suited their ideas and class interests. M.'s world outlook became one of the ideological sources of French materialism and socialism in the 18th century.

Memory (in psychology), preservation by the subject of the results of his interaction with the world, which makes it possible to reproduce and utilise these results in subsequent activity, process them and combine them into systems, sum total of mental models of reality constructed by the given subject. The forming, fixing, and inhibiting of temporary nervous connections comprises the physiological mechanism of man's M. M. is connected with thinking and derivative forms of activity as a product is with a process. The content of elementary non-speech memory consists of mental models of reality formed during the direct relation of the subject and the object. Their formation depends on contiguity of the influence of the objects in point of time and on the type of requirement that determines the nature of the interaction. In higher speech M., which is superimposed on elementary M., the models of objective relations of things are fixed. Speech enables man to reproduce the formations of this type of M. without direct influence of the modelled objects, under the impact of a definite aim, which ultimately leads to the subordination of M. to the objective logic of things, to meaningful memorising and reproduction.

Mendelejev, Dmitri Ivanovich (1834-1907), Russian scientist, chemist,

founder of the periodic system of chemical elements. M. actively championed the integration of science and practice and did much for the development of industry in Russia. His outlook was materialism combined with spontaneous dialectics. He combated spiritualism and energism (q.v.). His great achievement was the discovery of the periodic law of chemical elements in 1869. This was a great contribution to the development of chemical atomism and to the practical application of the law of the transition from quantity to quality (see Law of Transition, etc.) to the chemical elements. The modern formulation of M.'s law reads: the properties of elements are periodically dependent upon the ordinal number, or charge, of atoms. The mass of the atom is closely connected with the charge of the nucleus, and by using the atomic scale M. was able to discover his law. The M. system confirms both the relations between the chemical elements and their actual transmutation. The periodic law governs the development of non-organic substances and serves to substantiate the dialectical and materialistic view of nature. Main work: *Osnovy Khimii* (*The Foundations of Chemistry*), 1869-71.

Mêng Tzŭ (c. 372-289 B.C.), prominent follower of Confucius. His teachings are contained in *Mêng Tzŭ*. His philosophical theories are based on idealism. For him, the testimony of reason, rather than sensory perception and sensations, forms the basis of the process of cognition. Morals and ethics, according to him, originate in man's inborn qualities, which he considers to be innately good. The ethical and moral principles peculiar to human nature derive from "Heaven", which is the highest guiding power. He also recognises the existence of "innate abilities" and "innate knowledge". In his socio-political views he advances certain progressive propositions, emphasising the idea of the paramount role of the people and the subordinate role of the ruler, whom the people have the right to depose if he fails to meet their requirements. He called

for a unification of the country. His teachings had a serious impact on the ideology of feudal China.

Merleau-Ponty, Maurice (1908-61), French existentialist and phenomenologist (see Existentialism, Phenomenology), professor at the Collège de France. His main works are: *La Structure du Comportement* (1942), *Phénoménologie de la perception* (1947), and *Les Aventures de la dialectique* (1953). Defending the idea of the indissoluble link between the subject and the object (the world is the projection of the subject, the subject objectivises the world and man, and attributes them existence in themselves), M. attempted to draw a "third line" in philosophy. In fact his assertion that the immediate data of perception are true reality means subjective idealism. Moreover, M.P.'s philosophy is eclectic, for he tried to synthesise existentialism and Marxism.

Meta (Gk. after, beyond), a prefix used in forming derivatives and meaning following something, or transition to something else. For instance, Aristotle (q.v.) called metaphysics so because its main problems were expounded in treatises placed after the teachings on physics by the systematisers of Aristotle's works. Some contemporary scientific theories are named accordingly, e.g., metatheory (q.v.), metalogic (q.v.), metamathematics (q.v.), metaethics (q.v.), etc.

Metabolism, a requisite for the existence of living organisms. The concept of M. covers all energy connections of an organism with the environment and the intricate chains of consecutive transformations of substances and energy within it. Plants build their body out of water, carbon dioxide, and mineral substances with the help of the energy of light they trap (photosynthesis), while animals build it out of substances already enriched with energy. In contrast to organisms, bodies of inanimate nature do not accumulate energy but only yield it in accordance with the second law of thermodynamics (q.v.). Failure to understand this fundamental difference between organic and inorganic nature

in terms of energy was one of the reasons for the belief in a non-material element supposedly imparting vitality and activity to organisms (see Vitalism). The essence of M. is the dialectical unity of the processes of creation and destruction of organic substances.

Metaethics, the section of ethics which elaborates problems of logical analysis of moral judgements. The term was introduced in ethics by the logical positivists, for whom M. (by analogy with metaphysics) is a science standing above and preceding normative ethics. Strictly speaking, there is nothing wrong in studying the logic of ethical judgements, but the positivists understand M. to be a study of the logical structure of "the language of ethics", of the signification of judgements and terms in ethics, drawing no conclusions as to what is good and what is bad or whether the behaviour of man depends upon social conditions, etc. Such an interpretation of M. is a claim on the part of bourgeois ethicists to create a science which is to be above parties and "neutral" in its attitude towards human behaviour (see Logical Positivism in Eth s).

Metagalaxy (Gk. literally, "that which is beyond a galaxy"), a cosmic system composed of milliards of galaxies (q.v.). The term was introduced by the American astronomer H. Shapley. In the past the term "Big Universe" (as distinct from the "Small Universe", which is our galaxy) and others were used, but they cannot be considered a happy choice. A M. is the largest material system which can be observed by modern apparatuses, but it is by no means the whole Universe. Our galaxy, its two companion-galaxies, and the galaxy next to us, which is visible in the constellation of Andromeda, together with a number of other galaxies form the so-called Local Group, one of the various subsystems of the M. The Red Displacement (q.v.) testifies to large-scale movements within the M.

Metalanguage and Object-Language, concepts in modern logic. If the given object of study is a natural or an

artificial language (for instance, a logical calculus, q.v., or the language of a concrete scientific theory), it is necessary to distinguish the language under study, called the object-language, from the language used for its study. The latter is called metalanguage in relation to the given object-language. In particular, a metalanguage is one in which a metatheory (q.v.) is formulated. Failure to distinguish between the metalanguage and the object-language leads to various kinds of paradoxes. As a rule, the metalanguage must contain, first, names for all the expressions in the object-language, and, secondly, terms expressing the various syntactic and semantic characteristics of the object-language. It must, therefore, be richer than the object-language. As a metalanguage we may use either the natural (ordinary conversational) language or a formalised language (q.v.). In the latter case, the formalisation (q.v.) of the metalanguage must be achieved in a metalanguage of the second order. In the final resort, the natural language is always the metalanguage of the highest order.

Metalogic, a theory studying the systems of propositions and concepts (see Metatheory) of contemporary formal logic. It elaborates the theoretical problems of proof, the definability of concepts and truth in formalised languages, interpretation, sense, etc. M. is divided into two parts: logical syntax (q.v.) and logical semantics (q.v.). The development of M. is associated with the construction and study of formalised languages (q.v.). The main works in this sphere are by Frege (q.v.), by the Polish logicians of the Lvov-Warsaw school (q.v.), Hilbert Gödel, Tarski (qq.v.), A. Church, Carnap (q.v.), J. Kemeny, and others.

Metamathematics, a concept denoting the theory which studies the different properties of formal systems and calculi (non-contradiction, completeness, etc.). Hilbert (q.v.) introduced the term M. in connection with his conception of the foundations of mathematics (see Formalism). In the past a number of important results was obtained (Gödel's, q.v., theorem on

the incompleteness of formal arithmetic and on the impossibility to demonstrate the non-contradiction of a system by the means which are formalised in such systems).

Metaphysics (Gk. *meta ta physika*—the works after physics) 1. The term M. came into usage in the 1st century B.C. to denote part of the philosophical heritage of Aristotle (q.v.). He called this most important part of his philosophical doctrine the "First Philosophy", that which studies the "highest" principles of all that exists, which are inaccessible to the senses, comprehensible only to speculative reason, and indispensable for all sciences. In this sense the term M. was current in subsequent philosophy. In the philosophy of the Middle Ages M. was subordinated to theology. Approximately from the 16th century on the term M. was used in the same sense as the term ontology (q.v.). With Descartes, Leibniz, Spinoza (qq.v.) and other philosophers of the 17th century M. was still closely connected with the natural and humanitarian sciences. This connection was broken only in the 18th century, particularly by such philosophers as Wolff (q.v.). 2. In modern times there has arisen the understanding of M. as an anti-dialectical method of thinking, owing to its one-sidedness and subjectivism in cognition; it regards things and phenomena as final and immutable, independent of one another; denies that inherent contradictions are the source of the development of nature and society. Historically, this was explained by the fact that in ancient times and during the Renaissance scientific and philosophical knowledge regarded nature as a whole, in movement leading to development; subsequently, due to the deepening and differentiation of scientific knowledge, the latter divided nature into a number of isolated spheres, each being investigated without any connection with the others. Hegel (q.v.) was the first to use the term M. in its anti-dialectical sense, but he neither explained nor justified it. This was done by Marx and Engels, who, generalising the data of science

and social progress, demonstrated the scientific bankruptcy of metaphysical thinking and counterpoised to it the method of materialistic dialectics.

Metatheory, a theory whose subject-matter is some other theory. It studies the system of propositions and concepts of a given theory, designates its limits and the means of introducing new concepts and proof of its propositions, etc.; it gives a possibility of constructing a given theory in a more rational way. *M.* is formulated in metalanguage (see Metalanguage and Object-Language). In our days the most developed are the *M.* of logic (see Metalogic) and the *M.* of mathematics (see Metamathematics), in the development of which the works of Hilbert, Gödel (qq.v.) and S. Kleene played an exceptional role. Creation of *M.* for non-mathematical disciplines has just begun. The central task of *M.* is to study the conditions for formalising scientific theories, and the syntactical (see Logical Syntax) and semantic (see Logical Semantics) properties of formalised languages (q.v.). Such studies are of particular significance in connection with the development of cybernetics (q.v.) and computer technology.

Method, in its most general meaning, a means of achieving an aim, a definite way of ordering activity. In the special philosophical sense, as a means of cognition, *M.* is a way of getting a mental reproduction of the subject under study. The most essential condition for the successful development of knowledge lies in the conscious application of a scientific *M.* A *M.* is objective and correct when it conforms to the object under study. At the base of all *Mm.* of cognition lie the objective laws of reality. That is why *M.* is inseparably linked with theory. There are special *Mm.* for the concrete sciences, since these have their specific objects of study. As distinct from the concrete sciences, philosophy works out the general *M.* of cognition: materialist dialectics. The most general laws of the development of the material world form the objective basis of the dialectical *M.* This *M.* does not replace the

Mm. of other sciences, but is their common philosophical foundation and serves as an instrument of cognition in all spheres. Dialectics is at the same time the *M.* for transforming the world. The dialectical *M.* is opposed to idealist dialectics and metaphysics.

Methodology 1. The aggregate of the ways of investigating a given science. 2. The doctrine on the methods of scientific cognition and the transformation of the world. The need for a theoretical foundation of the methods of scientific cognition arose from the rapid advance of science, and this theoretical foundation was developed mostly in philosophy beginning with Francis Bacon and Descartes (qq.v.). Pre-Marxian materialist philosophers sought to lay the foundation for the methods of knowing the laws of the objective world. The idealist systems attempted to found these methods on the laws of the spirit and ideas, or regarded them as an aggregate of rules arbitrarily created by human reason. At the same time the general method of cognition was often related to the laws of one of the concrete fields of knowledge (mechanics, mathematics, biology, etc.) and reduced to the method of a particular science. An important contribution to *M.* was made by Hegel (q.v.), who was the first to emphasise the specific character of the philosophical method, its distinction from the methods of the concrete sciences and its irreducibility to them. He also stressed that method is the motion of the content itself, and that is why it cannot be examined in isolation from the content. However, the idealism of Hegel's philosophy led to the absolutisation of the role of method and reduced the laws of the objective world to the laws of cognition. The Marxist-Leninist *M.* is materialist dialectics, which fulfils the role of both the general method of cognition and of the scientific theory applicable in the cognizance of methods. It proceeds from the fact that the methods of cognition are based on the objective laws of nature and society. A method of cognition can be scientific only when it reflects the objective

laws of reality itself. For this reason the principles of the scientific method, its categories and concepts are not the sum total of arbitrary rules created by human reason, are "not an auxiliary tool of man, but an expression of laws both of nature and of man..." (Lenin, Vol. 38, p. 91.) At the same time, Marxist M. relies on the dialectics of the subject-matter and the peculiarities of its reflection in the mind. In this it differs radically from the M. or pre-Marxist materialism. Marxist M. takes into account the specific laws of the activities of the mind and, what is particularly important, it connects these laws with the practical and theoretical action of the social subject upon the objective world. The significance of the M. of scientific knowledge is growing in modern conditions, as a result of the tremendous advance of science, particularly of such branches as physics, mathematics, biology, cybernetics, etc. The great interest in problems of M. is borne out by the extensive development of metatheoretical investigations (see Metatheory), by the close link between research in the concrete sciences and problems of M.

Michurin, Ivan Vladimirovich (1855-1935), Soviet biologist, honorary member of the USSR Academy of Sciences. M.'s activity developed especially after the October Socialist Revolution of 1917. Basing himself on Darwin (q.v.) and his own experiments, M. studied the biological theory of control over heredity and the variability of organisms (genetics). His doctrine is based on the dialectical understanding of living nature, on the recognition of the unity between the organism and the surrounding, the dependence of embryonic cells and the entire process of fertilisation upon the conditions of life of organisms. He worked out methods of evolving new forms of plants (hybridisation of geographically removed species, interspecific and intergeneric hybridisation, etc.). With the help of these methods M. created over 300 new varieties of fruit and berry plants. The theoretical foundations of the Michurin doctrine are set forth in

his work *Vyvedeniye novykh kulturnykh sortov plodovykh derevyev i kustarnikov iz semyan* (*The Cultivation of New Kinds of Fruit-Trees and Bushes from Seeds*), 1911. M. attempted to explain the laws of development of organisms, and also to work out a teaching on the methods of transforming them. "We cannot wait for favours from nature," he said; "we must wrest them from her." The ideas of M. on the controlled change of the heredity of the organism, on the unity of the organism and the surrounding, and others, became the foundation of the Michurin trend in biology.

Microsociology, the positivist theory which sprang up in the 1930s and spread in the USA (J. Moreno, q.v.), France (G. Gurvitch, q.v.) and Federal Germany (R. König). The USA has a special institute of M., the Moreno Institute, and the journal *Sociometry*. M. uses the terminology of the natural sciences (microelements, electrons, atoms, molecules, etc.). In analysing social phenomena, the microsociologists proceed from the concepts of microstructure (the psychological relations between people: their desire, sympathy and antipathy) and macrostructure (the union of people in any given space during working hours, study, and rest; in everyday life, in the workshop, the classroom, the volleyball ground, the apartment, etc.). Their conformity or non-conformity to each other is said to determine their "social tenseness", the stability of social life. According to M., social harmony can be achieved on the basis of special measurements (see Sociometry) by way of regrouping in the macrostructures ("sociometrical revolution"), as a result of which unity is established in the desires and feelings of people. M. is a reactionary utopia aimed at reconstructing society without affecting its economic and political foundations, thus glossing over the social antagonisms of the present-day capitalist society.

Mikhailovsky, Nikolai Konstantinovich (1842-1904), Russian sociologist, publicist, ideologist of liberal Narodism (q.v.). In 1868, he became a

staff member and later editor of the journal *Otechestvenniye Zapiski*. From 1892 he was one of the leading editors of the *Russkoye Bogatstvo* journal, which led the fight of liberal Narodism against Marxism. In Russian democratic journalism, M. claimed to have played the role of preserving and continuing the traditions of Chernyshevsky (q.v.). In philosophy, however, M. took a step backward from Chernyshevsky. M. was a positivist (q.v.); he made serious concessions to agnosticism (q.v.). His sociology was the foundation of one of the main Narodnik dogmas concerning the leading role played by the *raznochintsy* (Russian intellectuals of the 19th century not belonging to the gentry) in social development. In M.'s opinion, the history of society (as opposed to evolution in nature) is not a natural-historical process. It is moral consciousness and the will of individuals that play the decisive role here. M. closely combined the idealistic understanding of history with the theory of "the hero and the crowd". The conditions of life in society, according to him, doom the people to destitution and spiritual frustration. That is why the masses are transformed into the "crowd" while the "hero" can, by his example, carry away the "crowd" either to great deeds or criminal actions. The individual ("hero") was declared to be the chief maker of history. Following Lavrov (q.v.), M. gave reasons for the necessity of applying "different methods in the two great spheres of human knowledge": the objective method in the study of natural phenomena and the subjective in the study of society. According to M., the essence of the subjective method (q.v.) in sociology lay in the moral appreciation of developments. He declared the individual to be the starting point of historical investigation and the highest criterion of the value and progressive nature of all social relations. M.'s views were subjected to criticism by Lenin and Plekhanov (qq.v.).

Milesian (Ionic) School, the most ancient philosophical school in Greece; the first of its exponents date back to

the 6th century B.C. Miletus was then a major centre of commerce, navigation, and culture, this determining the broad horizon and scientific interests of prominent Milesians. Among them were Thales, Anaximander, Anaximenes (qq.v.). The Milesians made the first scientific discoveries in the field of mathematics, geography, and astronomy; they were all spontaneous materialists. According to them, the only basis of the infinite multiformity of nature was something material, corporeal, specific—water, air, etc. These philosophers were also spontaneous dialecticians. Hippo and Diogenes of Apollonius (5th century B.C.) were among the later and lesser representatives of the M.S.

Military Democracy, an early form of political organisation of society that originated during the decline of the gentile order and the formation of the state. The term was invented by Morgan (q.v.). M.D. was practised by the Greeks in the Homeric age (12-9th centuries B.C.) and by the Romans in the period of the kings (8-6th centuries B.C.). It was also practised by the Scythians, the Celts, the ancient German tribes, and the Normans. Its characteristic feature is the increasing concentration of power in the hands of the leaders, generals, and high priests, and its gradual conversion into a hereditary institution. Wars become a permanent industry, waged for the sake of plunder, and a military caste enjoying various privileges comes into being. The organs of the gentile order are thus "transformed from instruments of the will of the people into independent organs for ruling and oppressing their own people". (Marx, Engels, *Selected Works*, Vol. II, p. 314.)

Mill, John Stuart (1806-73), English philosopher, logician, and economist, exponent of positivism (q.v.). Main works: *System of Logic* (1843), *Principles of Political Economy* (in two vols., 1848), *Utilitarianism* (1864). In philosophy he was a follower of Hume, Berkeley and Comte (qq.v.). Examining materialism and idealism as two "metaphysical" poles, M.

considered matter as permanent potency of sensation, while spirit as permanent potency of feeling. Things do not exist outside their perception. Man perceives only "phenomena" (sensations) and cannot go beyond them. In logic M. was a most typical exponent of pure inductivism. Denying deduction (q.v.) as a method of acquiring new knowledge, he one-sidedly and metaphysically exaggerated the role of induction (q.v.). He elaborated the method of inductive investigation of causal connections. In ethics M. was influenced by Bentham's (q.v.) utilitarianism. In political economy, he replaced Ricardo's labour theory of value by the vulgar theory of cost-price; he also defended Malthus' (q.v.) theory of population.

Mills, C. Wright (1916-62), sociologist and publicist. His works, written in the spirit of bourgeois liberalism, drew a clear picture of the decadence of bourgeois democracy in the USA, uncovered the all-powerful oligarchy of corporations, government bureaucracy, and the military, highlighted the militarisation of the USA and its preparation for war. He severely criticised the various trends of contemporary sociology in the USA, showing its methodological weakness, formalism, and subordination to monopoly interests. Main works: *The Power Elite* (1956), *The Causes of World War Three* (1958), and *The Sociological Imagination* (1959).

Milyutin, Vladimir Alexeyevich (1826-55), Russian economist, exponent of socialist thought in Russia in the 1840s. He graduated at the law faculty of St. Petersburg University (1847). He was a member of the Petrashevsky group (q.v.). At the end of the 1840s he published a series of articles ("Malthus and His Enemies", etc.) in the journals *Otechestvenniye Zapiski* and *Sovremennik*, in which he said that bourgeois economics was in a state of crisis. According to M., "only the exact sciences can lead to the discovery of the laws of human and social development". Hence it is necessary, on the one hand, that economic

and social doctrines should master the methods of the natural "positive" sciences; and, on the other, that economic doctrines should be brought nearer to socialism. An adept at criticism and formulating the essential problems of social sciences, M. in defining his positive ideal leaned towards the sociology of Comte (q.v.) in the field of scientific philosophy. In the sociopolitical sphere he inclined towards reformistic hopes of peacefully transforming the whole land into indivisible means of labour and of maintaining the class of small proprietors (peasants) united for profit in producer associations.

Mimansa (short for Purva-mimansa), one of the major orthodox systems of Indian philosophy. The exponents of M. think that the vedas (q.v.) are not a revelation in the full sense of the word; the religious and philosophical pronouncements in them require a logical substantiation. This system attaches great significance to the Brahmanas—books setting forth and interpreting the vedic ritual. Underlying the foundation of the M. doctrine is the belief that the final salvation from the state of incarnation—*moksa*—cannot be rationally explained and achieved by science or any conscious effort. Attention must be chiefly directed to the strict observance of public and religious duty—*dharma*—which consists in the fulfilment of rituals and in obedience to all kinds of limitations and prohibitions imposed upon the Indian by his caste. M. holds that the observance of *dharma* itself, independently of the desire of the individual, can lead him to final salvation. Like *sāṅkhya* (q.v.) M. admitted the existence of the spiritual and material principles in the world. The doctrine of M. was for the first time set forth in the M. *sūtras*, ascribed to Jaimini, who lived in the 3rd century. Later commentators strengthened the theological aspect of M. and developed the idea of a personal godship, apparently as a result of the growing influence of the puranic mythology (vedas). Basically, M. is an idealistic doctrine and much more closely related with religion than *sāṅkhya*.

Minkowsky, Hermann (1864-1909), German mathematician and physicist. Known, together with the Russian scientist G.F. Voronoi, as the founder of the geometry of numbers. Application of geometrical methods to the theory of numbers indicates the profound dialectical connection between spatial forms and discrete aggregates of numbers. In his works on the theory of relativity (e.g., *Raum und Zeit*, 1909) M. gave a geometrical interpretation of the special theory of relativity (q.v.). Every occurrence, according to him, has four coordinates: three common spatial ones and one temporal (the momentum of time, which is counted off from some initial moment). The distance between two points in this four-dimensional space is introduced by a means analogous to the measurement of distance in space by Lobachevsky, q.v. (see Non-Euclidean Geometries; Space, Multi-Dimensional).

Mobility, Social, a concept in bourgeois sociology denoting a property of the social structure (see Social Stratification). S.M. is the movement of people from one stratum of society to another, the changing of their social status. There is a "horizontal S.M." (i.e., the transfer of an individual from one social group into another at the same social level) and a "vertical S.M." (i.e., the transfer of an individual into another social stratum or class). The theory of S.M. is but a variety of the reformist conception of "class collaboration". According to this theory, the "vertical S.M." affords the possibility to a man in the "lower class" to rise up the social ladder to join the "highest class", or to be a millionaire. The fact is, that the "road upward" in bourgeois society, i.e., the change in the social status of individuals and families is an exception and does not alter the position of the class as a whole in the system of production. The main direction of S.M. in bourgeois society is not "upward" but "downward". It reflects the impoverishment of the petty bourgeoisie in town and country, leading not to the softening

but to the sharpening of the class contradictions of capitalism.

Modality (in logic), a characteristic of a proposition according to the thing asserted: a proposition can be necessary, possible, accidental, impossible, etc. In traditional logic propositions are divided into necessary (apodeictic), possible (problematic), and real (assertoric) propositions. Modern logic provides the possibility of analysing the properties of M., considering it as a certain "metalogic" appraisal of an assertion. Logical M. of statements is determined from purely logical and not factual considerations. For instance, *P* is logically necessary if and only if it is true according to purely logical grounds, i.e., if the acceptance of non-*P* leads to a logical contradiction. Statements can also be distinguished according to descriptive M., mainly the physical (causal) ones. The latter depend upon whether the statement is necessary, possible or accidental because of some physical laws. Thus, the statement "all planets move in ellipses" is physically necessary, whereas "the number of planets is nine" is physically accidental. In contemporary logic, particularly in the nomological statements of Hans Reichenbach (q.v.), attempts are made to determine the strict logical criteria of physical M. (see Logic, Modal).

Mode of Life, a term used by the social sciences denoting the material and cultural conditions in which people live outside their actual productive and socio-political activity, the conditions for satisfying their needs for food, clothing, housing, rest, recreation, and preservation of health, etc. The character of the M.L. and the means of satisfying people's requirements depend on the mode of production and the changes to which it is subject. At the same time the M.L. is deeply influenced by customs, national traditions, class differences, distinctions between town and country, the status of women in society, national characteristics, and the ideology and culture of society in question. The family is a very important form of organisation of the mode

of life. In socialist society the everyday life of the working people improves as the level of material and spiritual production rises. The new Programme of the CPSU pays great attention to further improving the material well-being and cultural level of the Soviet people. It states: "The CPSU sets the historically important task of *achieving in the Soviet Union a living standard higher than that of any of the capitalist countries.*"

Mode of Production, a historically conditioned manner of obtaining the necessities of life (food, clothing, housing, tools of labour, and the like). M.P. is the determinative basis of a social system. Society, its dominant ideas, political views and institutions depend on the M.P. If the M.P. changes, the entire social system changes as well. Every new and higher M.P. signifies a new and higher level in the history of man's development. There has been a succession of M.P.s since the inception of human society: primitive-communal system, slave-owning system, feudalism, and capitalism (q.v.). In the present historical epoch the moribund capitalist M.P. is being replaced by the new, socialist M.P. (see Socialism). A world socialist system (q.v.) has come into being. The M.P. has two indivisible sides: the productive forces (q.v.) and the relations of production (q.v.). The productive forces are the determinative and most revolutionary factor of the M.P. Development of social production begins with changes in the productive forces, followed by changes in the relations of production (see Law of Correspondence of Production Relations, etc.). Though their development depends on the productive forces, relations of production, too, exercise an active influence on the former. Production relations accelerate the development of the productive forces, being the chief motive power of their development if they conform to the productive forces, and, conversely, retard their development, act as the chief brake on their development, if they cease to conform. An acute conflict and contradiction arises between new productive

forces and old relations of production, leading inevitably to social revolution in antagonistic socio-economic formations. Under socialism, since ownership is public, contradictions that may appear between aspects of production relations and the growing productive forces do not create a conflict. The socialist state and the Communist Party are able to take account of the operation of objective laws of social development and remove these contradictions in good time by bringing the relations of production into line with the new character and level of the productive forces.

Model, a philosophical term current in pre-Marxist philosophy to denote a property of an object proper to it only in certain conditions as distinct from an attribute (q.v.). In Spinoza's (q.v.) philosophy the name M. is given to all transient states of substance (q.v.), the cause of whose being does not lie in themselves but in the substance and its attributes. Mm. represent an infinite plurality of things and their transient qualities in which the sole eternal and infinite material substance is manifested.

Monad (Gk. *monás*—a unit), a philosophical term denoting the structural, substantial unit of being. It is interpreted in different ways by different philosophical systems. According to the Pythagoreans (q.v.), for instance, the M. (a mathematical unit) is the basis of the Universe. According to Giordano Bruno (*De Monade, Numero, et Figura*, 1591), the M. is the sole source of being, which is but spiritualised matter (see Pantheism). In this source, he held, the opposites coincide—the finite and the infinite, the even and the odd, etc. The M. is one of the main concepts of Leibniz's (q.v.) philosophy (*Monadology*, 1714). He regarded the M. as a simple, closed and changeable substance. The Mm., endowed with the ability of clear perception are called souls. The rational soul of man, Leibniz held, is a spirit—M. Taking note of Leibniz's view that the whole world is reflected in the Mm., that it, as an individuality, contains infinity in itself as in embryo, Lenin

wrote: "Here is dialectics of a kind, and very profound *despite* idealism and clericalism." (Vol. 38, p. 383.) Lomonosov (q.v.) employs the term "physical M." to designate a particle (corpuscle) of matter. As a spiritual principle, the M. plays a certain role in the hylozoism (q.v.) of Goethe (q.v.). The concept of M. is applied in modern idealistic systems of pluralism (q.v.) and personalism (q.v.).

Monism, a philosophical doctrine which holds that the underlying basis of all existence is one source. There are both materialistic and idealistic M. The materialists consider matter (q.v.) to be the foundation of the world; while the idealists consider the spirit (q.v.), the idea (q.v.). Hegel's (q.v.) philosophy is the most systematic trend of idealistic M. A scientific and consistent materialist M. is typical of dialectical materialism, which proceeds from the fact that the world is by its nature material, that all phenomena in the world are but various forms of moving matter. In Marxist philosophy, materialism is extended also to social phenomena. The opposite of M. is dualism (q.v.).

Monotheism, see Polytheism and Monotheism.

Montaigne, Michel de (1533-92), French philosopher of the Renaissance. Main work: *Essais* (1580). A point of departure of M.'s philosophy is scepticism (q.v.). According to him, man has the right to doubt anything. He doubts the scholasticism (q.v.) of the Middle Ages, the dogmas of Catholicism and the Christian idea of God himself. As distinct from agnosticism (q.v.) the scepticism of M. does not deny the knowability of the world. His main moral principle is that man should not passively wait for his happiness, which religion promises him in heaven; he has a right to strive for happiness on earth.

Montesquieu, Charles de (1689-1755), French sociologist. Main works: *Lettres persanes* (1721), *Considérations sur les causes de la grandeur et de la décadence des Romains* (1734), *L'Esprit des Loix* (1748). These works were very popular with the leaders of the French bour-

geois revolution of 1789. M. severely criticised the regime of absolutism, tried to explain the origin of the state, the nature of laws, and to draw up a plan of social reforms on this "natural" basis. Objectively, his identification of society with nature was contrary to the medieval theory of providentialism. M. was one of the founders of geographical determinism (q.v.). According to him, the moral physiognomy of peoples, the character of their laws and the forms of government are conditioned by climate, soil, and the size of territory. These views were criticised by the French materialists. M. considered constitutional monarchy to be the best form of government. He introduced the theory of the separation of powers (q.v.). Although he was not an atheist, he severely criticised the church and the clergy.

Moore, George Edward (1873-1958), English idealistic philosopher, exponent of neo-realism (q.v.). Criticising subjective idealism, M. propounded in refutation the thesis: "Perception includes consciousness and the object which is independent of consciousness." To M. the statu of the object is unclear: it may be regarded both as a physical object and as a "sensory datum"; it is common sense alone that induces us to recognise the objectivity of the surrounding world. According to this philosophy of "common sense" there exist in the Universe material objects and conscientious actions associated with only certain material objects. At the same time "common sense" does not preclude the possible spiritual nature of the Universe, and the existence of a divine wisdom, its actions, and an after-life. M. developed a method of logical analysis. His theory of analysis influenced neopositivism, q.v. (the "linguistic analysis" of J. Rile, A. Wisdom, and others). His ethics is based on the recognition that good and evil are undefinable concepts. Ethical propositions reveal the emotions of the speaker and arouse emotions in the listener or in concealed form express commands. Hence, the two trends in contemporary positivist ethics, "emotivism" (q.v.)

and ethics as "analysis of ethical opinions". His most important works are *A Defence of Common Sense* (1925) and *A Reply to My Critics* (1942).

Moral Code of the Builder of Communism, a collection of scientific principles of communist morality, formulated in the Programme of the CPSU and adopted at its 22nd Congress in October 1961. The code is a product of life itself, of the epoch of building communism, when the sphere of action of morality in society is widening and that of the administrative regulation of human relations is narrowing. First, it embodies the moral principles which have been worked out by the progressive social forces, particularly by the working class; secondly, it reflects all the best achievements of socialist society in the struggle for moral progress; thirdly, it points to the path for the further moral improvement of the builder of communism. The code comprises the following principles: devotion to the cause of communism; love of the socialist motherland and of the other socialist countries; conscientious labour for the good of society—he who does not work, neither shall he eat; concern on the part of everyone for the preservation and growth of public wealth; a high sense of public duty; intolerance of actions harmful to the public interest; collectivism and comradesly mutual assistance: one for all and all for one; humane relations and mutual respect between individuals—man is to man a friend, comrade, and brother; honesty and truthfulness, moral purity, modesty, and unpretentiousness in social and private life; mutual respect in the family, and concern for the upbringing of children; an uncompromising attitude to injustice, parasitism, dishonesty, careerism, and cupidity; friendship and brotherhood among all peoples of the USSR; intolerance of national and racial hatred; an uncompromising attitude to the enemies of communism, peace, and the freedom of nations; fraternal solidarity with the working people of all countries and with all peoples.

Moral Judgement, assessment of the moral merits of actions and behaviour of individuals, organisations, people, etc. A general M.J. is made in categories of good and evil (q.v.). M.J. is based on the objective criterion of morality which is historical and changes according to the social system, class struggle, etc. The M.J. of people's actions and behaviour by scientific ethics is based on the unity of the moral impulse and social usefulness of the result, from the unity of word and action. In socialist society, the criterion of M.J. is the interests of the people, progressive development of the material and spiritual conditions of man's life, and purposeful labour for the good and happiness of man.

Moral Law, an ethical principle of idealist philosophy designed to serve as a basis for the behaviour of any man. Voltaire (q.v.) formulated M.L. as a law of natural morality: "Treat others as you would want them to treat you." Kant (q.v.) presented M.L. as an unconditional moral injunction not needing an empirical justification, eternally inherent in human nature, and called it the categorical imperative (q.v.). Fichte (q.v.) associated M.L. with the necessary creative activity of the individual. Everything associated with this activity is moral. Marxist ethics rejects the doctrine of M.L. as a category outside the classes and history.

Moral Stimuli to Labour, deep-seated inner forces inciting man to work, which arise from his sense of moral, ideological, political, and scientific convictions, man's unselfish incentive to work for the sake of an idea. The M.S.L. are closely connected with the material interest in labour, which plays a considerable role in the first phase of communism. The essence and forms of all stimuli to labour are determined by social conditions. Underlying the M.S.L. under socialism are the profound social transformations (abolition of private ownership of the means of production and establishment of social ownership, elimination of the exploitation of man by man, introduction of comradesly co-operation

and mutual help among free workers, enjoying equal rights) and radical changes in the spiritual world of man. In socialist society the M.S.L. include the worker's realisation of the social usefulness of his work, his striving for moral satisfaction from work and from the creative application of his spiritual and physical abilities, his desire to win the respect of his fellow workers and of society, and to come out victorious in labour emulation. The effects of the M.S.L. under socialism are the worker's conscientiousness, initiative, selfless and creative labour. The survivals of bourgeois M.S.L. (vanity, careerism, love of power, etc.) hamper the progress of socialism. The development of the socialist M.S.L. constitutes an important condition for the transition to labour as a prime necessity of life.

Morality, a form of social consciousness in which the ethical qualities of social reality (good, welfare, justice, etc.) are reflected and fixed. M. is the aggregate of regulations, standards of community life, of behaviour of men, defining their duties to each other and to society. The character of M. is determined by the economic and social order; its standards reflect class interests, the interests of a social stratum or of the people. Different Mm. exist in a class society because class interests are at variance with each other. If a class becomes reactionary, then its M. loses its justification and becomes completely egoistical, ceases to keep pace with history. If, on the other hand, M. voices the demands of historical development, it is progressive. M. is not only a system of standards of behaviour; it is also a specific feature of the spiritual physiognomy of men, of the ideology and psychology of a class, of a social stratum or a people. Behaviour is moral when it is objectively good and just; if it is bad or unjust, then it is immoral. However, man can go astray, taking good for bad, and vice versa. For this reason M. includes evaluation. The gist of evaluation is seen not only in judgements (ideology) but also in emotional and volitional reactions

and affectations. The relations between men expressed in ethical evaluation of behaviour, of the way of life, are moral relations. M. appeared with the emergence of human society, i.e., before the advent of the state and law, and it has undergone a long historical process of development, changing its character with changes in the mode of production and the social system. The struggle between antagonistic classes in class formations also found their expression in the realm of M. Hence, moral standards and relations are not something given once and for all, as the metaphysicians hold, and M. is not a pure creation of reason, spirit, as the idealists and theologians assert. Religion defends the M. of the exploiters. Bourgeois M. is permeated with a spirit of private ownership; its principles and manners reflect egoism and individualism. The behaviour and way of life of the imperialist bourgeoisie is immoral because it runs counter to the common interests of humanity, the march of history. The M. of imperialism found its most consistent and reactionary expression in fascism. With the victory of socialism, bourgeois M. was replaced by socialist M., which has for its source the M. of the proletariat, already created under the old regime, and the progressive moral principles accumulated by the working people in the course of their struggle against social oppression and injustice. In the period of transition from socialism to communism, M. and moral principles assume paramount importance, the relations between men and the relations of men to society become more and more regulated by ethical principles, while the role of administrative regulation gradually decreases. The fundamental principles of the M. of the people of socialist and communist society are formulated in the CPSU Programme—in the moral code of the builder of communism (see Moral Code).

Morality, Christian, the morality preached by the Christian religion. Theologians try to present the standards of C.M. as common to all mankind, and C.M. itself as the loftiest and

most humane, putting in the forefront the commandment of love. But in reality the church monopolised and sanctified definite secular standards, placing them at the service of the exploiting classes. Christianity (q.v.), which arose historically as a religion of the oppressed, reflected the aspirations of the masses (particularly the idea of brotherhood of all the destitute, love of one's neighbour, etc.). The church, while preaching universal love and forgiveness, turned these commandments against the masses themselves. Herein lies the hypocrisy and bigotry of C.M. The church links the reward of the oppressed for their suffering and the triumph of justice with the "kingdom of God", the advent of which depends upon God's and not man's will. In doing so the church declares amoral the struggle of the masses for the reorganisation of society. C.M. is reactionary insofar as it preaches humility and submission.

Morality, Communist, the aggregate of principles and standards of conduct of the builders of communist society. The objective criterion of C.M. is the fight for the victory of communist society. Its fundamental principles as stipulated in the CPSU Programme are as follows: devotion to the cause of communism; increase of social wealth by labour; a high sense of public duty; collectivism; humanism; internationalism; an uncompromising attitude to violations of communist moral standards, etc. (see Moral Code of the Builder of Communism). The historical and theoretical basis of C.M. is the world outlook (q.v.) and morality of the working class, which include the simple and high moral standards handed down by the progressive classes of the past. At the same time the working class has put forward its own ethical standards, such as class solidarity, internationalism and collectivism, striving for the emancipation of the working people. Through the working class C.M. inherits all the progressive standards of human morality. Thus, C.M. is the highest degree of moral progress of humanity. The standards of C.M. are not confined to peo-

ple's behaviour; they are active factors in transforming society, in educating and re-educating man, in the sense that through people's conduct they influence the formation of communist social institutions and the whole course of social development. When the standards of C.M. become universal, they will gradually make superfluous many links in the legislative and administrative regulation of the relations between the individual and society. Human behaviour dictated by consciousness of public duty will exclude all forms of external compulsion and will lead to genuine freedom of the individual. The natural replacement of the code of laws and forms of the administration by the standards of C.M. will be a revolution in the history of morality. It will also lead to the abrogation of the principle of compulsion. At present the maturing standards of C.M. are confronted with non-communist morality along two lines: inside socialist society, where the old and obsolete standards exist as survivals of the past, resulting from non-compliance with, and violation of, the laws obtaining in society, this giving birth to amoral actions and crime; outside socialist society, where C.M. is opposed to the morality of bourgeois society. C.M. is being formed in this complicated struggle and construction as the future morality of the whole of humanity (see Morality, Ethics).

More, Thomas (1478-1535), one of the founders of utopian socialism (q.v.), humanist-rationalist of the Renaissance. He was brought up in a bourgeois family; between 1529 and 1532 M. held an important post—Lord Chancellor of England. He was beheaded by order of the king for his refusal to recognise the king as the head of the church. M. described a journey into Utopia, the unknown land (literally, a non-existent place) in his book *A fruteful and Pleasaunt Worke of the best State of a Publyque Weale, and of the newe Yle called Utopia* (1516). Till the very end of the 18th century it was a most important writing of socialist thought. M. was the first

to criticise extensively the system based on private property, the socio-political relations in England at his time. He portrayed a system in which public property dominates. He gave the first systematic enunciation of the idea of socialisation of production, linking it with the idea of a communist organisation of labour and distribution. The chief economic unit in the ideal, free state of Utopia is the family; production is based on handicrafts. The Utopians live under democratic administration, enjoy equality in labour and freedom from antagonism between town and country or between mental and physical labour. People work six hours a day, the rest of the time being devoted to science and the arts. Great importance is attached to the all-round development of the individual, to the fusion of theoretical education with labour. This idea is a rudiment of the socialist view of education. M. did not understand that realisation of the socialist ideal necessitated a high development of technology. He dreamed of a peaceful transition to a new order.

Morelly, French utopian communist of the 18th century. His main work *Le Code de la nature* (1755) is a treatise which substantiates the principles of a society where collective ownership dominates. In his theory M. proceeded from rationalism, contrasting the rational social order to the irrational one. According to him, the contemporary system was irrational, it was the outcome of errors. Theory should "discover" a new, rational order, conforming to human nature, and its principles must become known to the people. By the rational system M. has in mind a centralised economic community managed on the basis of a single economic plan which regulates production and distribution of goods. M. formulated three basic laws of society, meeting the demands of nature and reason: (1) abolition of private property, (2) the "right to existence" and the "right to labour", and (3) the obligation for all citizens to work. M. was a typical representative of the so-called "rationalistic", vulgar egalitarian communism. He advo-

cated moderation in food and prohibition of adornments. He provided for petty regulation of life, including marital relations. M. exerted considerable influence upon many utopian socialists of the 18th and 19th centuries: Babouvists (see Babouvism), Cabet (q.v.), Blanqui (q.v.), and others.

Moreno, Jacob (1892-), American psychiatrist and sociologist, founder of sociometry (q.v.), or microsociology (q.v.). Main works: *Who Shall Survive?* (1936), *Foundations of Sociometry* (1954). As a sociologist M. studies the psychological aspects of the behaviour of small social groups: children up to school age, apartment neighbours, office employees, air crews, etc. By concentrating attention on emotional relations among people, for instance, on the feelings of sympathy, antipathy, or indifference to one another, M. tries to present these emotions and inclinations of men as the primary and decisive factor of social progress. Acknowledging the crisis of capitalism in the USA, M. considers the regulation of relations among people and their organisation into groups according to their inclinations and sympathies to be the basic means of solving all social problems. The measures suggested by M. to "rally" American society do not affect the main pillars of capitalism: private ownership, the undivided rule of monopolies, and the exploitation of the working people.

Morgan, Lewis Henry (1818-81), American scientist, ethnographer, and archaeologist. He studied the American Indian's way of life and collected an enormous amount of factual material on the history of primitive-communal society. He generalised these facts in his book *Ancient Society* (1877). M. attempted at making the periodisation of the history of pre-class society by linking each of the historical periods with the development of production techniques. The factual side of his periodisation is, however, obsolete now. M. was among the first to establish that the family (q.v.) is a historical phenomenon which changes with the development of society. He was highly appraised by Marx and Engels. Engels

wrote that M. rediscovered "in his own way", the "materialist conception of history that had been discovered by Marx" (K. Marx and F. Engels, *Selected Works*, Vol. 2, p. 170). Engels used M.'s investigations in his work *The Origin of the Family, Private Property and the State* (q.v.). He, however, not only enunciated M.'s materials, but interpreted them along Marxist lines.

Morris, Charles (1901-), American philosopher, who combines the ideas of pragmatism (q.v.), especially the doctrines of the American philosopher George Mead, with concepts of logical empiricism (q.v.). His main works, based on the tenets of behaviourism (q.v.), analyse man's social and biological behaviour. While developing the views of C. S. Peirce (q.v.), he formulated the fundamental concepts and principles of a new science—semiotic (q.v.). Main works: *Foundations of the Theory of Signs* (1938), *Signs, Language and Behaviour* (1946), *Varieties of Human Values* (1956).

Morris, William (1834-96), English socialist, poet, fiction writer, and artist. Though he came from a bourgeois family, he hated and severely criticised the bourgeois system. Initially, he shared the utopian views on art, which he regarded as the principal means for the peaceful transformation of society. He took an active part in the labour and socialist movements since the beginning of the 1880s and was acquainted with Marxism, but he was mainly "socialist by his emotions" (Engels). The description of a future communist society (*News from Nowhere*, a utopian novel, 1891) was idyllic and therefore not scientific. In his creative and political activity M. championed revolutionary principles. He made a valuable contribution to English democratic literature.

Motion, the key attribute and mode of existence of matter (q.v.). M. denotes all processes occurring in nature and society. Loosely, M. is change (q.v.) in general, any kind of interaction (q.v.) of material objects. No more can there be matter in the world without M. than M. without matter. The

M. of matter is absolute, while the state of rest is relative and just a moment of M. A body at rest in relation to the Earth moves with the Earth round the Sun, and with the Sun round the centre of the galaxy, etc. Since the world is infinite, every body participates in an infinite number of forms of M. Qualitative stability of bodies and of their properties is also a state of relative rest. But it is a stability that derives from a special type of interaction by microparticles in the body. It is, therefore, the result of the M. of microparticles. Thereby M. predicates the properties and structure of matter and the nature of its existence. M. of matter is diverse in its manifestations and multiple in form (see Matter, Forms of Motion of). Qualitatively new and more complex forms of M. appear in the process of the development of matter. Yet, even mechanical M. is not absolutely simple. A body in motion interacts all the time with other bodies through the electromagnetic and gravitational fields, and changes in so doing. The theory of relativity (q.v.) indicates that any increase in velocity of M. causes an increase in the mass of a body, while linear dimensions decrease in the direction of M. and the rhythm of processes occurring in the body becomes more rapid. At velocities approaching that of light, electrons and other particles are able to radiate electromagnetic quanta in the direction of M. (so-called spinning electrons). Thus, all M. includes the interaction of different forms of M. and their mutual transformations. M. is just as inexhaustible as matter. The M. of matter is a process of the interaction of opposites. Mechanistic M., for example, is unity of the intermittence and non-intermittence of space and time. Electromagnetic, nuclear and gravitational M. is based on the unity of the opposite processes of absorption and radiation by microparticles of quanta of the electromagnetic, nuclear and gravitational fields. Chemical M. implies, among other things, association and dissociation of atoms. Vital processes are based on the unity of the assimilation and

dissimilation of substances, stimulation and inhibition of cells, etc. The endless self-motion of matter in the Universe is also the result of the unity of the opposite processes of the dispersion of matter and energy (in the evolution of stars) and their reverse concentration which, in the ultimate, leads to the origination of stars, galaxies and other forms of matter. If the M. of a material system obeys a single law and includes the overall change of the system, it represents, in effect, the process of the system's development. In ascendant development the connections, structure and forms of M. of material objects become more complex, constituting progressive transformations from lower to higher states. Descendant development, on the other hand, constitutes degradation and the disintegration of the system, a simplification of its forms of M. M. is a more general concept than development, because it connotes all changes, including external and accidental, which do not conform to the internal law governing the development of the system.

Mo Tzū, or **Mo Ti** (479-381 B.C.), founder of a school of philosophy (Moism) in ancient China which drew numerous followers. An opponent of Confucianism (q.v.), he considered pre-determined fate non-existent, a man's fate depending on the manner in which he practised the principles of "universal love" (tsan-ai), which are based on the "will of Heaven". He exhorted people to help one another, follow a useful occupation, reject the use of force and war, and appoint the wise and worthy to govern the country regardless of the position they occupy in society. Though leaning towards mysticism, his teachings contained some elements of materialism. Thus, he maintained that our knowledge was a direct product of our investigation of reality. His followers subsequently developed his rational ideas into a naive materialistic theory of knowledge, which was destined to play an important role in the evolution of philosophy in ancient China. The school of M.T. ceased to exist as an independent phil-

osophical trend in the 2nd century B.C.

Münzer, Thomas (c. 1490-1525), anabaptist and preacher, one of the leaders of the great peasant war in Germany (1525), ideologist of the radical peasant-plebeian wing of the Reformation (q.v.). Unlike Luther (q.v.), the moderate reformer, M. energetically opposed not only the Catholic Church but Christianity and feudalism as a whole. For M., the basic task of the Reformation was a socio-economic revolution of the peasants and the city poor, rather than a reformation of the church and its teachings. M.'s philosophy, which was formed under the influence of medieval peasant-plebeian heresy and mysticism (qq.v.), was pantheistic. For him, religious faith was the result of the awakening of reason in man, and the chasm between heavenly and earthly existence had to be bridged. His pantheism (q.v.) largely anticipated later philosophic criticism of religion (D. Strauss, L. Feuerbach, q.v., and others). M. used Christian slogans to announce a far-reaching revolutionary programme. He urged the revolutionary peasants to establish "God's kingdom on earth", i.e., a society without classes, private ownership or government. M.'s religious philosophy was close to atheism, and his political programme greatly resembled equalitarian utopian communism. M.'s ideals went far beyond the interests of the peasant-plebeian masses, anticipating, according to Engels, "the conditions for the emancipation of the nascent proletarian elements".

Mutakallimins, proponents of medieval Muslim scholastic theology (*kalam*). Earlier M. were members of a Shiite sect of Islam dating from the 8th and 9th centuries and were known as the Mutazilites (Ar. seceders). Wasil bnu Ata, Jahiz, Muammir bnu-Abbad and other members of the Mutazilite school who introduced rationalism into Muslim theology, denied the multiplicity of God's attributes, the doctrine of the eternity of Koran and upheld the idea of free will. They regarded reason as the chief criterion of the

truthfulness of knowledge and morals. Their philosophy relied on atomistic conceptions. The later M. (al-Ashari) used atomism to prove the validity of the Muslim dogmas, to deny the operation of the objective laws and the possibility of their cognition. Ibn-Roshd (q.v.) criticised this idealist teaching in his work *Tahāfut al-Tahāfut* (*Incoherence of the Incoherence*).

Mysticism, a religious-idealistic view of the world. M. owes its origin to secret rites (mysteries) conducted by the religious societies of ancient Orient and Occident. The underlying feature of these rituals was contact between man and God, or some other mysterious being, and belief in the supernatural. Communion with God is supposedly achieved through ecstasy or revelation. Elements of M. are peculiar to many ancient philosophico-religious doctrines (e.g., Confucianism, Brahmanism, Orphism, Pythagoreanism, Platonism, and Neo-Platonism, qq.v.). The mystical philosophy of the Middle Ages was developed by Bernard of Clairvaux (1091-1153), J. Eckhart (1260-1327), J. Tauler (1300-1361), and others. It was also associated with sufism (q.v.). Later mystics were Böhme and Swedenborg (qq.v.). To a greater or lesser degree M. is a feature of practically all idealist philosophies of modern times (particularly personalism, q.v., and some forms of existentialism, q.v.). In Russia, religious-mystical philosophy was developed by the Slavophiles (q.v.), Solovyov (q.v.) and his adherents (Berdyayev, Trubetskoi, qq.v.), and

others. Mystic philosophers consider revelation, a kind of mystical intuition, (q.v.) as the highest form of cognition, in which being is perceived by the subject immediately. M., as a rule, is preached by the ideologists of the reactionary classes, although there were cases (in feudal times) when progressive ideas (for instance, Eckhart's) or revolutionary opposition appeared in the form of M.

Mythology, one of the oral forms of folklore, characteristic of the antiquity. Myths were narratives born in the early stages of history, whose fantastic images (gods, legendary heroes, big events, etc.) were but attempts to generalise and explain different phenomena of nature and society. "All mythology surmounts, subordinates, and forms the powers of nature in the imagination and with the help of the imagination. Hence, mythology disappears with the onset of a real dominance over these powers of nature." (K. Marx and F. Engels, *Works*, 2nd Russ. ed., Vol. 12, p. 737.) Many aspects of the world outlook of ancient society found their expression in M. It has elements of religion insofar as it contains the concepts of the supernatural. But at the same time it reflected moral views and man's aesthetic attitude to reality. In the words of Marx, M. "is the unconsciously artistic reproduction of nature (by nature is understood all and everything material, including society)". That is why images of M. have been often employed in the arts in various interpretations.

N

Naigeon, Jacques-André (1738-1810), French materialist philosopher and atheist, opponent of the Catholic Church. N.'s world outlook was shaped under the direct influence of Diderot (q.v.), whom he met in 1756. Diderot enlisted him to work on the *Encyclopédie*, and subsequently he became one of its editors. N. adhered to materialist sensualism in the theory of knowledge. In 1768, published *Le militaire philosophie*, in which he proved that all religions are false and that any search of God should be abandoned. N. took part in editing Holbach's (q.v.) *System of Nature* and jointly with him wrote a *Théologie portative*, a dictionary giving a witty criticism of religion. N. devoted the last years of his life to publishing the works of Diderot.

Nalbandyan, Mikael Lazarevich (1829-66), Armenian materialist thinker, revolutionary democrat, utopian socialist, enlightener, eminent poet, and publicist. Graduated from the department of natural sciences of Moscow University, was a contributor to the progressive Armenian journal *Northern Lights*. Took an active part in the Russian people's struggle for liberation. Was imprisoned in the Peter and Paul Fortress and died in exile. In his activities N. sought to strengthen Armenian-Russian friendship; he associated the liberation of the Armenian people with the victory of the Russian anti-serfdom revolution and fought against bourgeois nationalists and liberals. In his philosophical views N. was a materialist who tried to combine materialism with dialectics. In the theory of knowledge he proceeded from the unity of the sensory and rational, de-

duction and induction, and criticised the idealist understanding of the nature of general concepts and ideas. N. criticised the philosophy of Kant, Fichte, and Hegel (qq.v.), especially their political views. In aesthetics he highly valued the realism and views of the Russian revolutionary democrats; he embodied these ideas in his artistic efforts. N.'s ideas became one of the well-springs of progressive Armenian culture in the 19th century. His main works: *Two Lines* (1861), *Agriculture as the True Road* (1862), *Hegel and His Time* (1863).

Name, in logic, a linguistic expression denoting some object understood in the broadest sense, as everything we can name and not only as a material object. Logical semantics (q.v.) usually deals with the so-called "semantic triangle": (1) name; (2) object designated by it (denotation or designation); (3) sense of name (see Denotation and Sense). As distinct from the ordinary word usage, contemporary logic regards as names not only terms (words) but also sentences. The denotation of a term is the object it denotes, the sense of the term is the property it expresses. The denotation of a sentence is its truth-value (i.e., truth or lie) and the sense is the judgement (q.v.) it expresses.

Narodism, an ideology of petty-bourgeois peasant democracy in Russia. The specific features of N. as a variety of democratic ideology are: (1) socialist dreams, the hope of avoiding the capitalist road, and of preventing capitalism; (2) advocacy of a radical change of agrarian relations. N. is of international significance, being characteristic of countries which have tak-

en the road of the bourgeois democratic revolution at a relatively late period, when capitalism in Western Europe and North America has already revealed its intrinsic contradictions and has given rise to the socialist movement of the proletariat. The social source of the ideology of N. in Russia was the struggle of the peasants for the abolition of the feudal estates and a radical redistribution of the land which belonged to the landowners. Herzen and Chernyshevsky (qq.v.) were the founders of the Narodnik ideology in Russia. They first raised the question of the possible direct transition from the peasant commune to the higher, communist form of society. So-called active N. developed in the 1870s. Its characteristic feature was the desire to apply the political programme of N., to awaken the peasantry, and rally it to the socialist revolution. Bakunin, Lavrov (qq.v.) and P. N. Tkachov were the most prominent ideologists of this N. Being the ideology of militant revolutionary democracy, the N. of the 1870s theoretically made a step backward as compared with Chernyshevsky. Opposing "socialism" to "politics" the Narodniks held that struggle for political freedoms was of benefit only to the bourgeoisie. They denied that capitalism was in any way progressive. In philosophy the Narodnik theoreticians of the subjective school preached agnosticism (q.v.), eclectically combined fragments of various idealist systems—positivism, Neo-Kantianism, Machism (qq.v.), and others. In contrast to Chernyshevsky who regarded social development from the viewpoint of historical necessity, the Narodniks approached social phenomena from positions of an abstract ideal. They tried to prove the possibility of non-capitalist development by means of the subjective method (q.v.) in sociology. Formally N. did not deny the importance of the masses in history, but it held that the movement of the masses and, correspondingly, the direction of the historical process depended on the activity of the intellectual minority. The main thesis of the economic theory of N. was that

small peasant farming ("people's production") was the antithesis of capitalism. In the mid-1880s, a liberal, reformist trend (V. P. Vorontsov, Mikhailovsky, q.v., S. N. Krivenko, S. N. Yuzhakov, and others) prevailed in N. Under the influence of reality some Narodniks had to admit Russia's capitalist evolution and the process of differentiation among the peasantry. But admission of capitalist development in Russia was accompanied by all kinds of utopian and reactionary schemes concerning aid to "people's production". The liberal Narodniks actively fought against Marxism, and this struggle ended in their complete ideological defeat. The advance of the peasant movement early in the 20th century and the Russian revolution of 1905-07 determined the appearance of a number of Narodnik groups and parties, of which the most leftward was the Socialist-Revolutionary Party. Its ideology was of an eclectic nature, combining the old dogmas of N. with some distorted propositions of Marxism. In the course of the revolution the Socialist-Revolutionaries constantly vacillated between submission to the leadership of the liberals and a determined struggle against the landowners. Lenin and Plekhanov (qq.v.) presented a profound critique of N.

Nation, a historically formed community of people. A N. is distinguished first of all by common material conditions of life: territory and economic life; community of language, psychological make-up and also certain traits of national character, manifested in the national specifics of its culture. N. is the broadest form of human community which comes into being with the appearance of the capitalist formation. The abolition of feudal disunity and the consolidation of economic ties between regions within a country and the merging of local markets into a national market serve as the economic basis for the crystallisation of N. The bourgeoisie was the leading force of N. during that period, which laid a definite imprint on their socio-political and spiritual aspects. As these

bourgeois Nn. develop social antitheses within them grow sharper and the antithesis between the classes becomes apparent. The bourgeoisie seeks to cover up these contradictions and fan antagonisms between nations. It advocates the ideology of nationalism and national selfishness. Discord and hatred between nations, national conflicts are an inevitable consequence of capitalism. In opposition to bourgeois nationalism (q.v.) the proletariat puts forward the ideology and policy of proletarian internationalism (q.v.). With the abolition of capitalism the aspect of a N. radically changes. The old, bourgeois Nn. are transformed into new, socialist Nn. with the alliance of the working class and working peasantry forming its class basis. Socialist Nn. are free of class antagonisms, the remnants of the former distrust between them vanishing and friendship of the peoples (q.v.) developing. The abolition of national oppression and the establishment of equality between the peoples, their mutual assistance, and the elimination of economic and cultural backwardness of peoples who had been retarded in their development have created all the requisites for the thriving of socialist Nn. in the Soviet Union. In socialist society, on the one hand, Nn. develop and flourish and, on the other, they draw closer together. In future, after the complete victory of communism, the all-round drawing together of nations will ultimately bring about the gradual disappearance of national distinctions. A new form of social community of people, broader than the N. and uniting all mankind into one family, will arise in a fully developed communist society. But such a community will come into being only as a result of prolonged social progress and, moreover, much later than full social homogeneity is attained.

National Democracy, a form of political organisation of society which arises in the course of the development and deepening of the revolution. The basic features of a national democratic state are consistent struggle for political and the economic independence,

against imperialism and neo-colonialism, the existence of broad democratic rights and freedoms, the participation of the people in determining the government's policy and revolutionary social changes, a land reform in the first place. "The political basis of the state of national democracy is the bloc of all the progressive, patriotic forces fighting to win complete national independence and broad democracy and to consummate the anti-imperialist, anti-feudal, democratic revolution." (Programme of the CPSU.) The formation of N.D. is ensured by the active participation of the working class in the national liberation revolution. Socially, N.D. is not a socialist state, but under certain conditions it can become a political form of transition of individual countries to socialism, bypassing the capitalist road of development.

National Form in Art, specific features of artistic form introduced in art by each people. Marxist-Leninist aesthetics, considering art a reflection of reality, notes that the forms of this reflection are associated with the specific features of a people's life, its socio-economic system, traditions, character, and psychology. All this imparts a national colouring to art. Language is an important element of national form. The interaction of national cultures enriches the forms of art. Soviet art is socialist in content, i.e., it asserts socialist ideology; at the same time it is extremely diverse in form, which is explained by the wealth of life itself and the free, all-round development of nations in socialist society. True national art is always international because art, reflecting the depths of a people's soul, carries general human elements. The organic blending of the national and the international in socialist art is determined by the very nature of socialism and the Marxist ideology of friendship and brotherhood of peoples.

National Question, the question of liberation and the conditions for the free development of nations (q.v.). The N.Q. should be approached historically, because its content and im-

portance are not the same in different epochs. In the period of the emergence of nations, the N.Q. involved the overthrow of feudalism and liberation from foreign national oppression. In the epoch of imperialism, the N.Q. has become an inter-state problem, has merged with the general problem of liberating the colonial peoples, and has developed into the national colonial question. It is also closely linked with the peasant question, because the majority of participants in the national movements are peasants. The epoch of socialist and national liberation revolutions, the epoch of abolition of the colonial system was ushered in by the October Revolution. In the present epoch the N.Q. has again arisen in a number of developed capitalist countries in view of the striving of the imperialist states (nazi Germany and Japan during the 2nd World War, the United States in the post-war period) for world domination. The proletariat and the Communist Parties in a number of countries are faced with a historical task—to rebuff the predatory plans of the imperialists, to assume leadership in upholding national independence and sovereignty, rallying round themselves all the democratic and patriotic forces of the nation. While the ideologists of imperialism hold that the only way to solve the N.Q. is to isolate nations, which actually leads to greater hostility between them and to the subordination of some nations by others, the October Socialist Revolution demonstrated the possibility and expediency of a different, revolutionary way. This is to destroy capitalism, completely abolish national oppression, and establish friendship of the peoples (q.v.). The Soviet system has not limited itself to proclaiming the legal equality of nations, but has done everything to eliminate in the shortest possible time their actual economic and cultural inequality inherited from the old system. Drawing on fraternal assistance and above all the assistance of the Russian people, all Soviet non-Russian republics built up a modern industry, trained their own skilled workers and intellectuals,

and developed culture, national in form and socialist in content. It is pointed out in the Programme of the CPSU that the building of communism leads to still greater unity of the Soviet peoples; obliteration of the distinctions between classes and the development of communist social relations make for a greater social homogeneity of nations and contribute to the development of common communist traits in their culture, morals, and way of life and to a further strengthening of their mutual trust and friendship.

Nationalism, a principle of bourgeois ideology and politics expressed in national isolation, the advocacy of mistrust of other nations (q.v.) and enmity among nations. N. has its roots in capitalism's specific features of development. Reflecting the character of relations among nations under capitalism, N. appears in two forms: Great-Power chauvinism of a dominating nation, marked by contempt for other nations, and local N. of an oppressed nation stamped by the striving for national seclusion and mistrust of other nations. N. developed in the process of formation of nations which was accompanied by the emergence of national languages and cultures and the moulding of a special national psychology and national sentiments. Speculating on the slogans of "nation-wide" interests, bourgeois and reformist ideologists and revisionists utilise N. as a refined means for stifling the class consciousness of the working people, splitting the international working-class movement, and justifying colonialism and wars between nations. N. is unacceptable in any form to the working people, whose interests are expressed only by proletarian internationalism (q.v.). But at a definite stage of the national liberation movement, Communists consider it historically justified to support the N. of the oppressed nation, which has a general democratic content (anti-imperialism, striving for political and economic independence). This variety of N., however, also has another side, expressing the ideology and interests of the reactionary exploiting top group,

which leans towards compromise with imperialism.

N. is most widespread and tenacious in a petty-bourgeois environment. Under socialism, which establishes real equality of nations, the social roots of N. are removed and its manifestations are preserved only as survivals (q.v.) of capitalism in the minds and behaviour of people.

Natural Law, a doctrine of an ideal law which is independent of the state and is held to be derived from the reason and "nature" of man. Ideas of N.L. were put forward in ancient times (by Socrates, Plato, qq.v., etc.). In the Middle Ages N.L. was considered a variety of the law of God (see Thomas Aquinas). The idea was taken up widely in the period of Western bourgeois revolutions (17th-18th centuries) and its chief advocates (Grotius, Spinoza, Locke, Rousseau, Montesquieu, Holbach, Kant, Radishchev, qq.v., etc.) used it to criticise feudalism and affirm the "naturalness" and "reasonableness" of bourgeois society. A very much distorted version of N.L. is to be found in the contemporary "social doctrine" of Catholicism (q.v.).

Natural Philosophy, the name given to philosophy distinguished by the predominantly speculative interpretation of nature taken in its entirety. The boundaries between natural science and N.P. and also the place of N.P. itself in the system of other philosophical sciences have undergone changes in the course of the history of philosophy. In antiquity, N.P. merged with natural science and in ancient Greek philosophy was usually called physics. Ancient N.P. gave a spontaneous and naive dialectical interpretation of nature as an integral and living whole, and asserted the identity of the microcosm (man) and macrocosm (nature) (see Hylozoism). Cosmology and cosmogony (qq.v.) were also an organic part of N.P. Elements of N.P. were present even in medieval scholasticism. They consisted chiefly in the adaptation of some principles of Aristotelean N.P. and cosmology to the geocentric

picture of the world. N.P. became widespread in the Renaissance. The N.P. of that epoch, preserving in the main the concepts and principles of ancient N.P., was based on a higher level of natural science. In the course of struggle against the scholastic picture of nature the Renaissance N.P. developed a number of profound materialistic and dialectic ideas, e.g., the idea of the infinity of nature and the countless number of its worlds (see Bruno) and the idea of the coincidence of the opposites in the boundlessly great and boundlessly small (see Nicholas of Cusa, Bruno). A number of natural sciences, first of all mechanics and mathematics, were singled out from N.P. in the 17th century but the latter was still regarded as closely connected with them. It was no accident that Newton's (q.v.) main work, which formulated the principles of mechanics and mathematics, was called *Philosophiae naturalis principia mathematica*. In the 18th century philosophy of the French and European Enlightenment and materialism, N.P. put forward the idea of the encyclopaedic connection of all the sciences, which had been extended and deepened as compared with the preceding century. Schelling's (q.v.) N.P. played a big part at the end of the 18th and the beginning of the 19th centuries. Although it rested on an idealist foundation, it formulated the idea of the unity of nature's forces and summed up a number of important natural science discoveries of that epoch. Oken, a follower of Schelling, voiced the idea of the development of the organic world. Characterising N.P., Engels wrote that "it could do this only by putting in place of the real but as yet unknown interconnections ideal, fancied ones, filling in the missing facts by figments of the mind and bridging the actual gaps merely in imagination. In the course of this procedure it conceived many brilliant ideas and foreshadowed many later discoveries, but it also produced a considerable amount of nonsense, which indeed could not have been otherwise. Today, when one needs to comprehend the results

of natural scientific investigation only dialectically, that is, in the sense of their own interconnection, in order to arrive at a 'system of nature' sufficient for our time; when the dialectical character of this interconnection is forcing itself against their will even into the metaphysically-trained minds of the natural scientists, today natural philosophy is finally disposed of. Every attempt at resurrecting it would be not only superfluous, but a *step backwards*". (Marx, Engels, *Selected Works*, Vol. II, pp. 389-90.) Subsequently, at the turn of the 20th century such a step backwards was taken by Ostwald, Avenarius (q.v.), Lipps, Driesch (q.v.), and some other idealist philosophers who tried to overcome the crisis in contemporary natural science by means of N.P.

Natural Science, science of nature, the natural sciences taken as a whole; one of the three basic divisions of human knowledge (the other two being the social sciences and the sciences concerned with thought). N.S. forms the theoretical basis of industrial and agricultural technology and of medicine; it is the scientific foundation of philosophical materialism and the dialectical comprehension of nature. It studies the various forms of matter and forms of their motion, how they operate and manifest themselves in nature, their connections and laws, and the basic forms of being. N.S. may be either empirical or theoretical depending on its content, methods of investigation and approach; it may also be either non-organic, i.e., studying forms of motion in inanimate nature (the mechanical, physical, and chemical, etc., forms of motion), or organic, where the subject studied are the phenomena of life (biological form of motion). These subdivisions indicate the structure of N.S. (the classification of the sciences, q.v.). Since it helps to provide a natural scientific or "physical" picture of the world, N.S. is closely associated with philosophy, mainly with its theoretical part (concepts, categories, laws, theories, hypotheses) and also with the elaboration of devices and methods

of scientific research; it has a direct influence on the development of philosophy and determines changes in the forms of materialism brought about by great scientific discoveries. On the other hand, N.S. is closely linked with technology, with the process of production. Since it is the "spiritual potential of production" (Marx), N.S. acts as a kind of direct productive force; moreover, in the process of building communist society this social function of N.S. shows itself to the full, as is pointed out in the Programme of the CPSU. In the course of its development N.S. has passed from the immediate contemplation of nature (among the ancients) through the period of analytical dissection (15th to 18th centuries), which in its absolute form became the metaphysical view of nature, to the synthetic reconstruction of nature in its universality, wholeness and concreteness that has been achieved in the 19th-20th centuries. The spontaneous penetration of N.S. by dialectics in the 19th century was complicated in the 20th by the crisis of N.S., the causes of which were revealed by Lenin in his *Materialism and Empirio-Criticism*. In the same work Lenin indicated ways of overcoming the crisis in physics which, with its discovery of the uses of atomic energy and pioneering of the microcosm, the world of elementary particles, is leading the way in contemporary N.S. and stimulating the development of its other branches—astronomy, cosmonautics, cybernetics, chemistry, biology, etc. Physics in company with chemistry, mathematics and cybernetics is helping microbiology to solve the theoretical and experimental task of biosynthesis (artificial preparation of living protein); it is also contributing to the discovery of the material nature of heredity and the solution of other important problems.

Naturalism 1. In philosophy, the desire to explain the development of society by the laws of nature (climatic conditions, geographical environment, biological and racial distinctions between people, etc.). N. is close to anthropology (q.v.) which also fails to

see the specific laws governing social life. While in the 17th and 18th centuries N. played a positive part in the struggle against spiritualism (q.v.); subsequently, it degenerated into a reactionary idealist theory. It included Malthusianism (q.v.), Spencer's organic theory of society (q.v.), and the theory of Social-Darwinism (q.v.).

2. A system of aesthetic views on art and a corresponding artistic method which took shape in the second half of the 19th century. Positivism (q.v.) represented by Comte (q.v.), Spencer, H. A. Taine, and others, formed the philosophical foundation of N. N. does not try to fathom the essential, deep-going processes of reality and reduces artistic portrayal to copying accidental, singular objects and phenomena. The contradictory nature of the aesthetic concept of N. was strikingly displayed in the works of Émile Zola, which often clashed with his theoretical views (*Le Roman expérimental*, 1880; *Le Naturalisme au théâtre*, 1881) on the identity of social and biological phenomena, the independence of art from politics and morality, etc. Concentration on the physiological side of life, striving for primitive entertainment, sentimentality and melodrama are characteristic features of modern naturalistic art expressed in diverse genres: in pulp novels and comics, gangster films, detective stories, pornographic drawings and naturalistic painting, in jazz rhythms of rock 'n' rolls and twists. The ideas of passivity, renunciation of social struggle, indifference to the joys and suffering of the people, concentration on the base sides of human life, preached (directly or indirectly) by proponents of N., bring them close to the formalists, e.g., surrealists.

Naturalism, Ethical, a general name given to theories (see Hedonism, Evolutionary Ethics, and others) united by the principle that the concept of good (q.v.) is determined through some kind of "natural", i.e., "extra-moral" concept, for example, pleasure, biological evolution, etc. (logical positivists and intuitionists consider this a "naturalistic mistake"). Marxism has proved

that from naturalistic positions it is impossible to give a consistently materialistic account of the essence of moral categories or to trace the origin of morality. In the 1940s and 1950s naturalism became a trend whose proponents defended some scientific principles of ethics against the frankly idealist criticism of the neo-positivists and intuitionists. These principles are: (1) moral good is objective, it is connected with the social system, the interests and requirements of people; (2) the concept of good can be determined and moral standards objectively justified; (3) moral judgements have objective importance, their truth can be verified and demonstrated; (4) ethics and moral principles can be scientific if they are based on data of other social sciences. The criticism levelled by naturalists against idealism in ethics and the elements of materialism contained in their theories are progressive on the whole. Mention should be made of the works of Mario Bunge (Argentina) and Abraham Edel (USA).

Nature 1. The world surrounding us in the endless diversity of its manifestations. N. is the objective reality (q.v.) existing outside consciousness and independently of it. It has neither beginning nor end, it is endless in time and space, and it is in a constant state of movement and change. According to the laws of its development, inorganic N. engenders organic N. (see Biosphere), and the latter prepares all the necessary biological conditions for the appearance of man. However, the decisive factor in the process of the appearance of man is the formation of society. The emergence of society considerably changes N. itself (see Noosphere). Cognising the objective laws of N., acting on it by means of specially created tools and implements of labour, people utilise the substances and energy of N. for creating the material wealth necessary for mankind. In this way the natural habitat is supplemented by an artificial one, the so-called "second nature", i.e., the sum total of things not found in nature in ready form and created in the process of social production. That is why

man's attitude towards N. always bears a social character and reflects a definite stage in the development of the productive forces and the relations of production. This applies entirely to the theoretical attitude of man to N. But, in acquiring greater power over N., in actively reforming it, people do not cease to belong to it, to be an integral part of it. 2. The true essence, the internal regularity, the specific character of objects and phenomena (e.g., the N. of the state, the N. of psychology, etc.).

Nebular Hypothesis, a cosmogonic hypothesis, according to which the solar system (or celestial bodies in general) arose from a rarefied nebula. The term was applied to the hypothesis voiced by Laplace, who assumed that planets arose from an incandescent gas nebula, and more seldom to the hypothesis of Kant (q.v.), who assumed that planets originated from a dust nebula; at times it is also applied to modern hypotheses. The idea underlying the N.H., the natural origination of cosmic bodies from other forms of cosmic substance (gas, dust), has not lost its importance to this day.

Necessity and Chance, philosophical categories which reflect two kinds of objective connections in the material world. N. follows from the inner essence of phenomena and denotes their regularity, order, and structure. N. is that which necessarily must occur in the given conditions. On the contrary, C. is rooted not in the essence of phenomena, but in the influence of other phenomena on the given phenomenon; C. might or might not occur. The dialectical materialist understanding of the relationship of N. & C. stands in contrast to two other concepts, one of which denies N. and reduces everything to C., to a chance concurrence of circumstances, while the second, on the contrary, denies all C. whatsoever and reduces it to N. The first concept found its expression in numerous subjective idealist theories (e.g., Narodism, q.v., in Russia). Both Laplacian determinism (q.v.) and religious fatalism (q.v.) adhered to the second concept. But fatalism, considering every

chance deviation from the norm as eternally necessary, as the fundamental law of nature, actually did not raise C. to the level of N.; on the contrary, it reduced N. to the level of C. Hegel (q.v.) was the first to overcome both metaphysical extremes from idealist positions. But only dialectical materialism provided a scientific understanding of the essence and relationship of N. & C. Because of the universal interconnection and interpenetration of all phenomena, every phenomenon can be regarded as being in an essential or inessential relation to any other phenomenon and, therefore, in each phenomenon or complex of phenomena, in each process, it is always possible to single out the essential (necessary) and inessential (chance) properties. N. & C. are dialectical opposites which are mutually connected and do not exist without each other. In view of the material unity of the world, each event has its cause and is part of the universal causal connection, N. is an expression of this connection owing to which N. is inseparable from the universal, is "universal in being" and constitutes an absolute, universal connection. Each phenomenon emerges by virtue of internal N., but the emergence of this phenomenon is associated with a plurality of external conditions which, because of their specific nature and infinite diversity, serve as a source of C., of accidental features and aspects of the given phenomenon. Any phenomenon is inconceivable both without its internal N. and also without its external "chance" prerequisites. That is why internal N. is inevitably supplemented by external C. The latter has N. as its basis, is a form of its manifestation. Behind chance there is always N. which determines the course of development in nature and society. "But where on the surface accident holds sway, there actually it is always governed by inner, hidden laws and it is only a matter of discovering these laws." (Marx, Engels, *Selected Works*, Vol. II, p. 391.) The dialectical materialist understanding of the relationship of N. & C. makes it possible to trace the causal, law-governed natural

chain of phenomena. Thereby this understanding corresponds to the task of science to reveal the necessity of phenomena behind chance connections. Science, including dialectical materialism, is the enemy of fundamental unknowability. Science, Marx said, ends where the necessary connection loses its force. However intricate a given phenomenon (e.g., the development of society), however numerous the seeming chances on which it depends, it is ultimately governed by objective laws, by objective N. Dialectical materialism helps to see not only the connection but also the interpenetration of N. & C. Darwin's theory of the evolution of the organic world is based on consideration of such interpenetration. Marx revealed this important aspect of the dialectics of N. & C. in his teaching on the development of value forms. Contemporary natural science enriches the dialectical materialist conclusions concerning the essence of N. & C. and their connections (see Laws, Statistical and Dynamic).

Negation 1. In materialist dialectics N. is regarded as a necessary moment of development, a condition for qualitative change of things (see Negation of the Negation, Law of). 2. A logical operation with the help of which a new proposition is inferred from a given proposition (so-called negation of the initial proposition). If the initial proposition was true, its N. is false, and vice versa. The N. operation is usually performed by introducing the particle "not" and at times with the help of turns like "it is wrong", "it is false". Propositions resulting from a N. operation are usually designated in logic through \bar{A} , $\neg A$ or $\sim A$. N. is one of the main operations in propositional calculus (q.v.) and functional calculus (q.v.).

Negation of the Negation, Law of, a basic law of dialectics first formulated and interpreted from idealist positions by Hegel (q.v.). L.N.N. expresses continuity of development, the connection of the new and the old in the process of the law-governed replacement of some qualitative

changes by others, relative repetition, at a higher stage of development, of some properties of the lower stage. It also proves the progressive character of development and determines the tendency, the chief trend of the general course of development. This law is organically bound up with the law of the unity and conflict of opposites (see Unity and Conflict of Opposites, Law of), inasmuch as negation of the old by the new in the process of development is nothing else than the solving of contradictions. The specific features of the manifestation and operation of L.N.N. are determined by the essence of the object negated, the nature of its contradictions and the concrete historical conditions. Dialectical negation is an objective moment, the motive element of every development. The relationship of the old and the new in development, the character of the negation of the old are explained in directly opposed ways by metaphysics and by materialist dialectics. Metaphysical negation signifies the simple discarding, destruction of the old. The other metaphysical extreme is the view that development proceeds along a closed circle, that development is merely a simple return to the old. According to materialist dialectics, negation is a condition, a moment of development, retaining in the old everything which is positive and necessary for further advance. Without this there would be no continuity in development. At the same time breaks in continuity, too, are characteristic of forward movement, because negation means a transition from the old to the new, the birth of a qualitatively new phenomenon. Negation of the initial point does not end development because the new is in turn subject to negation. At one stage in the course of development there occurs, as it were, a return to the starting point, some features and peculiarities are repeated, but on a new, higher basis. It is this that is expressed in the concept of "negation of the negation". Development proceeds not in a straight line and not in a closed circle, but in an ascending line, a

spiral. Transition from the lower to the higher follows intricate ways, is contradictory, passes through many deviations, including regressive movement at individual stages. Pointing to this distinction of development as applied to human history, Lenin wrote: "It is undialectical, unscientific and theoretically wrong to regard the cause of world history as smooth and always in a forward direction, without occasional gigantic leaps back." (Vol. 22, p. 310.) But in general, society is constantly progressing. The entire course of world history shows how one socio-economic formation arises on the basis of negating the preceding one and in its turn is replaced by a more progressive one. Capitalism, which arose through the negation of feudalism, has now outlived itself and has ripened for revolutionary negation by a more progressive socio-economic formation, communism. The specifics of dialectical negation in the development of socialist society are determined by the non-antagonistic nature of the contradictions of socialism, i.e., the processes of negation of the old do not bear the character of political revolutions, conflicts of classes, etc. During the transition to communism, negation of the principles of socialism will proceed through their full development, which will prepare the conditions for their growing over into communist principles.

Neo-Classicism, a trend in art of the second half of the 19th and the 20th centuries marked by the use of forms taken from some earlier styles in art (ancient, Renaissance, classicism). N. utilises the images and subjects of classical art for idealising capitalist reality and glossing over its contradictions. A reversion of N. to the past and its worship of the traditional standards of life and art have been utilised by bourgeois ideologists to consolidate their ideological and aesthetic positions. The Italian painter G. Severeni (born 1883) is the theoretician of N. In his book *Du Cubisme au Classicisme* he put forward a programme of "aesthetics of harmony of numbers and the dividers". Divorcement from life, un-

willingness to reflect contemporary ideas and subjects, a predilection for stylisation, and other strictly formalistic methods are characteristic of the work of such painters and sculptors as Pierre Puvis de Chavannes and M. Denis (France), A. Hildebrand and H. Marées (Germany), and others. N. became the official art trend in Italy and Germany during the period of the fascist dictatorship.

Neo-Darwinism, a mechanistic trend in the doctrine of evolution founded by the German biologist A. Weismann (1834-1914). The pivot of his doctrine is the idea of continuity of the "germ-plasma". He differentiated in the organism the sexual "germs" (plasma) and the organic elements (soma). The latter, according to Weismann, change under the influence of the environment and are of a correlational character, i.e., are interconnected with the other parts of the organism. But these changes are not heritable and, consequently, play no part in the process of the historical development of organisms. At the same time accidental influences of external factors may cause stable hereditary changes in the germ-plasma, where selection takes place at the level of individual germs (material particles or "determinants"). Weismann thus distorted Darwin's principle of natural selection in the spirit of autogenesis (q.v.), applying this principle to the processes within the organism. Weismann's followers (the Dutch biologist H. de Vries, the Swedish scientist Johannsen, and others) drew idealist conclusions from his theories, taking to positions of anti-Darwinism. At the same time, at a definite stage in the development of biology, the works of some Neo-Darwinists served as a working hypothesis, facilitating the study of the laws of heredity. At present molecules of nuclear nucleonic acids are regarded in biology as the material carriers of heredity (q.v.). As for the ideas of the Neo-Darwinists, they are supported in a somewhat modified form by a number of biologists (J. Huxley in Britain, J. Simpson in the United States, and others). Modern Neo-Darwinists in contrast to

various neo-vitalist and teleological concepts are trying to give a causal explanation to the processes of biological evolution. Philosophically, these attempts, however, do not go beyond the bounds of metaphysical materialism.

Neo-Hegelianism, an idealistic philosophical trend which arose in Britain and the United States in the second half of the 19th century as a reaction to natural historical materialism (q.v.) and positivism (q.v.) and for the defence of religion and speculative philosophy, q.v. (Green, Bradley, Royce, M'Taggart, and others). At the turn of the century N. assumed an anti-Marxist trend and spread in Italy (see Croce, Gentile), in Russia (A.I. Ilyin and others) and Holland (G. Bolland). German N. (Kroner, Glockner, Litt) came to the fore on the eve of, and after, the 1st World War. After the 2nd World War N. spread in France, largely merging with existentialism, q.v. (J. Wahl, J. Hyppolite, q.v., Kozhev). N. in general renounces dialectics or limits its application only to the sphere of consciousness, and irrationally interprets Hegel (q.v.) in the spirit of philosophy of life (q.v.). A solution of the problem of contradiction in N. varies from "reconciliation" (Bradley, Haering) to denial of any possibility of resolving contradictions (Wahl, Croce). In sociology, N. utilises the reactionary aspects of Hegelian philosophy of the spirit for "justifying" the imperialist state (Bosanquet) and also the fascist "corporate state" (Gentile, Haering) as a means of reconciling classes in society. In 1930, a N. centre was set up under the name of International Hegelian Union.

Neo-Impressionism, or **Pointillism**, or **Divisionism**, an artistic trend in France in the 1880s resulting from one-sided development of some methods of impressionism (q.v.). G. Seurat (1859-91), P. Signac (1863-1935), and other artists who joined them (C. and L. Pissaro, H. Cross, M. Luce, T. van Rysselberghe, G. Previati), turned the formal methods, supposedly discovered on the basis of the knowledge of the optical laws of light, into an aim in

itself. These methods consisted in the mechanical division of shades into basic pure colours and laying them evenly on the canvas in small points or strokes of pure colour, which merged into a whole when viewed from a definite distance. N. is marked by subjectivism in the selection of objects for painting, which often serve merely as a pretext for constructing pre-conceived colour combinations, for a mechanical "arrangement" of colour patches usually lacking definiteness and precision of form.

Neo-Kantianism, an idealist trend which sprang up in Germany in the second half of the 19th century under the slogan "Back to Kant!" (O. Liebmann, F. Lange). It also spread in France (Ch. Renouvier, Amlen), Italy (C. Cantoni, Tocco) and Russia (see Vvedensky, Chelpanov, and "Legal Marxism"). N. reproduces and develops the idealist and metaphysical elements in the philosophy of Kant (q.v.), ignoring its materialist and dialectical elements. The thing-in-itself (q.v.) is either discarded or interpreted in a subjective idealist way as an "extreme" concept. N. received full expression in two German schools: the Marburg school, q.v. (Cohen, q.v., P.G. Natort, Cassirer, q.v.) and the Freiburg, or Baden school, q.v. (Windelband, q.v., Rickert, q.v.). The former paid particular attention to an idealist interpretation of the objective, scientific concepts and to philosophical categories, regarding them as logical constructions. The second school focussed attention on justifying the antithesis of the natural and the social sciences on the basis of the Kantian doctrine of practical and theoretical reason and on striving to demonstrate the impossibility of scientific cognition of social phenomena. N. was utilised by revisionism in its struggle against Marxism and practically became the official philosophical dogma of opportunists in the Second International (Bernstein, q.v., M. Adler, K. Vorländer). Lenin and Plekhanov (qq.v.) struck crushing blows at Neo-Kantian revisionism. At present N. enjoys influence in some trends of axiology

(q.v.) and in a special branch of Kantianism (initiated by Hugo de Vries) advocated by W. Kraft.

Neo-Lamarckism, an unscientific trend in the theory of evolution which became widespread at the end of the 19th century. The characteristics of N. are an explanation of evolution only as a result of physiological processes, denial of the creative role of selection, recognition of primary purposefulness of organisms. One of the varieties of N. was so-called mechanical Lamarckism. It was most consistently elaborated by Spencer (q.v.) in his equilibrium theory, according to which the interaction of the organism and the environment led to their equilibrium. Evolution, on the other hand, is a result of the continuous disturbance of this equilibrium. The inability of mechanistic Lamarckists to give a scientific explanation of the relative purposefulness of organisms led them to idealism. So-called Psycho-Lamarckism, founded by the paleontologist E. Cope (1840-1907), is an extreme idealist variety of N. According to Psycho-Lamarckism, the source of evolution lies in primitive forms of consciousness and will, in some kind of "creative principle" interpreted in the spirit of vitalism (q.v.).

Neo-Platonism, a reactionary mystic philosophy in the epoch of the decline of the Roman Empire (3rd-6th centuries). Plato's (q.v.) idealist theory of ideas assumed the form of a doctrine of mystic emanation of the material world from the spiritual primary element. Matter is only the lowest link in the hierarchy of the Universe, an emanation of the "world soul", over which rises the "spirit" and still higher the "prime essence" or the "One". The highest stage of philosophy is attained not through experience and reason, but through mystic ecstasy. In this philosophy, idealism degenerated into theosophy (q.v.). The Neo-Platonic school first arose in Egypt, in Alexandria (Ammonius Saccas and later Hypatia). Plotinus (q.v.) founded a Neo-Platonic school in Rome. The school of Jamblicus (died c. 330) existed in Syria and elements of Pythagorean-

ism were strong in it. The last Neo-Platonic school was organised by Proclus (q.v.) in Athens and existed until 529. N. originally was hostile to Christianity and contained numerous elements of Oriental magic and mythology. Nevertheless it exerted a great influence on Christian patristics (q.v.) and on the development of philosophy in feudal society both in Christian and Moslem countries.

Neo-Positivism, a subjective idealist trend of philosophy in the 20th century, the contemporary form of positivism (q.v.). According to N., knowledge of reality is given only in everyday or concrete scientific thinking, while philosophy is possible only as an analysis of language, in which the results of these forms of thinking are expressed (see Philosophy, Analytical). Philosophical analysis, in the opinion of neo-positivists, does not extend to objectively real things, it must be limited only to the "given", i.e., direct experience or language. The extreme, consistent forms of neo-positivism, for example, the early neo-positivist Vienna circle (q.v.), by limiting "the given" to individual emotions, arrived directly at solipsism (q.v.). Logical positivism (q.v.) is the most influential variety of N. The British analytical philosophers, followers of Moore, q.v. (Stebbing, Wisdom) adhere to the general platform of N. Some members of the Lvov-Warsaw logical school (K. Aidukewicz) were also neo-positivists. An ideological and scientific organisational merger of various groups and individual philosophers who adhered to neo-positivist views took place in the 1930s. These were the Austro-German logical positivists of the Vienna circle (Carnap, q.v., M. Schlick, q.v., O. Neurath) and the Berlin Society of Scientific Philosophy (H. Reichenbach, q.v., C. Hempel), the British analysts, a number of Americans of the "philosophy of science" who adhered to the positivist pragmatic trend (E. Nagel, H. Margenau, Morris, W. Quine, Bridgman, q.v., and others), the Uppsala school in Sweden, the Münster logical group in Germany headed by Scholz, and

others. Since then international congresses have been regularly held and the ideas of N. are widely advocated in the press. Calling itself "scientific empiricism", N. is exerting influence on scientific circles. Idealist concepts in interpreting the discoveries of contemporary science are shaped under its influence. Mention should be made, however, of the positive significance of concrete results of studies in formal logic and methodology of science achieved both by the neo-positivists themselves and by scientists who are not neo-positivists but participate in congresses and discussions they arrange and periodicals they issue. Since the end of the 1930s the United States has become the main centre of N. At present this philosophy is represented above all by logical empiricism (q.v.). Linguistic philosophy (q.v.) is a specific variety of N. in Britain. Ayer (q.v.) and K. Popper are representatives of N. in Britain. Contemporary N. is undergoing a deep ideological crisis, displayed in its inability to solve basic philosophical problems, in their avoidance, and concentration on concrete logical studies.

Neo-Realism, a trend in Anglo-American philosophy of the 20th century. Its main representatives are Moore and Russell (qq.v.) in the early period of his activity, and others. The neo-realistic theory of knowledge is based on the idea of the "immanence of the independent", recognition that the cognised thing can directly enter the mind, but at the same time does not depend on knowledge as regards its existence and nature. One of the names given by N. to the theory of knowledge, epistemological monism, is connected with the Machist concept of "neutral elements" of experience and the "functional" difference between the physical and the psychical. In ontology, N. recognises that general concepts which possess "ideal existence" are real and that things are independent of relations into which they enter (theory of external relations). Epistemologically, the neo-realistic theory of knowledge results from turning into an absolute the fact that the con-

tent of knowledge is independent of the process of cognition; ontology—from divorcing the universal from individual things and also from the ontologisation of logical connections and concepts as results of the cognitive process. N. also has a "cosmologic" trend, which develops, on the basis of an idealistically understood theory of development, all-embracing philosophical systems—Alexander's theory of emergent evolution (q.v.), Whitehead's (q.v.) philosophy of the process, and holism (q.v.) of Jan Christian Smuts.

Neo-Slavophiles, followers of the early Slavophiles (q.v.) in the second half of the 19th century; hence also called "late Slavophiles". N. Y. Danilevsky (1822-85), K. N. Leontyev (1831-91), and N. N. Strakhov (1828-96) were the main exponents of N. The socio-political views of the N. were extremely reactionary: they denied the law-governed development of history, opposed Russia to Europe, and spoke about a special road of Slavdom (associating this with the ideas of religion, autocracy, etc.), destined to "save" mankind from doom. They saw in the monarchy a force capable of resisting the destructive influence of the West on the countries of the East. (Danilevsky, *Rossiia i Evropa* [*Russia and Europe*], 1869; Leontyev, *Vostok, Rossiia i slavyanstvo* [*The East, Russia, and Slavdom*], 2 vols., 1885-86; Strakhov, *Borba s zapadom v nashei literature* [*Struggle Against the West in Our Literature*], 3 vols., 1882-96, and others.) Denying class contradictions in Russian society, the N. came out against the ideology of the revolutionary democrats, against socialism. Strakhov (together with Dostoyevsky, q.v., A. F. Pisemsky, A. A. Grigoryev, and others) elaborated the unscientific theory of rapprochement between the people (the "soil") and the "upper classes" (the so-called soil theory). N. denied the scientific value of Darwinism; in philosophy they adhered to religious idealist positions. The ideology of N. reflected the interests of the exploiting classes.

Neo-Thomism, the official philosophical doctrine of the Catholic Church based on the teaching of Thomas Aquinas (q.v.). An encyclical of Pope Leo XIII (1879) recognised N. the only true philosophy conforming to the Christian dogmas. In 1889, a higher institute of philosophy was established in Louvain, Belgium. Now it is the international centre of N. This doctrine is widespread in countries with a large number of Catholics (France, Italy, West Germany, the United States, and Latin American countries). Outstanding Neo-Thomists are Maritain (q.v.) and E. Gilson (France), de Raeymeker (Belgium), Lotze de Fries (West Germany), G. Wetter (Austria), Bochensky (qq.v.). Neo-Thomist philosophy serves as the ideological mainstay of clericalism (q.v.). Neo-Thomists hold leading positions among the ideologists of anti-communism (q.v.). The scholastic principle: "philosophy is the handmaiden of theology" is the basis of N. N. is a theological form of contemporary objective idealism. Neo-Thomists regard "pure being", understood as the spiritual, divine prime element, as the highest reality. The material world is declared secondary and derivative. Neo-Thomists widely utilise as rational proof of religious dogmas the falsified Aristotelian categories of form and matter, potential, and action (possibility and reality) and also the categories of existence and essence. The Neo-Thomist speculative constructions result in recognising God as the prime cause of being and the prime foundation of all philosophical categories. Falsification of contemporary natural scientific theories holds a big place in N. Taken as a whole, the philosophy of N. is a widely ramified system of metaphysics (q.v.), whose main parts are ontology, epistemology, and natural philosophy. In the presentation of problems and terminology Neo-Thomist metaphysics differs noticeably from medieval Thomism (q.v.). It eclectically combines the basic elements of the doctrine of Thomas Aquinas (the principle of harmony of faith and reason, and others) with

propositions of the 18th and 19th centuries idealist systems of Kant, Schelling, and Hegel (qq.v.). In their views of the historical process, Neo-Thomists adhere to providentialism. Neo-Thomist sociology is based on the reactionary utopian idea of a "third" society, more progressive and just than capitalism and socialism, in which the church will rule.

New and Old, The, two opposite forces and tendencies, whose struggle, especially in society, is the driving force of development. Everything that drives, directs development in definite historical conditions is N., while everything that hampers and prevents it is O. In the process of development, the N. & O. are in dialectical interconnection. The N. grows out of the O., is contained in it in embryo; everything positive and valuable in the O. remains in the N. The emergence of the N. is always a leap, the end of all contradictions and the beginning of new ones. But the appearance of the qualitatively new as such is prepared in the process of development of the contradictions of the O. At first the O. is stronger than the N. But the N. is irrepressible, in one way or another it ultimately ousts the O. The N. carries within itself fresh contradictions and thereby the embryos of further development. At the next stage of development the N. as a whole or its separate aspects and features grow old. Not everything that arises is genuinely N., but only that which manifests itself as a more progressive form facilitating further development. The N. displays itself as such in struggle, in victory over the O., in development. The appearance of the N. is an objective process and does not depend on subjective arbitrary will. But in socialist society the struggle of the O. and the N., the moribund and the incipient, the backward and progressive becomes purposeful and planned.

Newton, Isaac (1643-1727), English physicist, founder of classical mechanics, who formulated the law of universal gravitation and exerted great influence on the development of mecha-

nistic materialism. In 1669, became professor of Cambridge University and in 1703, President of the Royal Society. Newton's main work *Philosophiæ Naturalis Principia Mathematica* (1687) contains three laws of motion (law of inertia, law of proportionality of force and velocity, law of equality of action and counteraction), from which many conclusions are deducted, forming the foundation of classical mechanics and classical physics. The *Principles* substantiate the concepts of absolute motion, related not to material bodies but to a void, absolute space and absolute time. From the mutual gravitation of bodies proportional to their mass and inversely proportional to the square of the distance between them, N. deduced in the *Principles* the laws of motion of planets established by Kepler. The law of universal gravitation completed the heliocentric concept of the solar system and, moreover, laid a scientific foundation for explaining many processes in the entire Universe, including physical and chemical processes. It became the foundation of an integral physical picture of the world. But Newton's theory of gravitation encountered objections because it admitted the influence (moreover, instantaneous) of one body on another without an intermediary material environment undergoing this influence (see Action, Immediate and at a Distance). In *Optics* N. proved that light when refracted is divided into rays of different colours, and put forward the corpuscular theory of light, the concept of light as special particles. In mathematics N. created the method of fluxions, which in the main coincides with the methods of differentiation and integration discovered in the same period by Leibniz (q.v.), and laid the foundation for an analysis of infinitesimals. Philosophically, N. adhered to positions recognising objective reality and the knowability of the world, but combined them with defence of religion. In N.'s system inertia and gravitation explain the endless repetition of elliptical movements of celestial bodies but the

"prime impulse" is attributed to God. N.'s theological views and interests and also his unwillingness to analyse the internal causes of the phenomena described (his words—*hypothesis non fingo*—I do not make hypotheses—became the slogan of empiricism in 18th century science), did not prevent his system of a uniform and exact explanation of nature from exerting great influence on the development of materialism, especially in Europe.

Nietzsche, Friedrich (1844-1900), German idealist philosopher, fore-runner of the ideology of fascism; professor of philology in Basle, Switzerland, in 1869-79. N.'s views were shaped in the period when capitalism entered the stage of imperialism and were a reaction of bourgeois ideology to the aggravation of class contradictions. His world outlook was pervaded with hatred for the "spirit of the revolution" and the masses. Slavery, according to N., belongs to the "essence of culture", while exploitation is "associated with the essence of everything living". N.'s ideas were concentrated on "retarding the stream of the evidently inevitable revolution". It is from this angle that N. reassessed the principles and standards of liberal bourgeois ideology: rationalist philosophy, traditional ethics, and the Christian religion. He considered that they weakened the will to struggle and were incapable of crushing the mounting revolutionary movement and frankly proposed instead of them inhumane and undemocratic principles. N. drew a sharp distinction between the ideology, designated to foster a spirit of submission among the working people ("morality of slaves") from the ideology intended to educate a "caste of masters" ("morality of masters"), advocating for the latter uncurbed individualism in law and morality. The philosophy of N. is voluntarism (q.v.): he opposed the will to reason. "Struggle for existence" which grows over into the "will to power" is considered the universal driving force of development. N. put forward the myth of the "eternal return of all things" in opposition to the scientific

theory of progress. Main works: *Also sprach Zarathustra*, 1883-91; *Beyond Good and Evil*, 1886; *The Will to Power*, 1906.

Nihilism, absolute denial, a viewpoint rejecting any positive ideas. The term N. was first used by Jacobi (q.v.) and gained popularity thanks to Turgenev's novel *Fathers and Sons*. In Russia reactionaries called the revolutionary democrats nihilists, ascribing to the supporters of Chernyshevsky (q.v.) unconditional denial of all past culture. Actually, the revolutionary democrats, while rejecting serfdom and the bourgeois system, put forward their own positive programme with socialist ideals. Lenin differentiated between revolutionary N. as a natural negative attitude to reactionary social orders (Vol. 4, p. 275) and anarchism of intellectualist N. (Vol. 17, p. 187). The reactionary essence of N. is expressed, for example, in the philosophy of Nietzsche, who proclaimed the "re-evaluation of values", i.e., denial of the standards of morality and justice elaborated by human culture.

Nominalism, a trend in medieval philosophy which regarded universal concepts only as names of individual objects. In contrast to medieval realism (see Realism, Medieval) nominalists asserted that only individual things with their individual properties really exist. General concepts created by our thoughts of these things, far from existing independently of things, do not even reflect their properties and qualities. N. was inseparably connected with materialist tendencies to recognise the primacy of things and the secondary character of concepts. N., according to Marx, was the first expression of materialism in the Middle Ages. But the nominalists did not understand that general concepts reflect real qualities of objectively existing things and that individual things are not separate from the general but contain it within themselves. Roscellin, John Duns Scotus, and William of Occam (q.v.) were the most outstanding nominalists in the 11th-14th centuries. The ideas of N. were devel-

oped on an idealistic basis in the doctrines of Berkeley and Hume (qq.v.) and more recently in semantic philosophy (see General Semantics).

Non-Contradiction, a basic condition which knowledge must fulfil, and according to which a proposition P and its negation \bar{P} cannot be simultaneously deduced within the bounds of every theory. Failure to fulfil this condition makes a theory invalid, because it could prove any proposition. The dialectical law of the unity and conflict of opposites, which demands the disclosure of objective contradictions of every development, and the demand of the N. of knowledge are not mutually exclusive. The proposition of logical N. applies to the method of presenting knowledge and implies that our thoughts and arguments must be consistent and free from contradictions (see Contradiction, Law of; Axiomatic Theory, Non-Contradiction of).

Non-Euclidean Geometries, literally all geometric systems differing from the Euclidean. Usually, however, N.G. are understood as the geometries of Lobachevsky (q.v.) and Bernard Riemann. From the viewpoint of logical structure, Lobachevsky's geometry has the same axioms as that of Euclid (q.v.), except the axiom on parallels. It is accepted in Lobachevsky's geometry that through a given point not on a straight line a not less than two straight lines can be drawn parallel to a in a given plane (from this it follows that there is an infinity of such lines). The theorems of this geometry differ from the Euclidean; the sum of angles of a triangle is less than two right angles (180°). Riemann's N.G. assumes that any straight line on a plane intersects any other straight line in the same plane (there are no parallel straight lines). N.G. play an important part in contemporary theoretical physics (see Relativity, Theory of; Quantum Mechanics). Its discovery is also of philosophical significance, because it refutes Kant's proposition about the a priori nature of the concept of space and the metaphysical view of space as an immutable essence. N.G. prove the dialectical view of

space as a form of existence of matter capable of changing together with it.

Noosphere (Gk.—the sphere of reason), the sphere of the planet embraced by rational human activity, a concept introduced in science by Le Roy and developed by Vernadsky (q.v.). With the development of human society the biosphere (q.v.) naturally turns into N. because mankind, as it masters the laws of nature and develops technology, increasingly transforms nature in line with its requirements. N. has a tendency continuously to expand as man penetrates outer space and reaches deep into the planet.

Notion, sensory, generalised image of objects and phenomena of the reality, retained and reproduced in the consciousness without immediate action of the objects and phenomena upon the sense-organs. What objectively becomes the property of individuals, thanks to their practice, takes shape and is retained in man's N. Although N. is a form of individual sensory reflection, in man it is inseparably linked up with socially-evolved values through the medium of language, is of social significance and always comprehended and realised. N. is a necessary element of consciousness, since it permanently connects the denotation and sense (q.v.) of the concepts with the images of things and at the same time enables our consciousness to operate freely with sensual images of objects.

Noumenon (Gk. *noumenon*, that which is conceived, thought), a term signifying, in contrast to phenomenon (q.v.), the essence conceived only by reason. Plato (q.v.) first used this term in the *Timaeo Dialogue*. He understood N. to mean reality as it exists in itself and an object of speculative knowledge. Kant examines N. in two aspects: being a negative, problematic concept (in his *Critique of Pure Reason*), N. is an object of reason, of intellectual intuition; in his *Critique of Practical Reason* Kant points to the possibility of a positive concept of N. as an object of non-sensuous intuition. In this sense N. is inaccessible to man, because the latter's contem-

plation, according to Kant, can be only sensuous.

Nous (Gk.—mind, reason), a basic concept of ancient philosophy denoting the concentration of all existing acts of consciousness and thinking in general. This concept appeared in a clear form for the first time in the philosophy of Anaxagoras (q.v.) where it is treated as the principle shaping and ordering formless matter. This concept was given an idealist interpretation by Plato (q.v.) and especially Aristotle (q.v.) who considered it the form of all forms in a state of eternal self-contemplation. This concept acquired great importance with the Neo-Platonists who, on the ground of Aristotelianism, treated it as a special kind of supersensory being which imparts meaning and definite form to the world. Materialists also used this concept. Democritus (q.v.) understood N. as fire in a spherical shape. Thales (q.v.) also attached cosmological importance to N. Apparently, with ancient materialists N. is the sum total of the laws of nature or their source which they conceived in a sensory-material form. In epistemology Democritus sharply contrasted N. as the principle of precision to hazy sensations, which introduce confusion and disorder in knowledge. Ancient N. is always extra-personal and even impersonal in contrast to medieval doctrines which found a personal element in it.

Number, one of the main concepts in mathematics; it serves to designate the quantitative definiteness of objects and processes. Originally, the concept "N." arose as an immediate abstraction from the properties of the aggregate of objects people encountered with in their daily practical activity. The first stage in abstraction was the concept of the natural number (1, 2, 3, and so on). In the process of development of science and practical activity, fractions, negative numbers, and the zero appeared. As mathematics developed there appeared complex numbers (at first in the 16th century and finally in the 19th century) and their generalisations (hypercomplex num-

bers and others in the 19th and 20th centuries). In the history of philosophy, the concept "N." was the object of various mystical speculations (for example, in the Plato, Pythagorean, and other schools).

Nyāya, an orthodox idealist system of Indian philosophy. Logic and epistemology played a particularly big part in the doctrine of N. The origin of N. is associated with the name of the ancient mythical sage Gotāma. *Nyāya sūtras* were recorded in the second century A.D. According to the doctrine of N., a material universe exists consisting of atoms, the combinations of which form all objects. In addition, a countless number of souls exist in the Universe. They can be either in

a free state or bound with the material atoms. The supreme spirit or God Ishwara is not the creator of the souls and atoms, but of the combinations of atoms, and links the souls with the atoms or releases the souls from the atoms. A syllogism theory, different from that of the ancient Greeks, was developed in India for the first time in N. The five members of the syllogism are premiss, proof, illustration, application of proof, and conclusion. N. recognises four modes of knowledge: perception, inference, comparison, and testimony of other people and books. N. also elaborated a detailed classification of the main categories of knowledge (*padarth*) and a classification of objects of knowledge.

O

Objectification and Deobjectification, terms which designate characteristic distinctions of human labour. O. means the creation of a definite object by the passage of human active forces and capabilities from a form of motion to the form of an object; deobjectification means the transition of an object from its own sphere into the sphere and form of human activity, i.e., the use of an object in the process of labour. These concepts were applied in Hegel's (q.v.) philosophy to the extent that he "grasped the essence of labour" (Marx). But Hegel (q.v.) idealistically reduced man's labour activity solely to abstract spiritual labour, to thinking, and identified O. with alienation (q.v.). These concepts have a fundamentally different meaning in the description of labour given in Marx's early works. Examining O. and D. in their unity as necessary aspects of labour activity, Marx revealed the place of labour in man's life, the fact that by his labour man actively remakes, humanises, the objective world (as a result of O., which expresses the active side of labour). At the same time man depends on the objective world, utilising it in his activity and co-ordinating this activity with objective laws (as a result of D., which expresses the dependence of man on the object). All this enabled Marx scientifically to characterise the process of labour, to open a way to the dialectical materialist understanding of the relationship between the subject and the object and to solve problems of the theory of knowledge from positions of experience. One of the aspects of O. and D.—description of the labour process from the viewpoint of

the interaction of human activity with its object and product—is preserved in developed Marxism and is reflected in terminology (e.g., in *Capital*).

Objective, pertaining to an object or determined by it. As applied to real objects, this concept means that objects, their properties and relations, exist outside and independent of man. As applied to ideas, concepts or judgments, it indicates the source of our knowledge, its material basis. Subjective dialectics reflects objective dialectics. Recognition of objective truth (q.v.) underlies the materialist theory of knowledge. Proof of objective significance is obtained by comparing the idea or theory with the object of thought in the process of practical use of the object or of changing reality in conformity with the idea or theory.

Objective and Subjective Factors of History, two kinds of conditions of social development. O.F. are conditions which are independent of people and determine the direction, the bounds of their activity. Such, for example, are natural conditions, a given level of production, the historically urgent tasks and requirements of material, political, and spiritual development. S.F. are the activity of the masses, classes, parties, states, and individuals; their consciousness, will, ability to act, etc. O.F. always play a determining part, but their action is manifested only through the operation of S.F. The latter can play a decisive role only when the objective conditions for them have been prepared. The influence of S.F. on social development rises with the transition from one socio-economic formation to another, more progressive

formation. The importance of S.F. particularly increases in socialist society when, for the first time in history, the possibility is created for planned development in all spheres of social life and the mass of the people are drawn into the building of socialism and communism.

Objective Idea, the highest generic concept in idealism which not only possesses objective reality but also determines sensory being. According to how the relationship between the O.I. and objective reality is interpreted we distinguish: (1) the dualistic theory of the O.I., most consistently represented in the Megarian school (q.v.) which asserts that the essence of things is special ideal reality, in no way related to sensory being; (2) the monistic theory of the O.I. which uses such concepts as the "imitation" of things by ideas, the "presence" of ideas in things, stressing the determining influence of the ideal world on the sensory world. In one form this monism (see Plato) speaks of the influence of the independent ideal world on reality. In another form (see Hegel) this monism denies any difference at all between ideas and things, and objective things are conceived as logical categories in their development; (3) the emanation theory (see Stoics, and Neo-Platonism) which teaches that the primary substance (primary fire of the stoics, Primary One of the Neo-Platonics) emanates into the entire sensory world, which arises and takes shape with the help of the objectively ideal primary principle. Dialectical materialism denies the primacy of the ideal principle. The idea is a reflection of matter, i.e., it has an objective content. Therefore, it is possible to speak of the real existence of ideas, which are recorded in different forms of social consciousness and are objective as regards their content and also in relation to the mind of the individual. But in this case, too, the O.I. is a subjective reflection of material reality, although it actively influences this material reality itself for the purpose of transforming and developing it.

Objective Reality, the material world

in its entirety, in all its forms and manifestations. The concept O.R. is relative. It is everything that exists outside the individual's mind and is reflected by it. But the individual himself with his mind will be O.R. in relation to other people, and so on. If abstraction is made of the individual view of the world, it may be said that O.R. coincides with reality (q.v.) in general. The latter includes diverse material objects, their properties, space, time, motion, laws; diverse social phenomena—relations of production, the state, art, etc. All these are reflected by the human mind but exist independent of the mind. From this, however, we must not conclude that the concept of O.R. is broader than the concept of matter (q.v.). Such an idea can arise if matter is divorced from its multifarious properties and forms of manifestation, without which it does not exist. Motion, space, time, life, etc., are all properties or manifestations of properties and interactions of various kinds of matter differing in degree of complexity, which in their sum total forms the world as a whole or the entire O.R. (see Being).

Objectiveness, a concept denoting a phenomenon, action, state, etc., is connected with objects or is (becomes) itself an object; the being of something as an object, i.e., real existence. For example, it is possible to speak of the objective (or material, which in this case is the same) characteristic of practical activity, since in this process men are engaged with objects and create objects as a result of that activity; one may speak of the objectiveness of the reflection of reality by man, i.e., of the presence in the human mind of an objective content, inasmuch as that content is the reflection of objects of the material world, etc. Recognition of man's O., his activity, the content of his consciousness, etc., distinguishes materialist from idealist philosophy. True, Hegel used the term "O." But with him O. was merely the product (alienation) of the absolute spirit at certain stages of its development and must be removed, set aside, by the recognition

of the fact that every O. is the other being of the spirit, the concept, the idea.

Objectivism, a specific principle of approach to phenomena of reality which calls for abstention from critical appraisals and partisan conclusions on the alleged grounds that science is incapable of drawing such conclusions. A characteristic of O. is the refusal to analyse theoretical events from a class viewpoint. In the ideological struggle O. claims that class forces stand "above classes", represent the "entire nation", and are "non-partisan". Exposing "narrow" bourgeois O., Lenin demonstrated that Marxism abhors it, just as subjectivism, because Marxism deduces its partisan viewpoint in a scientific way, that is, leads scientific study to partisan conclusions and appraisals which correspond to the actual state of affairs (see Partisanship in Philosophy).

Occam, William of (d. 1349), medieval English theologian, scholastic philosopher, tutor at Oxford University and prominent nominalist (see Nominalism). An ideologist of the secular feudal lords who fought against the claims of the Catholic Church and papacy to world domination. Alongside Duns Scotus (q.v.), a leader of the scholastic opposition to Thomism (q.v.), O. asserted that the existence of God and other religious dogmas could not be proved by reason and were founded solely on faith. Hence philosophy must get rid of theology.

Occasion, external, often casual event, circumstance, providing an impulse for other events. O. differs from cause in that it may be a fact of various kinds, not connected of necessity with other events, effects (see Causality). O. may give rise to one or another phenomenon only because the latter has been prepared by a regular and necessary course of development. By O. we also understand a pretext, sometimes specially chosen, for any behaviour or action.

Occasionalism, a religious idealist doctrine of the 17th century (Cordemois, A. Gaulincx) trying to provide an explanation of the interaction of

soul and body, to which the dualism of Descartes (q.v.) inevitably led by considering all psychic and physical phenomena and their interaction a result of the direct intervention of God. The French spiritualist Malebranche (q.v.) carried O. so far as to see a divine act in every causality.

Occultism (Lat. *occultus*—hidden), a mystic doctrine of the existence of mysterious other-world forces with which chosen people supposedly establish contact. By its content O. is close to theosophy (q.v.).

Ogaryov, Nikolai Platonovich (1813-77), Russian revolutionary democrat, philosopher, publicist, and poet. With Herzen (q.v.) opposed tsarism and serfdom, the reactionary ideology of the Orthodox Church, autocracy and liberalism of the landowners and bourgeoisie. The ideological co-operation of O. with Herzen which began during their youth continued to the end of their life. As students of Moscow University Herzen and O. organised a clandestine circle whose members studied political literature, including socialist writings. In 1834, O., Herzen and other members of the circle were arrested and exiled. In 1850, O. was arrested a second time, in 1856, he emigrated and, together with Herzen, organised the publication of Russian revolutionary periodicals—*Polyarnaya Zvezda* (*Polar Star*), *Kolokol* (*Bell*), *Obshcheye Veche* (*General Assembly*), *Russkaya Potayonnaya Literatura* (*Russian Secret Literature*). O. and Herzen were the founders of Russian peasant utopian socialism, of Narodism (q.v.), whose theory O. elaborated in detail. The theory of communal socialism of O. and Herzen expressed the revolutionary demands of the peasant masses who strove for the complete abolition of big landownership and the overthrow of the rule of the landowners. O. was one of the founders of the underground revolutionary organisation *Zemlya i Volya* (*Land and Freedom*) in the 1860s, whose ideas he expounded in the article "What Do the People Need?" (1861) and other works. Prior to 1840, O. adhered to idealist positions.

Knowledge of the achievements of 19th-century natural science and the philosophy of French materialism, especially Feuerbach's (q.v.) *Essence of Christianity* enabled him to adopt philosophical materialism and atheism. Although O. paid tribute to anthropologism (q.v.), the speculative character of Feuerbach's philosophy did not satisfy him. Together with Herzen he critically assimilated the philosophy of Hegel (q.v.), especially his dialectics, drawing from it revolutionary conclusions and utilising it to justify a revolution in Russia. O. voiced many profound ideas on the origin and development of consciousness, the relationship between absolute and relative truth (q.v.) and problems of contradiction in the development of nature and society. He elaborated the principles of materialist aesthetics, emphasising the social role of art and its kinship with the people (q.v.), advocating lofty idea-content and resolutely rejecting the idealist theory of "pure art". O. was one of the predecessors of Russian Social-Democracy. His main works are *Russkiye Voprosy* (*Russian Questions*), 1856-58; *Yeshcho ob Osvobozhdenii Krestyan* (*More about the Emancipation of the Peasantry*), 1858; *Pamyati Khudozhnika* (*In Memory of an Artist*), 1859; *Chastniye Pisma ob Obshchem Voprose* (*Private Letters on a General Question*), 1866-67.

Old Hegelians, the conservative wing of the school of Hegel (q.v.) in Germany in the 1830s and 1840s; they endeavoured to interpret his teaching in an orthodox Christian spirit. At first, the O.H. (K. Hoschel, F. Hinrichs, G. Gabler) took advantage of the conflicting and inconsistent delineation between philosophy and religion in the Hegelian system to infer the synthesis of reason and faith. The later O.H. (Ch. Weisse and I. Fichte, Jr.) developed their doctrine as a counterweight to radical Young Hegelians (q.v.). They insisted on the need for "correcting" Hegel in the spirit of Schelling's "philosophy of identity" and the theodicy of Leibniz (q.v.).

Ontology 1. In pre-Marxist philosophy O., or the "First Philosophy",

was the doctrine of being in general, being as such, independent of its particular forms. In this sense O. is equivalent to metaphysics (q.v.), a system of speculative universal definitions of being. Aristotle (q.v.) was the first to introduce the concept of such a doctrine. In the late Middle Ages, Catholic philosophers utilised the Aristotelian idea of metaphysics to construct a doctrine of being which would serve as philosophical proof of the truths of religion. This tendency was most fully elaborated in the philosophical theological system of Thomas Aquinas (q.v.). Since the 16th century O. has been understood as a special part of metaphysics, the doctrine of the supersensuous, non-material structure of everything existing. The term O. was coined by the German philosopher Rudolf Goclenius (1613). The idea of O. received its final shape in the philosophy of Wolff (q.v.) which lost all connection with the content of the specific sciences and constructed O. largely through abstract deductive and grammatical analysis of its concepts (being, possibility and reality, quantity and quality, substance and accident, cause and effect, etc.). An opposite tendency was displayed in the materialist doctrines of Hobbes, Spinoza, and Locke (qq.v.) and the French 18th century materialists, inasmuch as the positive content of these doctrines, which were based on the experimental sciences, objectively undermined the concept of O. as a philosophical subject of the highest rank, as "First Philosophy". Criticism of O. by the German classical idealists (Kant, Hegel, qq.v., and others) was dual: on the one hand, O. was declared to be meaningless and tautological and, on the other, this criticism ended in the demand for a new, more perfect O. (metaphysics) or its replacement by transcendental philosophy (Kant), a system of transcendental idealism (Schelling, q.v.) or by logic (Hegel). Hegel's system anticipated in an idealist form the idea of the unity of O. (dialectics), logic, and the theory of knowledge and indicated a way out of the framework of speculative philosophical construc-

tions to real positive knowledge of the world (Engels). 2. Attempts to construct a "new ontology" on an objective idealist basis have been made in the 20th century as a reaction to the spread of subjective idealist trends (see Neo-Kantianism, Positivism). In the new ontological doctrines ("transcendental ontology" of Husserl, q.v.; "critical ontology" of N. Hartmann, q.v., and "fundamental ontology" of Heidegger, q.v.), O. is regarded as a system of universal concepts of being conceived with the help of supersensuous and superrational intuition. The idea of the "new ontology" has been taken up by a number of Catholic philosophers, who are trying to "synthesise" the "traditional" O. coming from Aristotle with Kantian transcendental philosophy and to pit their own O. against the philosophy of dialectical materialism.

Operational Definitions, definitions (q.v.) which indicate experimentally reproduced operations, the objective results of which are accessible to direct empirical observation or measurement (q.v.). Most often O.D. are used as a means for partial empirical interpretation of scientific concepts. Here is a simple example. "If a litmus-paper is placed in a liquid, that liquid is an alkali only if the paper turns blue." One and the same scientific concept can be given several O.D., indicating different empirical situations of applying the given concept (see Hypothetico-Deductive Theory). An exaggeration of the role of O.D. and their elevation into an absolute are characteristic of operationism (q.v.).

Operationism, a subjective idealist trend in contemporary philosophy which is a synthesis of logical positivism (q.v.) and pragmatism (q.v.). It was founded by Bridgman (q.v.). The main thing in O. is the idea of operational analysis, according to which the meaning of any concept can be determined only through a description of the operations employed in using and testing this concept; the latter is identical to a corresponding set of operations. Concepts not connected with any operations are considered

meaningless. O. includes among them many concepts of materialism. Operations are "instrumental" or thinking ("paper and pencil" operations and "verbal" operations). Sentences are formed by combining operationally defined concepts, and sentences are combined to form theories. O. inevitably arrives at subjective idealist conclusions; if in concepts we cognise only our operations of measurement, then recognition of the objects themselves independent of the measurement procedures will be meaningless. P. W. Bridgman says explicitly: "Things are a construction of ours."

Opinion, in ancient philosophy, imperfect, subjective knowledge, as distinct from authentic, objective knowledge, truth. Already the Eleatics (q.v.) sharply differentiated between truth based on rational knowledge and O. based on sensory perception and the appearance of things. With the atomists, O. is the result of "images" projected to man; phenomena perceived through senses exist in O., whereas atoms and the vacuum exist in reality. The sophists (q.v.) erased the boundary between O. and truth ("everything is as anybody believes it to be"), which led them to the extreme subjectivism and relativism. According to Plato (q.v.), O. is divided into conjecture and belief and applies to sensory things, whereas knowledge has spiritual entities for its own subject. For Aristotle (q.v.), O. is the empirical method of knowledge, whose subject-matter can change and become false, since it is classed among the accidental and individual. Aristotle distinguished O. from scientific knowledge, which has for its subject the essential and the universal.

Opposite, a category expressing either of the sides of contradiction. The unity of Oo., the diametrically opposed sides or tendencies, makes up a contradiction which is the motive force, the source of development of things. The concept "O." is used also to characterise the degree of development, growth and ripeness of a contradiction. In contrast to differences, in which contradiction is not yet matured and still

exists largely "by itself", O. means a developed contradiction which has come to a head, has reached a higher stage of its development, when the conflict of opposites and tendencies arrives at the final place of its development and solution.

Optimism and Pessimism, two opposite attitudes to the course of events. Optimism is manifested in belief in a better future. Extreme metaphysical O. was advocated by Leibniz (q.v.) who held that the existing world is the best of all possible worlds. Such a view leads to denial and, ultimately, to the justification, of evil, misfortune, and calamities in life. Scientific O., based on Marxism-Leninism, follows from the knowledge of the objective laws of social development. Meliorism, a view that the world could be improved by human effort, is a type of O. This term was coined in the 19th century by the French philosopher J. Sully and the English novelist George Eliot. But meliorists think that the world can be improved only through individual perfection, through enlightenment. In contrast to meliorism, Marxist theory proceeds from the principle that revolutionary activity of the people in conformity with the cognised laws of social development is the determining factor in society's progressive development. P. is a view that events go from bad to worse, it is expressed in depressed moods, lack of faith in the triumph of good and justice. P. was posited by the German reactionary philosophers Schopenhauer (q.v.) and E. Hartmann (q.v.) and the Italian poet Giacomo Leopardi. P. is inherent in existentialism (q.v.). As a rule, classes outliving their age turn to P.

"**The Origin of the Family, Private Property and the State**", the work written by F. Engels in 1884. Basing himself on the data of Morgan's book, *Ancient Society*, as well as on other data of science, Engels investigates in this work the essential features of the development of the primitive-communal system (q.v.). He shows the changes in the forms of marriage and the family (q.v.) in relation to the eco-

nomical progress of society, analyses the process of the decay of the tribal system (quoting as examples the Greeks, Romans, and Teutons) and the economic causes. The growth of the productivity of labour and the division of labour (q.v.) underlying this process led to exchange, private property, the disintegration of the tribal system, and the formation of classes (q.v.). The appearance of class contradictions called into life the state (q.v.) as an instrument for defending the interests of the ruling class. Engels' book demonstrated that: (1) private property, classes, and the state did not always exist, but appeared at a certain stage of economic development; (2) the state, in the hands of the exploiter classes, is only an instrument of coercion and oppression of the people; (3) the classes will disappear as inevitably as they appeared in the past. With the disappearance of classes the state inevitably disappears. Engels' book is a valuable contribution to the Marxist teaching on society and is still an important manual for the study of historical materialism.

Orphism, a trend in ancient Greek mythology which arose in the 8th century B.C. and was associated with the worship of the mythical poet Orpheus and the God Dionysus. The teaching of O. was the world outlook of the ruined peasants and slaves opposed to mythology, the world outlook of the aristocracy. In mythology, life in the other world was considered a continuation of life on earth and the soul was regarded as a kind of corporeal being. O., however, associated life in the other world with bliss, and life on earth with suffering; the sojourn of the soul in the body was viewed as its fall from the other world. The ideas of O. expressed a protest against man's conversion into a slave, into a speaking tool. The slave associated his liberation with the soul leaving the body which belonged to the master. O. exerted great influence on emerging philosophy, particularly ancient Greek idealism.

Ortega Y. Gasset, José (1883-1955), Spanish philosopher, subjective ideal-

ist (held an intermediate position between Nietzschean philosophy of life, q.v., and contemporary existentialism). He focussed attention on social problems. In his works, *La deshumanización del arte*, 1925, and *La rebelión de la masas*, 1929, O. expounded the main principles of the doctrine of "mass society". O. gave the name of "mass society" to the spiritual atmosphere which formed in the West as a result of the degeneration of bourgeois democracy, bureaucratisation of social institutions, and the spread of money-exchange relations to all forms of contacts between individuals. A system of social ties arises in which each man feels himself to be an insignificant actor performing a role imposed on him from the outside, a particle of an impersonal element called the mob. O. criticises this spiritual situation "from the right". He considers it to be the inevitable result of the released democratic activity of the masses and sees a way out in the creation of a new aristocratic elite of men capable of making a voluntary "choice", guided solely by the direct "life impulse", a category close to the Nietzschean "will to power". O. regards rationalism as an intellectual style of "mass society". He advocates a return to pre-scientific forms of orientation in the world, to the ancient uncorrupted "love of wisdom".

Orthodoxy, a variety of Christianity, q.v. (cf. Catholicism, Protestantism) which spread mainly in the countries of Eastern Europe, the Middle East, and the Balkans. O. was finally formed as an independent trend in the 11th century as a result of the difference between the ways of development of feudalism in the West and in the East of Europe. The differences in dogmas are the following: recognition of the procession of the Holy Spirit from the Father alone, infallibility of the Church as a whole (but not of the head of the Church), immutability of dogmas, denial of purgatory, etc. Cult and canonical differences include the worship of icons, obligatory marriage for the secular clergy, a special (Byzantine) form of church hymn, etc. O. has

no single centre, but consists of fourteen independent (autocephalous) orthodox churches. Principled conservatism is highly characteristic of O. Russian O. served the autocracy with faith and truth, was one of its pillars and completely dependent upon it. From the time of Peter the Great to 1917 the Russian Orthodox Church was part of the state machinery. It was hostile to the revolutionary movement. After the October Revolution (particularly since the 1930s and 1940s) this counter-revolutionary policy of the Russian O. changed, under the pressure of the believers, into loyalty to Soviet government. Contemporary O. has completely preserved all its anti-scientific ideas and concepts. Religious mystical philosophy (Khomyakov, Berdyayev, Lossky, q.v., V. V. Zenkovsky, etc.) is the theoretical basis of O.

Osipovsky, Timofei Fyodorovich (1765-1832). Russian materialist thinker, professor of mathematics, and rector of Kharkov University, from which he was dismissed by reactionaries for his progressive views (1820). As a materialist philosopher he criticised Kant's philosophy and his assertion about the a priori origin of the truths of geometry. On the whole, his materialist views do not go beyond metaphysical mechanistic materialism. The scientist was influenced by Cartesian ideas which made him exaggerate the methodological role of mathematics and overestimate the importance of the analytical method in cognition. O. actively fought against mysticism and highly valued the role of education and science. However, in his views on religion he remained a deist. His main philosophical works: *O prostranstve i vremeni* (*On Space and Time*), 1807; *Rassuzhdeniya o dinamicheskoi sisteme Kanta* (*A Discourse on the Dynamic System of Kant*), 1813.

Owen, Robert (1771-1858), utopian socialist, exponent of English socialist thought. Was born into the family of an artisan and earned his own living from the age of ten. From 1791 to 1828 participated in capitalist enterprise and managed large factories.

He knew the negative aspects of the capitalist system better than other utopian socialists and sharply criticised them under the conditions of the industrial revolution. O. engaged in philanthropic activity and was the father of factory legislation. Subsequently, his criticism was spearheaded against private property, religion which sanctifies it, and bourgeois marriage. He was a rationalist and atheist with some deviations towards deism. O. held that the social system exerts decisive influence on man; interpreted history in an idealist way as gradual progress of human self-knowledge; saw the root of social evil in people's ignorance. O. attached exceptional importance to education as one of the measures preparing a "new moral (i.e., socialist) world". He introduced many valuable ideas in the theory and practice of pedagogy. By 1820, his main ideas had been shaped into a system which O. began to call socialist. Its principles were common ownership and labour, a combination of mental and physical labour, all-round development of the individual, equality of rights. His socialist teachings combined industrial and agricultural labour, the latter being given preference. He conceived the future classless society as a free federation of self-governing communities, each uniting from 300 to 2,000 people. O. laid the main emphasis on distribution. Failing to understand the need for a social revolution, he relied on bourgeois governments to transform society. He organised labour communes (New Harmony in the United States from 1825 to 1829 and Harmony Hall in Britain from 1839 to 1845) and also exchange markets, all of which failed. O. was the only great utopian who associated his activity with the destinies of the working class. Early in the 1830s he actively participated in the British trade union and co-operative movements; his ideas at that time anticipated syndicalism to a certain extent. O. was always a supporter of the working class, although he did not understand its historical role.

Ownership, a historically conditioned form of appropriation of material wealth, expressing the relationships between people in the process of social production. The form of O. is a manifestation of the relationship of classes and groups to the means of production. The development of the forms of O. is determined by the development of the productive forces. A change in the mode of production leads to a change in the form of O. At the same time, the various forms of O. constitute stages in the growth of the division of labour. Historically, society has known two basic forms of O., public and private. The primitive-communal system (q.v.) and socialism (q.v.) are characterised by public O. Private O., which arises with the development of exchange, dominates the slave-owning system, feudalism, and capitalism (qq.v.). The nature of private O. varies in these three formations. Associated with private O. are the division of society into classes and the appearance of class and national antagonisms. The dominant form of O. predetermines the domination of a definite class. The abolition of private O. and the organisation of society on the basis of public O. lead to the elimination of the antagonisms and the obliteration of class distinctions.

Ownership, Personal, the owning of articles of personal use. As distinct from private ownership of the means of production, P.O. will always exist. Recognition of P.O. does not, however, imply recognition of its unlimited extension. Under socialist conditions the extension of the sphere of P.O. presents a certain danger because this extension may become a brake on social progress by fostering the private-ownership mentality, and may lead to the petty-bourgeois corruption of individuals. Under complete communism the extension of P.O. will become entirely meaningless, since the principal source for the satisfaction of personal requirements will be the public consumption funds and everyone will receive from society according to his needs.

P

Pacifism, a bourgeois liberal trend advocating peace. Pacifists preach passive methods of preserving peace, they reject revolutionary action of the masses as a means of defending peace and consider that the chief means of preventing war is to denounce it as being "sinful" and immoral. The fundamental fallacy of P. (the theoretical basis of which is idealist explanation of war) is failure to understand the deep material causes which give rise to war in bourgeois society. By renouncing all wars, including just ones, the pacifists hamper the development of the liberation struggle in the dependent countries. The bourgeoisie often utilises pacifist ideas for deceiving the working people, camouflaging the predatory wars it is preparing, and for preventing revolution. In present-day conditions, when the imperialists threaten mankind with devastating thermonuclear war, many pacifists are taking to more active struggle for peace. The Programme of the CPSU stresses that a world war can be prevented by the combined efforts of the peace-loving peoples. Unity of all parties and organisations, including pacifists, in struggle for the prevention of war, disarmament, and peaceful coexistence is a cardinal task of our time. Pacifism must not be identified with the struggle for peace conducted by the socialist countries and the progressive forces of the world. For this struggle is based on a profound knowledge of social and political changes under way in the life of peoples and states and in international relations. The present world-wide peace movement proceeds from the possibility of preventing another world war, from the fact that world war has ceased

to be inevitable as a result of the change in the relationship of world forces in favour of peace and against imperialism which is no longer able to influence world economic and political affairs as it did in the past. The position of the progressive forces, too, has changed: socialism has gained in strength, the struggle of the workers, of the democratic and peace-loving forces, and of the peoples fighting for national liberation has grown in intensity. Work for peace and disarmament helps the people better to understand their fundamental interests.

Panlogism, an objective idealist teaching on the identity of being and thinking according to which all development in nature and society is the realisation of the logical activity of the idea. Considering the laws of logic to be the only laws of motion of the material world, P. turns the true relationship between being and consciousness upside down. At the same time one could discern in this view the true idea that everything existing can be rationally, logically cognised. P. was most fully developed by Hegel (q.v.).

Panpsychism, an idealist view that all nature possesses life and psychic activity, it is a philosophical reproduction of animism (q.v.). Many modern idealist philosophers (personalists, Whitehead, q.v., the critical realist Strong, etc.) are open proponents of P. The scientific understanding of psychic activity as a special property inherent only in highly organised matter rejects any kind of P. (see Hylozoism).

Pantheism, a philosophical teaching according to which God is an impersonal principle which is not out-

side of nature but identical with it. P. dissolves God in nature, rejecting the supernatural element. The term was introduced by Toland (q.v.). Whereas earlier P. often enough included essentially materialist views of nature (e.g., Bruno and especially Spinoza, qq.v.), it has now been transformed into an idealist theory of the existence of the world in God and is an attempt to reconcile science with religion.

Paradoxes (in logic and the set theory), formal logical contradictions which arise in the set theory and in formal logic, while preserving the correct line of reasoning; they are akin to Zeno's aporias (q.v.) and semantic antinomies (q.v.) known since antiquity. In modern science P. were discovered in the 19th century in some branches of the set theory (for example, by George Cantor in 1895 and Cesare Burali-Forti in 1897). One of the best known P. was discovered by Bertrand Russell in 1902 when two mutually exclusive (contradictory) propositions are equally demonstrable. They can appear both in a scientific theory and in ordinary arguments (e.g., Russell's rewording of his paradox about a set in all normal sets: "... Barber in a certain village who shaves all and only those persons in the village who do not shave themselves. Does he shave himself?"). Since a formal logical contradiction destroys inference as a means of finding and demonstrating truth (in a theory in which P. appears, any proposition both true and false is equally demonstrable), the task arises of revealing the sources of P. and finding ways of eliminating them. A dialectical materialist analysis shows that P. are an expression of profoundly dialectical and epistemological difficulties associated with concepts of an object and the objective sphere in formal logic, of a set (class) in logic and in the set theory, with the employment of the principle of abstraction which makes it possible to introduce new (abstract) objects, and with methods of defining abstract objects in science, etc. That is why here can be no universal method of remov-

ing all P. Various ways are possible for solving the problem of removing P. from scientific theories: construction of the theory of types (q.v.), or hierarchy of types, restriction of the principle of abstraction, etc. Thus, to remove P. from the set theory, axiomatic set theories were created in which restrictions were introduced sufficient for excluding the known P. (the first system was proposed by E. Zermelo in 1908). The problem of philosophical understanding and finding concrete solution of P. is an important methodological problem of formal logic and the logical principle of mathematics (see Antinomy).

Paralogism, unpremeditated violation of the laws and rules of logic, which deprives an argument of the force of proof and usually leads to false conclusions. A distinction must be made between P. and a deliberate violation of the rules of logic (see Sophistry).

Parmenides, Greek philosopher (6th-5th century B.C.) from Elea (Southern Italy), head of the Eleatic school. P. conceived the world as an immobile and completely filled sphere. He vigorously opposed the "doctrine of truth" (true being is single, eternal, immobile, indivisible, and free from void) to the "doctrine of opinion" (there exists a plurality of things—arising and transitory, moving, divisible into parts, and separated from each other by a void). The "doctrine of truth" is authentic, the "doctrine of opinion" is only seemingly true. P. deliberately directed the "doctrine of truth" against the dialectics of Heraclitus and his followers. In the "doctrine of opinion" P. expounded his astronomical, physical, and physiological hypotheses. His naive materialist "physics" proceeds from the assumption that there are two elements: an active one—fiery and bright, and an inert one—dark. Mistrust of the evidence of the senses and high appraisal of speculative knowledge introduce an element of idealism and even rationalism (q.v.) into his teaching, while the denial of motion makes P. the father of ancient Greek metaphysics.

Part and Whole, philosophical categories reflecting relations between different objects and their aspects and elements and also their connection. This connection bears the nature of a whole, while objects in relation to it appear as its parts. The difference between the whole and the simple quantitative sum of its parts is met for the first time in the works of Aristotle (q.v.). In pre-Marxian philosophy, two opposite solutions of the problem of the whole were offered: the summative metaphysical one—a whole is the sum of its parts; there is nothing in a whole which is not in the parts; and a mystical idealist one—a whole is more than a sum of parts; it is an unknowable spiritual essence. German classical philosophy (see Schelling, Hegel) differentiates between the inorganic whole and the organic self-developing whole, but the latter is associated with the development of the spirit, and not of matter. In the 19th century, speculation on the problem of the whole was widely exploited by many idealist schools (neo-vitalism, q.v., holism, q.v., *Gestalt* psychology, q.v., structuralism, universalism, intuitionism, q.v., etc.). The real objective "part-whole" relationship is expressed in the two most general types: inorganic and organic. The inorganic whole is a form of unification of objects within which the elements comprising it are in a close, stable interconnection. The properties of the inorganic whole cannot be reduced to a mechanical sum of the properties of its parts. Atoms, molecules, crystals, etc., are examples of such whole formations. On the other hand, the organic whole (living organism, society, etc.) is a form of connection of objects in which the given association as a whole realises its ability for self-development, passing through consecutive stages of progressing intricacy. Components of the organic whole stand in relations not only to co-ordination but also to subordination, determined by the origin of some elements from others in the course of the differentiation of the whole. Outside of the whole they not only lose a number of their

properties (as is the case in the inorganic whole), but cannot exist at all. It is of great importance to the process of cognition to take into account the dialectical interaction of the part and the whole. In cases of complex phenomena it is especially necessary to consider: (1) that it is incorrect to reduce the whole to its parts, because this can lead to a misunderstanding of the whole as a qualitatively definiteness subject to specific laws; (2) the need to examine the whole in all its complexity and the relative independence of the aspects, elements, and parts of which it consists, inasmuch as the latter can have their concrete features which do not coincide directly with the whole; (3) that examination of individual aspects and parts must be based on knowledge (at least preliminary, hypothetical) of the nature of the whole and, on the contrary, study of the whole must rest on the knowledge of the properties of its components, its elements.

"**The Part Played by Labour in the Transition From Ape to Man**", a work by Engels (1876) studying the social laws of the origin of man and society. Generalising the material accumulated by biology, paleontology, and anthropology, Engels shows that the prerequisites for labour (erect gait, freeing of the upper limbs, higher development of the psyche of the anthropoid apes, the ancestors of man) were created in the process of biological evolution. Labour acquires the features of specific human activity with the beginning of instrument-making, and this led to the appearance of speech and thought, which developed as social forms of life asserted themselves. Man masters the forces of nature. He does not only use it as a consumer, as is the case with animals, but also makes it serve his pre-established purposes. Labour, speech, thought, and corporal organisation influence each other mutually. *The Part Played by Labour ...* is an unfinished manuscript originally written as an introduction to Engels' big projected work, *Three Main Forms of Slavery*. This essay was first published in 1896

in German. Later it was included in *Dialectics of Nature*.

Partisanship in Art, the fullest expression of the ideological trend of art, defence in artistic works of the interests of a definite social class. Lenin, in his article "Party Organisation and Party Literature" (1905) and other works, rejecting the theories of "pure art", put forward and substantiated the principle of P.A., according to which art in contemporary conditions can develop only by linking itself with the most progressive movements, above all the struggle and ideology of the proletariat. The slogan of "impartiality" of art is a form of camouflaging bourgeois partisanship. Some present-day theoreticians of aesthetics counterpose freedom of creative endeavour to P.A. and declare them to be incompatible. In bourgeois society, so-called "freedom of creation" is intended to hide the fact that the creative endeavour of most artists in bourgeois society depends on the interests of capital. Only progressive artists realise what adverse effect this dependence of art on the exploiting classes has, and side with the people. The principle of communist partisanship implies that the artist freely and consciously serves mankind's most elevated and noble aims. The artists of socialist realism are guided by the Leninist understanding of free creative endeavour, which consists in siding with the people and creating aesthetical values for them.

Partisanship in Philosophy, a cardinal principle of the Marxist-Leninist world outlook. The principle of partisanship was formulated and grounded by Marx, Engels, and Lenin. In a class society, philosophy, like any ideology, cannot be non-partisan: it reflects and serves the interests of definite classes. In the history of philosophy, materialism and idealism were the main opposite trends and contending parties in philosophy. The contemporary ideological struggle is a reflection in the consciousness of mankind of the historical process of transition from capitalism to communism. The partisanship of bourgeois ideolo-

gists is displayed in their anti-communism, their striving to discredit socialism and Marxism-Leninism, in attempts to gloss over the antagonisms of bourgeois society, to picture the bourgeois state as a welfare state (q.v.) and present the interests of the capitalists as the universal ideals of mankind. Marxism consistently acts on the principle of partisanship in philosophy and regards dialectical and historical materialism as a scientific weapon of the proletariat in its struggle against capitalism, for the victory of communism. In contrast to bourgeois partisanship, disguised as objectivism (q.v.), the partisanship of Marxist-Leninist philosophy is openly militant. It is distinguished by an uncompromising attitude towards idealism and metaphysics, revisionism and dogmatism, by a scientific approach, i.e., genuine objectivity in analysing reality, an organic tie-up of theory and practice, philosophy and politics, and a creative approach to problems of Marxist theory, and the building of communism.

Pascal, Blaise (1623-62), French mathematician and physicist, one of the founders of the theory of probability (q.v.). The evolution of his views was contradictory. He combined outstanding discoveries in the natural sciences with religious fanaticism and scepticism (q.v.) directed against science and rational knowledge. His logical views continued Descartes' (q.v.) teaching on method and exerted influence on the logic of Port Royal (q.v.). P.'s struggle against the spiritual tyranny of the Jesuits was supported by advanced sections of French society. His main work was *Pensées* (published posthumously in 1669).

Pasteur, Louis (1822-95), French scientist, founder of scientific microbiology. His experiments refuted the unscientific ideas of autogenesis of living organisms from inorganic substances and played a positive part in developing the scientific theory of the origin of life.

Patriarchy, a historical level in the development of the primitive-communal system (q.v.) at the stage of its disintegration; P. arose after

matriarchy (q.v.) and its specific feature was the domination of the man in the economy and the entire way of life in the clan community. P. arose in the period when the first large-scale social division of labour (q.v.)—the separation of stock breeding from agriculture—led to the relatively fast development of the productive forces, regular exchange, private property, and slavery. As stock breeding and farming developed the men gradually assumed ownership of cattle and of the slaves received in exchange for cattle. Under P. group marriage was replaced by pairing marriage; the husband is recognised as the father of the children; the wife and children belong to him by right of ownership. The patriarchal family, numbering up to a 100 and more people, was above all an economic unit (see Clan). Further development of the productive forces, private property, and exchange led to the break-up of the patriarchal family into separate small monogamous families.

Patriotism, love for one's country, "one of the most deeply ingrained sentiments inculcated by the existence of separate fatherlands for hundreds and thousands of years". (Lenin, Vol. 28, p. 187.) P. is a result not of a mysterious "national spirit" or "racial soul", as asserted by idealist sociologists, but of definite socio-economic conditions. It is a historical phenomenon which has different content in different epochs. Being an element of social consciousness P. acquired special importance in the epoch of emerging capitalism as nations and national states were formed. But the further development and aggravation of the antagonism of classes increasingly revealed the falsity and hypocrisy of the P. of the bourgeoisie who places profit and "the safeguarding of the alliance of the capitalists of all countries against the working class" (Lenin, Vol. 27, p. 366) above the interests of its country. Only the class connected with progressive tendencies of society's development can truly express the national interests. In bourgeois society, the working masses and above all the proletariat, are

such classes and, therefore, real patriots. The working class fighting for the revolutionary remaking of society and the building of socialism expresses the deepest national interest of its country, of the entire people. Only as a result of a socialist revolution does P. merge with the devotion to the new social system, the new state created by the people themselves under the leadership of the working class. It is only in socialist society that the working people for the first time gain a true fatherland. This gives rise to new, socialist P. which becomes one of the driving forces of the new society. Socialist P. is inseparably bound up with proletarian internationalism and abhors both nationalism and cosmopolitanism.

Patristics, Christian theology of the 1st-8th centuries, apologetics of the "Church fathers" who at first upheld the dogmas of Christian religion against paganism and asserted the incompatibility of the religious faith with ancient philosophy; from the 3rd. century, P. tried to adapt the philosophy of Hellenism (see Neo-Platonism) to Christianity. P. was represented mainly by Tertullian (150-222), Clement of Alexandria (150-215), Origen (185-254), and St. Augustine (q.v.).

Pavlov, Ivan Petrovich (1849-1936), Russian natural scientist. Professor of the Military Medical Academy (up to 1925), member of the Academy of Sciences (from 1907), Nobel Prize winner. Founder of objective experimental study of higher nervous activity (q.v.) in animals and man by the method of conditioned reflexes (see Reflexes, Conditioned and Unconditioned). He developed the teaching of Sechenov (q.v.) on the reflectory nature of mental activity. The method of conditioned reflexes enabled P. to discover the basic laws and mechanisms of the activity of the brain. Studies of the physiology of digestion led P. to the idea that the method of conditioned reflexes could be used for investigating the behaviour and mental activity of animals. The phenomenon of "psychic saliva secretion" and numerous experimental investigations served as the

basis for his conclusion about the signal function of the psychic activity and for the elaboration of his teaching on the two signal systems. Pavlov's doctrine as a whole provides the natural-science foundation of materialist psychology and the dialectical materialist theory of reflection (proposition of the connection between language and thinking, sensuous reflection and logical cognition, etc.). The works by P. and his school now serve as a basis for developing cybernetic devices which imitate individual sides of mental activity. Main works: "*Dvadsatiletny opyt obyektivnogo izucheniya vysshei nervnoi deyatel'nosti (povedeniya) zhivotnykh. Uslovniye refleksy (Twenty Years of Objective Study of the Higher Nervous Activity [Behaviour] of Animals)*, 1923; *Lektsii o rabote bolshikh polushary golovnogo mozga (Lectures on the Work of the Large Hemispheres of the Cerebrum)*, 1927.

Pavlov, Mikhail Grigoryevich (1793-1840), Russian natural philosopher. As professor of Moscow University (1820-40) he taught a number of subjects in natural science, including physics and agronomy. Not finding an answer to many questions in metaphysical materialism, P. became a follower of Schelling's natural philosophy. His main work in natural philosophy is *Osnovaniya fiziki (Basic Principles of Physics)*, in two volumes, published in 1833-36. Thanks to the dialectical nature of his world outlook and his close ties with science P., though remaining an idealist, worked fruitfully on problems of the relationship between empirics and speculation, science and practice, and the classification of the sciences.

Peaceful Coexistence, a principle of the foreign policy carried out by the USSR and other socialist countries with a view to preventing a new world war. The idea of the coexistence of states with differing social systems was for the first time put forward by Lenin, who based himself on the law of the uneven economic and political development of capitalism. On the strength of this law the transition to socialism is not accomplished simul-

taneously in all countries; it comprises a whole historical epoch, starting with the triumph of socialism in one country, or some countries, and ending with the triumph of socialism and communism all over the world. Herein lies the objective necessity for the protracted coexistence of socialist and capitalist states. P.C. implies renunciation of war as a means of settling international disputes, and their solution by negotiation, mutual understanding and trust between nations, non-interference in internal affairs, strict respect for the sovereignty of all countries, promotion of economic and cultural co-operation on the basis of complete equality and mutual benefit. Lenin's idea of P.C. is embodied and creatively developed in the activities of the CPSU and fraternal Communist Parties. The coexistence of socialist and capitalist states does not mean, as the revisionists maintain, the relaxation of the class struggle or conciliation with the bourgeois ideology. P.C. is a specific form of the class struggle waged with peaceful means. This being the case, the main field of struggle between socialism and capitalism is economic competition, where socialism, thanks to its inherent advantages, shall triumph. Not war with other countries, but setting the example of a more perfect social organisation, the rapid advance of productive forces, the creation of all conditions for human happiness and prosperity, help the ideas of communism capture the minds and hearts of the people. This form of struggle was brought to life by the tremendous changes in the world. War, which in the past too was considered undesirable by the people as a means of settling conflicts, is now fraught with dangers of a world conflict, which could mean a tremendous disaster for humanity as a whole. This is seen at present even by the enemies of socialism. Big changes have taken place in the relation of forces in the international arena (the increased might of socialism, of the working-class and the democratic movements in the capitalist countries, and of the national liberation struggle).

The imperialists cannot but reckon with these changes. All this creates the possibility and necessity of settling international conflicts by peaceful means. P.C. does not mean giving up the national liberation movement; on the contrary, it creates the most favourable conditions for it. Moreover, since the struggle for peace, for peaceful coexistence, is conducted against imperialism—the source of military danger—this brings the masses to a better understanding of their vital interests.

Pearson, Karl (1857-1936), English mathematician, idealist philosopher, Machist. He is well known for his works in the field of the mathematical theory of statistics and biometry. He was director of the biometrical and eugenic laboratories at London University. His main philosophical work *The Grammar of Science* is devoted to the methodological problems of science. The task of science, in his opinion, is not to explain but to classify and describe facts. Like all other Machists he regarded material objects as a group of sensual perceptions, and the natural laws, space and time as the products of the human mind. At the same time the subjective idealism of P. is distinguishable from Machism as a whole by its frankness and consistency as well as by the absence of any attempt to pass off as materialism. Comprehensive criticism of P. is given by Lenin in his *Materialism and Empirio-Criticism* (q.v.).

Peirce, Charles Sanders (1839-1914), American philosopher and logician, founder of pragmatism (q.v.), professor at Cambridge, Baltimore, and Boston universities. In his article "How to Make Our Ideas Clear" (1878) he introduced the so-called "P.'s law": the value of an idea lies in its practical results. Having identified the latter with sensations, P. adopted the position of Berkeley. Understanding science as the "strengthening of faith", P. worked out three methods of pragmatism: the "method of persistence", the "method of authority" and the "scientific method" reducible to "P.'s principle". Contrary to the subjective-idealist theory of knowledge, P. worked

out an objective-idealist theory of development, based upon the principle of "chance" and "love" as the guiding force of development. His works on logic, which he understood as a "general theory of signs", have significantly influenced mathematical logic and modern positivism (q.v.). His main works are in the field of the theory of probability (q.v.) and the logic of relations.

People, in the usual sense, the population of a state, of a country; in the strictly scientific sense, a historically changing community of people including those sections and classes which, owing to their objective position, are capable of jointly participating in the development of the given country in the given period. "In using the word 'people' Marx did not thereby gloss over class distinctions, but united definite elements capable of bringing the revolution to completion." (Lenin, Vol. 9, p. 133.) The concept P. as a sociological category reflects the change in the social composition of society: for the primitive-communal society the difference in the terms "population" and "people" was of no essential significance; but in antagonistic societies this difference is very important, because there is an increasingly deeper chasm between the dominating, exploiting groups and the mass of the people. Only with the abolition of exploitation of man by man in socialist society, does the concept P. again cover the entire population, all its social groups. The major criterion for considering definite groups of the population a part of the P. is their objectively determined interest in society's progress and ability to participate in accomplishing its tasks. In the course of social development, as revolutionary changes are effected, the objective tasks themselves and the content of the revolution change, and, therefore, the social composition of the sections which at the given stage make up the P. is also inevitably altered. In his works Lenin carefully traced these changes. At the beginning of the 20th century, when Russia was confronted with the task of overthrowing the autocracy, Lenin wrote: "Any worker who is at all

class-conscious knows full well that the people struggling against the autocracy consists of the bourgeoisie and the proletariat." (Vol. 8, p. 503.) Later on, when Russia was faced with socialist tasks, Lenin stressed that in the all-out struggle for socialism and against the bourgeoisie, the P. at the given stage included only the workers and the poor peasantry. Consequently, the concept of P. includes the direct producers—working people and non-exploiting groups of the population, but cannot always be reduced to these classes and sections. This should be especially borne in mind in present-day conditions, when wide popular movements against imperialism, for peace, democracy, and socialism are under way. Marxism for the first time established that P., the masses, are the decisive force in history, that it is they who create all the material and the bulk of the spiritual wealth, thereby ensuring the decisive conditions for society's existence. They develop production, which leads to change and development in all social life; they make revolutions, thanks to which there is social progress. Thus, it is the P. who are the real makers of history.

People's Democracy, one of the forms of the dictatorship of the proletariat (q.v.) reflecting the distinctive development of socialist revolution at a time when imperialism is weakened and the balance of forces has tilted in favour of socialism. It also reflects the distinctive historical and national features of the various countries. (Programme of the CPSU.) P.D. arose in the course of people's democratic revolutions in a number of East European and Asian countries. These revolutions resolved the contradictions between the foreign imperialists, internal big bourgeoisie and landowners, on the one hand, and a wide coalition of the other classes, on the other, and were carried out under the leadership of the proletariat and its vanguard, the Communist Party. The successful development of people's democratic revolutions led to the establishment of P.D. in East European and some Asian countries. As the revolution deepened, it in-

creasingly invaded the capitalist economy (nationalisation of means of production) and at the same time restricted the political influence of the bourgeoisie. Land reforms, which put an end to the feudal survivals and strengthened the alliance of the proletariat with the working peasantry, were of great importance for the development of people's democratic revolutions. Deep-going democratic reforms ensured the development of these revolutions into a socialist revolution. Accordingly, P.D., which at first acted as the democratic dictatorship of the people, began to discharge the functions of proletarian dictatorship. This general course of the revolution had its specific features in various countries. The form of P.D. is determined by the broad class basis of the people's democratic revolution (not only the proletariat and the peasantry, but also definite sections of the bourgeoisie), and the peaceful development of people's democratic revolution into a socialist revolution, which made it possible to utilise some old forms of the representative system (parliament). The characteristic features of P.D. are: the existence of a multi-party system (except in a few European countries); in addition to the Communist Party, there are other democratic parties which adhere to the positions of socialism and recognise the leading role of the working class; the existence of a specific form of the people's front which unites political parties and mass organisations. Other characteristics of the period in which P.D. is formed are the absence of restrictions in political rights, a longer period for the break-up of the old state machinery, etc. Experience has shown that P.D. is a powerful instrument in building socialism. At present "in the People's Democracies socialist production relations are dominant and the socio-economic possibility of capitalist restoration has been eliminated". (Programme of the CPSU).

Perception 1. Reflection of an object arising in the consciousness owing to the effect of the objective world on the senses. The sensations (q.v.) are

elements of P., which may be visual, tactile or auditory. Visual perceptions are the most important from the standpoint of epistemology. They are formed out of the visual sensations a person experiences in his relations with the environment, the effect of the shape of an object determining the movements of the hand that touches it, and the movements of the hand in their turn determining the structure of the visual image. True perception of the objective world depends on the structure of the image of the external object and the structure of the object itself being isomorphic (see Isomorphism). The role of P. in the process of cognition is as follows: (1) it forms the basis of general conceptions such as "island", "plant", "man", which do not reveal the essence of the objects; (2) it provides the primary material for the formation of scientific concepts, certain separate connections and relations which form the primary elements of theory being abstracted from the structure of the image acquired through perception. 2. P. as understood by Leibniz (q.v.), is a lower (unconscious) form of spirituality, as distinct from apperception (q.v.).

Peripatetics (Gk. *peripatētikos*—performed or performing while moving about), the followers of the philosophy of Aristotle (q.v.). The name derives from the fact that in the philosophical school of Aristotle (Lyceum), founded in Athens in 335 B.C., teaching usually took place during walks. The peripatetic school existed for nearly one thousand years (up to 529 A.D.) and was a great centre of antique science. The most prominent leaders of this school (scholarchs) after Aristotle's death were Theophrastus of Ephesus (c. 371-286 B.C.), particularly famous for his works in botany; Strato of Lampsacus (c. 305-270 B.C.), who developed the materialist trend in Aristotle's philosophy; Andronicus of Rhodes (1st century B.C.), who published Aristotle's works; Alexander of Aphrodisias (end of 2nd century A.D.—beginning of 3rd century A.D.), who wrote materialistically inspired commentaries on Aristotle's philosophy.

Personalism, a religious idealistic trend which spread in American philosophy at the turn of the century, as well as in contemporary French philosophy. The term was first used in the USA by Bronson Alcott (1863) and in France by Charles Renouvier (1901). The main features of P. are: (1) recognition of the "individual" as the primary reality and the supreme spiritual value, the "individual" being regarded as the spiritual primary element of being; (2) intimate connection with theism. To the materialistic world outlook P. opposes the conception that nature is the sum total of "individual" spirits (see Pluralism). A great number of "individuals", being at various levels of evolution and constituting the world, are governed by the "supreme being"—God. The founder of P. in the USA was B. P. Bowne (1847-1910). G. W. Howison (1834-1916), M. W. Calkins (1863-1930), A. K. Knudson (1873-1954) had views close to P. The chief exponents of P. in contemporary American philosophy are: Bowne's disciple, the leader of the Californian school R. T. Flewelling (b. 1871) and the leader of the Bostonian school E. S. Brightman (1884-1953). All of them associate P. with Protestant theology. In Britain the most prominent representative of P. was H. W. Carr (1857-1931), in Germany the psychologist W. Stern (1871-1938). In their teachings, however, there is no direct connection with theology, as is the case with the American personalists. According to P., the main social task is not to change the world but to change the individual, i.e., to promote his "spiritual self-perfection". A group of French personalists occupies a special place; it was headed by E. Mounier (1905-1950). This group of intellectuals, united round the journal *Esprit* (founded in 1932), represents the left Catholic circles who took part in the French Resistance and now advocate world peace and bourgeois democracy.

Petrashevsky's Group, members of a political circle which existed in Petersburg in 1845-49 and was organised by M. V. Butashevich-Petrashevsky (1821-66). Most prominent among them

were N. A. Speshnev, A.V. Khanykov, P. N. Filippov, N. P. Grigoryev, N. A. Mombelli, I. M. Debu, D. D. Akhsharumov, V. A. Golovinsky, P.A. Kuzmin, A. P. Balasoglo, F. M. Dostoyevsky (q.v.), S. F. Durov, and others. In April 1849, the circle was destroyed by the tsarist government. P.G. was not homogeneous in composition. Besides the revolutionary democrats (Petrashevsky, Speshnev, Filippov, Akhsharumov, Grigoryev, Khanykov, and some others) it included supporters of a liberal trend (N. Y. Danilevsky, A. P. Beklemeshev, V. N. Maikov, etc.). The revolutionary-minded members of the P.G. hated tsarist autocracy and serfdom in Russia, advocated revolutionary methods of struggle against tsarism. P.G. studied socialist literature; they highly valued the works of Belinsky, Herzen, Feuerbach, and Fourier. Their library contained the works of Rousseau, Proudhon, Michelet, Leroux, Saint-Just, L. Blanc, and others, and also Marx's *The Poverty of Philosophy* and Engels' *The Position of the Working Class in England*. The philosophical and sociological ideas of P.G. were fully expounded in Petrashevsky's *Karmanny Slovar Inostrannykh Slov* (*Pocket Dictionary of Foreign Words*), 1846, in Speshnev's *Letters to K. Khayetsky*, in the *Speeches of Khanykov, Kashkin, Aksharumov and Tol*, in Filippov's *Ten Commandments*, in Grigoryev's *Soldier's Talk*, etc. Adhering to the materialist positions, Petrashevsky, Speshnev, and some others criticised the idealism of Kant, Hegel, Fichte, and Schelling. They recognised nature and its laws to be objective reality, undergoing continuous change and development. They declared nature to be the prime source of life and human knowledge. P.G. maintained that "there is nothing in the world except matter", there is nothing that is supernatural, nothing that could not be included in the natural world and not developed from it. While highly assessing Feuerbach's philosophy, P.G., however, criticised his propagation of love as a new form of religion which "draws all men to God" (Speshnev).

Petrashevsky, Speshnev, Kashkin, and others were atheists. They critically assimilated Fourier's theory, rejecting religious elements in his teaching. The utopian socialist ideas of the Left wing of P.G. were close to the ideas of the revolutionary democrats.

Phenomenalism, a theory of knowledge based on the postulate that only sensations are the immediate object of knowledge. Extreme P. leads to subjective idealism: the world is a "sum total of ideas", "of complexes of sensations" (Berkeley, q.v. Empirio-Criticism, q.v.) or agnosticism (q.v.): we are unable to know what is concealed behind the sensations (Hume, q.v.). Moderate P., recognising the existence of objects manifested in sensations, leads either to inconsistent materialism which considers objects as material things (see Locke) or to Kantian agnosticism, if objects are regarded as unknowable "things-in-themselves" (see Kant, J. St. Mill, Spencer). In contemporary positivism (q.v.) P. assumes the linguistic form, inasmuch as its main thesis is reduced to the possibility of expressing experience in an "object" or "phenomenalistic" language. Acknowledging initially the complete possibility of reducing statements about things to statements about the content of consciousness, some neopositivists are lately realising the futility of these attempts. From the viewpoint of dialectical materialism, the initial thesis of P. is insolvent because it divorces knowledge from reality.

Phenomenology, a subjective idealist trend founded by Husserl (q.v.) which exerted a great influence on many trends in contemporary bourgeois philosophy. The central concept of P. is the "intentionality" (*intentionalität*) of consciousness (its being directed on the object), which is designed to assert the subjective idealist principle: "There is no object without a subject." The main requirements of the phenomenological method are: (1) phenomenological reduction, i.e., abstention from any judgements pertaining to objective reality and going beyond the bounds of "pure", i.e., subjective

experience; (2) transcendental reduction, i.e., consideration of the subject of knowledge itself not as a real, empirical, social, and psycho-physiological being, but as "pure" transcendental consciousness. The ideas of P. became the philosophical basis of existentialism, q.v. (M. Scheler, Heidegger, q.v.). Some bourgeois philosophers (Sartre, Merlo Ponti, qq.v.) counterpose P. to dialectical materialism. Catholic philosophers (Edith Stein, Van Breda) synthesise P. with Neo-Thomism (q.v.). The openly idealist and irrationalist conclusions from P. have aroused opposition within the phenomenological school itself; its Left wing is trying to protect P. from existentialism, preserving only its supposed "rational kernel" (Farber and partly Ingarden). The theoretical centre of the phenomenological trend is the Husserl archives of the Louvain Catholic University in Belgium.

Phenomenon, or appearance (Gk. *phainomenon*—to appear), an object of experience perceived by means of the senses. In Kant's philosophy, P. differs in principle from noumenon (q.v.) which remains beyond the bounds of experience and is inaccessible to human contemplation. Kant tried, by means of the concept of P., to discriminate between essence and appearance regarding the first as unknowable (see Agnosticism). From the viewpoint of dialectical materialism there is no sharp boundary between appearance and essence; the essence (q.v.) is perceived through the phenomenon (see Phenomenalism, Phenomenology).

Philogenesis and Ontogenesis, terms introduced by Haeckel (1866) for designating the historical, generic (P.) and individual (O.) development of organisms. In organic nature P. & O. are inextricably connected and reciprocally conditioned (see Biogenetic Law). O. is the result of historical development, i.e., the result of P. On the other hand, P. is based on individual changes, i.e., on O. This interaction reflects the unity of the part (individual) and the whole (genus), the particular and universal, the dialectics of the spiral-like process of development, at each

stage of which the qualitative leaps made at previous stages are reproduced. The idea of the unity of P. & O. was put forward by Darwin (q.v.) and elaborated by Haeckel, Michurin (q.v.), and others.

Philosopher's Stone (stone of wisdom, elixir, tincture), according to ideas prevailing in the Middle Ages, a substance supposedly capable of converting base metals into gold and silver, of curing all diseases, and rejuvenating people. Practical observations of different transmutations of some substances into others and also natural philosophic surmises about the unity of matter were the basis of these ideas. In the Middle Ages they acquired a distinctly religious mystic tinge. The development of scientific chemistry exploded the idea of P.S. At present the possibility of transmutation (q.v.) of chemical elements has been scientifically proved.

Philosophical Communism, a term used by Engels to designate a trend of utopian communism among the revolutionary bourgeois intelligentsia of Germany in 1842-43. P.C. wanted to connect the theoretical views of the Young Hegelians (q.v.), particularly of Feuerbach (q.v.), with elements of the teachings of utopian socialists and also with tasks of a social nature, chiefly anti-feudal changes. P.C. completely ignored the role of the proletariat and did not understand the class nature of communism. This, together with the inadequate level of concrete historical and especially economic studies, explains the speculative nature of P.C. Its rational element consisted in stressing the ties of communism with classical German philosophy. Herwegh, Hess, Lüning, Bernays, and Grün belonged to this vague and confused trend. Subsequently, P.C. degenerated into true socialism (q.v.).

"Philosophical Notebooks", Lenin's notes on philosophy, which were published for the first time in 1933. *P.N.* are extensive excerpts copied by Lenin (mainly between 1914 and 1916) from various philosophical works. Besides summaries of their content Lenin made important critical remarks, conclusions

and generalisations. *P.N.* contain summaries of the following books by Marx and Engels, *The Holy Family*; Ludwig Feuerbach, *Lectures on the Essence of Religion*; Hegel, *The Science of Logic*, *Lectures on the Philosophy of History*, and *Lectures on the History of Philosophy*; Lassalle, *The Philosophy of Heraclitus the Obscure of Ephesus*; and Aristotle, *Metaphysics*. Of great interest is the fragment "On the Question of Dialectics" in which Lenin gives in a concise form a profound exposition of the essence of materialist dialectics. *P.N.* also deal with books on natural science and contain many valuable ideas and statements on diverse problems of philosophy. The central subject of *P.N.* is dialectics. Lenin gave a definition of dialectics which reveals all aspects of its essence and elements; he formulated the basic principles of the Marxist understanding of logic and its categories, characterised the dialectical process of knowledge (q.v.), and the doctrine of opposites as the core of dialectics. Lenin's proposition on the unity of dialectics, logic, and the theory of knowledge and also his statements concerning the elaboration of dialectical logic (q.v.) are of great importance for the development of philosophy. Of particular significance in this respect are Lenin's ideas that the history of thought and the laws of thinking coincide in logic and that to elaborate a correct theory of knowledge it is necessary philosophically to sum up the history of technology, natural science, the mental development of children, animals, etc. As regards the history of philosophy, Lenin showed that it is a history of the struggle between materialism and idealism; he pointed to the importance of studying the history of dialectics; examined a number of methodological questions in the history of philosophy and assessed the views of many philosophers, paying special attention to Hegel. In his notes on books dealing with the natural sciences Lenin stressed the importance of dialectical materialism as the only scientific methodology. *P.N.* are a model of creative development of materialist dialectics

and offer a programme for further work in Marxist philosophy. At the same time one should bear in mind in reading *P.N.* that these are notes Lenin made for himself and which he did not prepare for publication.

Philosophy, science of the general laws of being (i.e., nature and society), human thinking, and the process of knowledge. P. is one of the forms of social consciousness (q.v.). It is ultimately determined by society's economic relations. The fundamental question of P. as a special science is the relation of thinking to being, consciousness to matter. Every philosophical system gives a concretely elaborated solution of this problem even if the "fundamental question" is not directly formulated in it. Pythagoras was the first to use the term "P."; it was singled out as a special science by Plato. P. arose in slave society as a science embracing the sum total of man's knowledge of the objective world and himself, which was natural, considering the low level of knowledge at that early stage in human history. As social production developed and scientific knowledge accumulated, individual sciences branched out from P., the latter being singled out as an independent science. P. as a science arose out of the necessity to elaborate a general view of the world, to study its general elements and laws, out of the need for a rational method of thinking, for logic. This need put the relationship of thinking to being in the foreground in P., because its solution underlies all philosophy and is the basis of the method and logic of knowledge. This also resulted in the polarisation of P. into two diametrically opposed trends, materialism and idealism, dualism holding an intermediate position between them. The struggle of materialism and idealism lays its imprint on the entire history of P. and is one of its main driving forces. This struggle is closely associated with the development of society, the economic, political, and ideological interests of the classes. Elaboration of the specific problems of P. led to the singling out of various aspects as more or less independent

and at times sharply delineated divisions. These are ontology, epistemology, logic, ethics, aesthetics, psychology, sociology, and history of P. At the same time P., in view of the inadequacy of concrete knowledge, tried to replace the missing links and laws of the world by invented ones, thereby becoming a special "science of the sciences", standing above all other sciences. In relation to nature it was natural philosophy (q.v.) and in relation to history, the philosophy of history (q.v.). The last system of this kind was Hegel's P. But as knowledge was accumulated and differentiated, all grounds for the existence of P. as a "science of the sciences" disappeared. Marxism-Leninism for the first time clearly understood the social requirements, giving rise to P. as a special science, and its place and role in spiritual culture, and consequently also the range of its problems, its subject-matter (see Materialism, Dialectical; Materialism, Historical). Theoretical knowledge of phenomena of the surrounding world is impossible without logically developed thinking. But it was P. that elaborated logical categories and laws because of the historically shaped division of labour between the sciences. Marxist-Leninist P. developed and consistently applied the materialist principle in understanding the objective world and thought, fructifying it by its dialectical outlook and constructing dialectical logic as the "science not of external forms of thought, but of the laws of development 'of all material, natural, and spiritual things', in other words, of the development of the entire concrete content of the world and of its cognition, i.e., the sum total, the conclusion of the *history* of knowledge of the world". (Vol. 38, pp. 92-93.) Marxist P. considers logical forms and laws as forms and laws of development of natural and socio-historical processes cognised and tested by entire human experience. It abolishes the distinction between ontology, logic, and the theory of knowledge. This is a fundamental principle of the P. of dialectical materialism. The philosophical theory of

Marxism thus represents a dialectical materialist solution of the fundamental question of P., a solution concretely expounded and elaborated in all details. Logical forms and laws appear here as universal forms and laws governing every natural and socio-historical process reflected in man's mind, as stages in the theoretical reproduction of objects in conformity with their real development. P. based on such an understanding of its role, subject-matter, and tasks in the development of human culture is a powerful instrument of man's knowledge and activity, an active factor in further developing knowledge and practice. With such an understanding of P. its parts, psychology and sociology, ethics and aesthetics increasingly turn into independent sciences which are only traditionally regarded as philosophical. True, this tradition has its grounds, for these sciences are mainly connected with specific problems of P., especially the relationship of the subject and the object. Anti-philosophical tendencies are inherent in some contemporary theories. They are especially characteristic of neo-positivism, which declares the problems of P. to be pseudo-problems and tries to replace philosophical analysis of development of contemporary knowledge and practice by analysis of the "language of science", i.e., a linguistic semantic analysis of the "external forms of thought"—language, sign systems for expressing thoughts, etc. Thereby they hold that philosophy as a science is actually abolished. This tendency is opposed by dialectical materialism, which continues the finest traditions of world P. It develops P. as a special science which promotes man's self-awareness, his understanding of the place and role of scientific discoveries in the general development of human culture and thereby provides a criterion for assessing them and connecting separate links of knowledge in a single world outlook (q.v.).

Philosophy, Analytical, a widespread and somewhat varied trend in present-day philosophy which unites different groups, tendencies, and in-

dividual philosophers who consider it the business of philosophy to analyse language. A.P. is today most widespread in the USA and Britain, with individual philosophers and groups in the Scandinavian countries, Finland, Australia, etc. A.P. is championed by supporters of logical empiricism (q.v.) and neo-pragmatism—W. Quine, N. Goodman, and Morton White. A number of American analytical philosophers do not belong to any school (Wilfrid Sellars and others). In Britain the dominant form is linguistic philosophy (q.v.). A. J. Ayer and Karl Popper occupy a special position, close to logical empiricism. All these groups of A.P. are varieties of neo-positivism (q.v.). At the same time it is typical of most of them that the centre of gravity is shifted from general epistemological questions to concrete forms and means of analysing language. Two basic approaches may be discerned: (1) the construction of artificial "model" languages with a precisely fixed logical structure (logical empiricists, the neo-pragmatists, and a number of "independent" analysts). These investigations are based on logic and logical semantics; (2) the historical study of existing natural languages (linguistic philosophy). To a great extent the writings of modern analytical philosophers are not really philosophical or epistemological studies in the real meaning of the word, but the studies in concrete logic, specific methods or concrete linguistics which have an undoubted scientific content. As far as general philosophical problems are concerned, A.P. either avoids them or provides an incorrect, idealist solution to them.

Philosophy, Fundamental Question of, the question of the relationship of consciousness to being, of thinking to matter and nature, examined from two aspects, first, what is primary—spirit or nature, matter or consciousness—and second, how is knowledge of the world related to the world itself or, to put it differently, does consciousness correspond to being, is it capable of truthfully reflecting the world? A consistent solution of the F.Q.P. is

possible only if both sides are considered. The philosophers who formed the camp of materialism regarded matter, being, as primary, and consciousness as secondary, and held that consciousness is the result of influence exerted upon it by the objectively existing external world. The philosophers in the camp of idealism accepted the idea of consciousness as primary and regarded them as the solely true reality. From their viewpoint cognition is not a reflection of material being but merely cognition of consciousness itself in the form of self-cognition, an analysis of sensations and concepts, cognition of the absolute idea, universal will, etc. Dualism and agnosticism (qq.v.) hold an intermediary, inconsistent position in solving the F.Q.P. A metaphysical approach to solving this question was inherent in pre-Marxian philosophy; it consisted either in underestimating the activity of consciousness or in reducing knowledge to passive contemplation (metaphysical materialism) and the identification of consciousness and matter (see Materialism, Vulgar), in exaggerating the activity of thought, elevating it into an absolute and divorcing it from matter (idealism), or in asserting their incompatibility in principle (dualism, agnosticism). Only Marxist philosophy has given an all-round, dialectically materialist, scientifically-based solution of the F.Q.P. It sees the primacy of matter in that: (1) matter is the source of consciousness, while consciousness is a reflection of matter; (2) consciousness is a result of a long process of development of the material world; (3) consciousness is a property and function of highly organised matter—the brain; (4) the existence and development of the human mind and thinking is impossible without the linguistic material shell, without speech; (5) consciousness arose as a result of man's material labour activity; (6) consciousness is social and is determined by social being. Noting the absolute antithesis of matter and consciousness only within the bounds of the F.Q.P., Marxism-Leninism simultaneously points to their interconnection and interaction. A derivat-

ive of material being, consciousness possesses relative independence and in its development also exerts retroactive influence on the material world, facilitating its practical mastery and transformation. The human mind, relying on practical experience, is capable of truthfully knowing the world. The relationship of matter and consciousness is the fundamental question of philosophy because, by virtue of its universality, it encompasses all philosophical questions, determines the solution not only of particular problems, but also the nature of the world outlook as a whole and provides a reliable criterion for differentiating the basic trends in philosophy. That is why a scientific formulation of the F.Q.P. makes it possible consistently to apply the principle of partisanship in philosophy, strictly to delimit and counterpose materialism and idealism and resolutely to uphold the scientific world outlook of dialectical materialism.

Philosophy, History of (as a science), studies the origin and development of philosophy, the laws and phases of this development, and the struggle of philosophical schools and trends. Even in antiquity, philosophers (e.g., Aristotle, q.v.) turned to the views of their predecessors with the object of criticising or utilising them in their own concepts. Diogenes Laertius, Sextus Empiricus (qq.v.) and others contributed compendiums of the opinions and biographies of philosophers. A more or less arbitrary list of "opinions" of philosophers is contained in the main works of the H.P. up to the 18th century. Empiricism dominated in studies of H.P., and they were primarily of an educative nature. Gradually, with the development of philosophy, elements of a scientific approach to its history appeared: H.P. was released from the grip of theology and attempts were made to apply the principle of historicity, to establish the connection between the development of philosophy and the general development of history and scientific knowledge. Materialist philosophers (see Francis Bacon, Spinoza) and also

thinkers who drew close to the idea of historical laws (see Vico, Herder, and others) made an important contribution to H.P. Hegel's (q.v.) concept of H.P. is especially interesting. His main principle was that the succession of philosophical ideas in point of time reproduces the sequence of logical categories in a developed philosophical system, namely, in the Hegelian system. According to Hegel, H.P. is the process of development of thought and apprehension of truth (see Absolute Idea); truth can be uncovered only in the entire history of human thought. Each separate definition of truth, expressed in a special world outlook or system, is historically limited, incomplete, and one-sided. The birth of a new philosophical system elevates thought to the stage of a higher, more concrete and developed logical category. Hegel's concept contained valuable surmises: the idea of the necessary and natural development of philosophy, its dependence on the history of society and knowledge, etc. On the whole, however, this concept is unacceptable because of its idealistic nature: Hegel conceives H.P. as the self-development of the absolute spirit, which leads to many mistakes and to a distortion of real history. Russian 19th century thinkers, especially Herzen (q.v.), contributed valuable ideas towards the elaboration of a scientific H.P. Nevertheless, pre-Marxists could not, any more than contemporary idealist philosophers, transform H.P. into a science. A scientific approach is provided only by dialectical and historical materialism. Marxist philosophy, first, establishes the objective laws governing the development of all forms of social consciousness and, second, brings out the structure and characteristics of scientific knowledge, which alone makes it possible to study its history scientifically. The central place in a scientific H.P. is held by a study of the history of formation and struggle of materialism and idealism, dialectics and metaphysics. In the process of the development of philosophy, scientific materialist views, based on

the progress of knowledge and the practical activity of people, oust unscientific idealist views. A Marxist analysis of H.P. includes partisanship as an important element in the assessment of the various schools and trends (see Partisanship in Philosophy). Such an approach does not, of course, mean discarding the positive elements achieved within the framework of idealist philosophy. A scientific analysis of H.P. proceeds from the necessity to examine the development of philosophy as a process determined by the socio-economic and political advance of society, to evaluate philosophical ideas and systems (ultimately) as an expression of the interests and ideology of this or that class or social group, as a reflection of the requirements of production and the development of scientific knowledge. But it is not enough to find a "social equivalent" to some theoretical construction; it is necessary first of all to determine why the given social system and the sum total of historical conditions have produced this philosophical system and not another. Otherwise it is impossible to avoid simplification and a vulgar materialistic identification of economics and philosophy. The dialectical materialist approach makes it possible to present H.P. as a single process, to disclose the necessary connections between the different schools and trends, the progress in the solution of philosophical problems, the connection between H.P. and the history of knowledge in general. Then the recurring attempts to solve some problems (methodology of scientific cognition, relationship of rationalism and empiricism, the universal and the particular, the concrete and the abstract, the nature of human activity, etc.) are no longer regarded as development determined by an aim immanent in philosophy, but appear as specific landmarks in the history of society and knowledge. Since H.P. is the process of development of philosophical cognition of the world, it must establish the direct connections between the historical development of human knowledge and its internal structure

and logic. Here we see clearly the dialectical principle of the unity of the logical and the historical: the history of an object (philosophy) is inseparably connected with its developed logical structure, the emergence of science is inseparable from its developed state and only from the standpoint of the latter can it be properly understood. It is this that opens the way to comprehending the laws by which philosophy develops and helps to understand the real place and significance of concepts and ideas that arise in the course of history. At the same time, H.P. must not be separated from the history of the natural sciences and the historical experience of society. Philosophy must dialectically analyse and summarise the history of thought, science, and technology. Study of H.P. is of great importance for the development of contemporary philosophy. Marxist philosophy has assimilated everything positive created by human thought. Study of H.P. is necessary for developing and improving the modern methods of scientific research and practical transformation of the world, for raising the level of philosophical thought. As Engels put it, "Theoretical thinking is an innate quality only as regards natural capacity. This natural capacity must be developed, improved, and for its improvement there is as yet no other means than the study of previous philosophy." (*Dialectics of Nature*, p. 58.)

Philosophy, Linguistic (also known as "logical analysis", "linguistic analysis", and the "philosophy of everyday language"), a trend in analytical philosophy (q.v.) widespread in Britain (G. Ryle, A. J. Wisdom, J. Austin, and others). In the US, similar views are held by Max Black, N. P. Malcolm, and others. The trend stems from the "philosophy of common sense" of George Edward Moore (q.v.) and the views of the later Wittgenstein (q.v.). Like other schools of neo-positivism (q.v.), L.P. denies that philosophy is a world outlook, and regards the traditional philosophical problems as pseudo-problems arising out of a failure to comprehend the real nature of

language owing to the confusing influence of language on thought. On the contrary, it is maintained, philosophy should elucidate the difficulties that arise through the wrong use of words. According to the representatives of the Cambridge school of L.P., philosophy should perform a "therapeutic" function by curing the disabilities of our language. In their efforts to "get rid of metaphysics", linguistic philosophers not only reject the "ontological metaphysics" of traditional philosophy. Denying the possibility of arriving at any comprehensive philosophical conception, they also reject the "metaphysics" of logical positivism (q.v.) with its principle of "verification" (q.v.). But it is the denial that philosophy is a world outlook that distinguishes L.P. as an extreme and most reactionary form of positivism. With the analysis of language as the sole aim of philosophical investigation the advocates of L.P., particularly the representatives of the Oxford group, unlike the logical positivists, concentrate their attention not on artificial model languages but on the language of common speech. Here they proceed from the true assumption that the rich resources of the natural spoken language cannot be fully expressed within the framework of any "ideal language". In renouncing analysis of the problems of epistemology (the relation of language to thought, the connection between language and the cognitive processes involved in forming mental images, the genesis of linguistic forms, etc.), which are the sole context in which the phenomena of language can be successfully studied, L.P. confines research to a superficial description of various types of usage and closes the path to a true explanation of the essence of language, arriving ultimately at a merely conventional interpretation. For L.P. language is a means of construction, not a reflection of the world; it becomes something mystical, a self-sufficing force. The justifiable criticism of attempts to make an all-embracing reconstruction of the language within the framework of an "ideal language" goes hand in

hand with a refusal to investigate language in general on the basis of any all-round theoretical platform. Thus the refusal to tackle the basic problems of philosophy leads to the collapse of L.P. even in the field to which it confines philosophical investigation.

Philosophy of Antiquity, the totality of philosophical theories developed in the Greek slave-owning society from the end of the 7th century B.C. and in the Roman slave-owning society from the 2nd century B.C. up to the beginning of the 6th century A.D. The P.A. is an original, but not isolated, phenomenon in the development of man's philosophical cognition. It took shape on the basis of the rudiments of astronomical, mathematical, physical, and other knowledge brought into the Greek cities from the East as a result of interpretation of ancient mythology in art and poetry and attempts to remove from philosophical thought the mythological conceptions of the world and of man that had held them captive. By the 5th century B.C., philosophical and cosmological systems had been developed in which myths were a means of figuratively expressing ideas rather than the basis of an outlook. In the 6th and even in the 5th centuries B.C., philosophy and the knowledge of nature had not been separated. The number of hypotheses that occurred owing to the absence of experimental verification was enormous. As far as philosophy was concerned, this multiplicity of hypotheses meant a multiplicity of types of philosophical explanations of the world. This multiplicity and the level of elaboration made P.A. a school of philosophical thinking for later times. "...The manifold forms of Greek philosophy," wrote Engels, "contain in embryo, in the nascent state, almost all the later modes of outlook on the world." (*Dialectics of Nature*, p. 44.) The starting point for the development of the P.A. was philosophical materialism. Thales, Anaximander, Anaximenes, Heraclitus (qq.v.), despite the many differences between them, all assumed

that things originated from some single material source. Among those who held these naive materialist views, certain ideas arose which later led to the development of idealism. The germs of the schism into materialist and idealist trends can be discerned among the earliest Greek thinkers. In the second half of the 5th and early 4th centuries B.C. these trends developed into the opposites of materialism and idealism. Equally clear in the P.A. is the antithesis of the dialectical and metaphysical methods of thinking. Many of the early Greek philosophers were actually dialecticians, who studied nature as a single whole and, consequently, in the interaction and connection of its phenomena. In the more than a thousand years of the development of the P.A., the materialism and idealism, dialectics and metaphysics which took shape in early Greek philosophy underwent an intricate evolution, reflecting, in the final analysis, the dialectics of the development of the society of antiquity. The materialism of the P.A. was developed by Empedocles, Anaxagoras, Leucippus, and Democritus (q.v.). In the teachings of Socrates (q.v.) and, particularly, Plato (q.v.) philosophical idealism took shape, counterposing itself, first and foremost, to the materialism of the atomists. From this time onwards there was a clearly marked struggle between the two main lines of development, materialism and idealism (or, as Lenin said, "the line of Democritus and the line of Plato"). Aristotle (q.v.), who wavered between materialism and idealism, also expressed his ideas in polemics with theories preceding and contemporary to him. Aristotle's criticism of the theory of the "idea", the central theory in Plato's idealism, was particularly energetic and witty. In the Hellenic period, the beginning of the crisis of the slave-owning system, the struggle between the different schools in the P.A. became more acute. Especially sharp was the struggle between the Epicurean school of materialism and the stoics into whose fundamentally materialist doctrine elements of idealism had made extensive in-

roads. Questions of ethics came to be placed first among philosophical problems, but these ethics had their basis in the theory of nature and the theory of knowledge and thought. Philosophical schools were shut off from the world, they became coteries of people united in their indifference to external events and their excessive interest in questions of ethics and education. At the same time there were changes in the relations of philosophy to the specialised sciences, and a new type of scientist and a new type of scientific literature made their appearance; this was special literature comprehensible only to those with special training. In the epoch of the Roman Empire the crisis of the slave-owning community became more acute and the urge for religious self-oblivion and solace became stronger. A wave of religious cults, doctrines, and mysteries spread from the East to the West. Philosophy itself became religious, even mystical in some doctrines. Examples of this were Neo-Platonism (q.v.) and Neo-Pythagoreanism, the first of which exerted considerable influence on the development of Christian philosophy. In 529 the Emperor Justinian issued a decree closing down the philosophical schools in Athens. But before this decree and quite independently of it, the basic ideas of the P.A. had completed their course of development.

Philosophy of History, the name given to a sphere of knowledge which studies the meaning of history, its laws, and the main trends of man's development. Historically, P.H. dates back to antiquity. It was elaborated by the 18th century Enlighteners (Voltaire, Herder, Condorcet, Montesquieu, q.v.). To combat the influence of theology on history, dating back to St. Augustine (q.v.), the Enlighteners introduced into P.H. the idea of causality, elaborated the theory of progress, voiced the idea of the unity of the historical process, and emphasised the influence of the geographical and social environment on man. Hegel (q.v.) regarded history as a single, law-governed intrinsic process of self-development of the spirit, the idea.

The limitations of P.H., expressed in its speculative, a priori, and idealistic nature, were overcome by Marx and Engels. The discovery of historical materialism provided the basis for creating a scientific history. In contemporary P.H., the concepts of Toynbee (q.v.) and Spengler (q.v.) enjoy the greatest influence. The objective laws of history are feared by the bourgeoisie, and this makes most bourgeois sociologists and historians renounce philosophical generalisations of history. They regard it as a chaotic succession of accidents and reject the concepts of causality, law, and progress.

Philosophy of Identity, a philosophical concept aimed at solving the question of the relationship of thinking and being, spirit and nature by acknowledging their absolute identity. The basic principle of P.I. is diametrically opposed to the principle of dualistic systems (see Dualism). P.I. as a definite philosophical concept is historically associated with the name of Schelling (q.v.), who tried to overcome the dualism of Kant's and Fichte's systems by advancing a new initial principle of monistic philosophy, the absolute identity of the subjective and the objective, the ideal and the real. The principle of the identity of thinking and being also underlies the Hegelian system. But this principle is realised by Hegel (q.v.) differently, because Hegel understood identity dialectically, not as an immobile absolute, an indefinite unity, and one indifferently opposed to multifarious being, but as a self-developing logical idea, whose definiteness and diversity are contained within itself as its immanent infinite form. What sets P.I. apart from other objectively idealist conceptions is not recognition of the identity of thinking and being, but the metaphysical understanding of this identity. P.I. attempts to solve the fundamental problem of philosophy by dissolving the difference between spirit and nature, thinking and being, in immobile and absolute substance. Ideas close to Schelling's P.I. were expounded by Parmenides (q.v.) and Spinoza (q.v.). At present the ideas

of the metaphysical identity of thinking and being are advocated by certain schools of Neo-Thomism (q.v.). In contrast to P.I., Marxist philosophy bases its monism (q.v.) on the ideas of the material unity and development of the world.

Philosophy of Life (Ger. *Lebensphilosophie*), a subjective-idealist trend of philosophy which arose in Germany and France at the turn of the century. Schopenhauer (q.v.) was its main ideological predecessor. The origins of this philosophy are associated with the rapid development of biology, psychology, and other sciences which revealed the insolvency of the mechanistic picture of the world. P.L. tried to overcome the limitations of mechanistic materialism from idealist positions. Its appearance signified a crisis of bourgeois philosophy, its renunciation of science and transition to irrationalism and nihilism. As regards its objective content P.L. is a distorted, idealist interpretation of the socio-historical process. The pivot of this philosophy is the concept of life as the absolute, infinite principle of the world which, in contrast to matter and consciousness, is active, multiform, and in eternal motion. Life cannot be cognised with the help of the senses or logical thinking, it is perceived intuitively and is accessible to emotion (chiefly religious). Two main groups can be singled out in P.L.: one (Bergson, q.v.) understood life in the biological sense and extended biological properties to all reality; the other (Nietzsche, Dilthey, q.v., and Simmel) conceived life as the will, internal emotion, irrational play of spiritual forces. The central ideas of P.L. were the ideological source of existentialism (q.v.).

Philosophy, Practical 1. The ethical branch of classical philosophical systems, the teaching on the principles and laws of action (for example, the *Ethics of Spinoza*, q.v., the *Critique of Practical Reason* of Kant, q.v., etc.). 2. A widespread trend in modern philosophy, directed against materialism and science. In P.P. one can include Nietzscheism, pragmatism

(q.v.), the philosophy of life, q.v. (Bergson, q.v.), existentialism (q.v.), and other schools related to them, which consider cognition as an "instrument" of achieving practical results. Denial of theoretical thought and objective truth and the cult of the subconscious in P.P. are due to the dissolution of thought in the biological function of adaptation: the truth of an idea is determined not by its reflection of objective reality but by its practical validity, utility: all ideas (including religious ones) are "true" if they lead to success. Thus, the relativism and agnosticism of P.P. are disguised by reference to practice, interpreted in an extremely subjectivist spirit.

Physical Picture of the World, a term which has become widespread chiefly in recent years and which denotes a conception of nature (at times, in a narrower sense, the inorganic world) proceeding from certain general principles of physics. In this sense, ancient atomism (q.v.), the physics of Descartes (q.v.), and the system of Newton (q.v.) were a P.P.W. A feature of all attempts to construct a P.P.W. in the 17th and 18th centuries was the idea that complex natural phenomena are reducible to simple mechanical motion of discrete particles of matter. The idea of specific laws irreducible to the more simple forms of motion became established in 19th century natural science. This conception was voiced in the most profound and generalised manner in Engels' *Dialectics of Nature*. The 19th century P.P.W. was based on a hierarchy of the forms of motion and their reciprocal transitions, and in this sense the law of conservation of motion was its most general principle. In the 20th century, the laws of Newtonian mechanics could no longer play the part of the most general laws. The laws of electromagnetic phenomena laid claim to this role, but the electromagnetic picture of the world could not embrace all physical phenomena. On the other hand, electromagnetic fields did not fit into the general theory of relativity which describes gravitational fields.

Attempts by Einstein and other physicists to construct a single theory of the field did not lead to the creation of a new and harmonious P.P.W. A single theory of elementary particles and their transmutations, the rough outlines of which are now emerging in physics, can be the basis of such a picture. Thus the development of science confirms the ideas of dialectical materialism, which, as Lenin put it, by no means "professed a 'mechanical' and not an electromagnetic, or some other, immeasurably more complex, picture of the world of *moving matter*". (Vol. 14, p. 280.)

Physicalism, a conception in logical positivism (q.v.), elaborated by Carnap, Neurath (qq.v.), and others, that every descriptive term in science can be translated into the language of physics. Propositions which cannot be translated are regarded as devoid of scientific meaning. The problem of the unity of all scientific knowledge and of its objective truth is thus replaced by the search of a common, or, to be more exact, a single language of science. Instead of analysing the objective connection of different sciences and their unity, physicalists seek to translate specific kinds of existing knowledge into the language of physics and, on this basis, achieve their unification. This is a kind of revival by neopositivism (q.v.) of the mechanistic principle of reducibility. But in this the logical positivists failed and subsequently many of them broke with "orthodox" P.

Physics, a science of the changes and movements of elementary particles, structure of atoms, gravitational, electric, magnetic, and other fields, and molecular processes. In antiquity, the word "physics" designated the sum total of knowledge about nature. Subsequently physics was understood as the study of the laws governing the motion of bodies (mechanics) and the causes of sound (acoustics), of thermal, electric, magnetic, and optical phenomena. Classical physics sought to ascribe the causes of these phenomena to Newton's (q.v.) laws of mechanics. In the 19th century, it was established

that physics deals with specific laws. Thermodynamics studies the behaviour of large sets of molecules a distinctive feature of which is irreversible transition from less probable to more probable states, while mechanical processes as such do not possess such irreversibility. On the other hand, in classical electrodynamics, the view arose that the laws of the origin and spread of an electromagnetic field cannot be reduced to the laws of mechanics. Physics was thus emancipated from mechanics in the 19th century. At the same time, the mechanical heat theory demonstrated the reversible transition of mechanical processes into thermal, and the study of electricity established that mechanical processes pass into electrical and vice versa. It was established in the 19th century that mechanical, thermal, and electromagnetic processes are connected by reversible transitions, the quantitative measure of all these forms of motion, energy, remaining constant. The principle of the conservation of energy (see Conservation of Energy, Law of) became the basic principle of P. At the turn of the century, many new, hitherto unknown physical phenomena were discovered—the origination and propagation of radio signals, X-rays, and radioactivity. At the same time the periodicity of the chemical properties of elements discovered by Mendeleev held the focus of theoretical physics. Exploring the causes of these phenomena, P. branched out into atomic and nuclear physics and then the physics of elementary particles. In the first half of the 20th century, theoretical physics passed from the basic classical concepts to ideas associated with the theory of relativity and quantum mechanics. Experimental physics, which has registered striking successes, is exerting an unparalleled impact on technology and people's living conditions. Throughout its development P. has been closely connected with philosophy. In antiquity, physical knowledge and hypotheses were a component of materialist philosophical systems. Generalisation of physical knowledge accumulat-

ed through the development of classical mechanics, formed the basis for the materialist ideas of modern times. Their analysis and summary of 19th century discoveries in physics provided Marx and Engels with a basis on which the teaching of dialectical materialism was founded. In the 20th century, as in earlier periods, idealist trends have been seeking to make use of the changes in the conception of physics in favour of idealist, positivist conclusions (see Idealism, Physical). The analysis of the real meaning of new concepts, made by Lenin in his *Materialism and Empirio-Criticism*, and subsequent development of science show that P. provides irrefutable arguments in support of dialectical materialism and that the application of the philosophical ideas of Marxism in physical research gives fresh stimuli to the study of nature.

Piaget Jean (1896-), Swiss psychologist, philosopher, and logician, professor at Geneva University. P. made a valuable contribution to many of the branches of psychology. Using vast experimental data, P. created in the 30s and 40s the theory of the intellect formation, which regards the intellect as a system of operations, i.e., the inner actions of the subject, derivative from the external object actions, and forming a certain structural unity. P.'s psychological and logical ideas were synthesised in his "genetical epistemology", a theoretico-cognitive conception based upon a genetical and historico-critical approach to the analysis of knowledge. According to P., the development of a subject's knowledge of an object makes it more and more invariant, more and more stable in the changing conditions of experience, this invariance (q.v.) of knowledge being considered as a reflection of the object itself and its properties.

Pisacane, Carlo (1818-57), Italian revolutionary democrat and utopian socialist. Active fighter for the liberation of Italy from foreign yoke, P. linked up the unification of his country with the establishment of a socialist system. Seeing in private property the main and eternal cause of

the split of society into antagonistic classes, P. called for its abolition, for the introduction of public property and the organisation of a collective economy. This was, according to him, the only means of eliminating social inequality and exploitation. P. called for an expropriation of the bourgeoisie and big landowners through a popular peasant revolution. In his works P. acts as a confirmed materialist and enemy of religion.

Pisarev, Dmitry Ivanovich (1840-68), Russian materialist thinker, critic, revolutionary journalist. He was born in a landlord's family. His literary activity began in 1859. In 1861, he graduated from St. Petersburg University. He was a staff member and actual editor of the journal *Russkoye Slovo* (*The Russian Word*) from 1861. For defending Herzen he was imprisoned in the Peter and Paul Fortress from 1862 to 1867. In the years 1867-68 he was on the staff of the magazines *Dyelo* (*Cause*) and *Otechestvenniye Zapiski* (*Notes of the Fatherland*). P.'s revolutionary and socialist views, which took shape towards the end of 1861 ("Scholastics of the 19th century", 1861; a leaflet against Shedo-Ferroti, 1862), changed significantly. The rapid decline of the wave of revolutionary emancipation movement which arose in 1859-61 convinced P. of the lack in Russia of the conditions necessary for a revolution, of the peasantry's inability to emancipate themselves and to build a new society. P. saw the main purpose of his activity in the solution of "the problem of the starving and destitute people", he advocated the socialist ideals (it is true that P. was not satisfied with any of the existing socialist doctrines). Not giving up the use of revolutionary violence against the exploiters (*The Historical Ideas of O. Comte*, 1865; *The Thinking Proletariat*, 1865; *The Propagators of Negative Doctrines*, 1866; *Heinrich Heine*, 1867, and others), P. put forward the idea of a "chemical" path of revolution—gradual social changes, leading to public education, to the growth (due to the dissemination of knowledge) of the

productivity of labour and to the improvement of the living conditions of the masses as the main prerequisites of a radical "reconstruction of social institutions". He sought to entrust the progressive intelligentsia, "the thinking realists", with the task of public education. His works written during the last years of his life (e.g., *The French Peasant in 1789*) testify to the growth of the radical tendencies in P.'s world outlook. His socio-political conception made a considerable stress on the social functions of science. He regarded the progress of scientific knowledge as the basis of historical development. This fact determined P.'s incessant struggle against religion and the various manifestations of "narrow-minded mysticism" in science, drawing mankind away from the path of reasonable progress and completely ignoring "the most elementary testimonies of experience" (*Plato's Idealism*, 1861, and others) and conditioned P.'s negative attitude towards Hegel's "speculative philosophy". P. saw a counter-balance to idealism in the theories of the "vulgar materialists" T. Moleschott and Vogt, whom he assessed positively (*The Physiological Studies of Moleschott*, 1861; *The Process of Life*, 1861; *Physiological Pictures*, 1862). P. was one of the first in Russia actively to propagate Darwinism (*Progress in the Animal and Plant World*). Inclining towards sensualism in epistemological problems, P. was, however, opposed to empiricism (*The Blunders of Immature Thought*, 1864) and pointed to the constructive role of creative vision. Lenin highly appraised P.'s appeal to creative vision. A confirmed adherent of realism, P. engaged in sharp polemics with the supporters of "pure art", sometimes going so far as to proclaim the "strictest utilitarianism" of art and considering it as one of the obstacles to scientific progress (*The Destruction of Aesthetics*, 1865; *Pushkin and Belinsky*, 1865).

Planck, Max (1858-1947), German physicist and theoretician, member of the Berlin Academy of Sciences from 1894. In December 1900, while

elaborating the thermodynamic theory of thermal radiation, P. arrived at the necessity of introducing a new universal constant—quantum of action (q.v.). Thus P. became the founder of the quantum theory, which established the fact of discontinuity in the energetic processes and extended the notion of atomism to all phenomena of nature. Many works of P. are devoted to the philosophical problems of natural science, including the philosophical significance of the law of the conservation of energy, the unity of the natural-scientific picture of the world, the methodology of physical investigation, the principle of causality, the interrelation of natural science with philosophy and religion. P. sharply criticised positivism (q.v.), particularly the philosophy of Mach (q.v.).

Plato (428/427-347 B.C.), Greek idealist philosopher, disciple of Socrates (q.v.), founder of objective idealism, author of more than 30 philosophical dialogues (*Sophistes*, *Parmenides*, *Theatetus*, *Republic*, and others). In defending the idealist world outlook, P. actively fought against the materialist teaching of that time. He widely employed the teachings of Socrates, the Pythagoreans, Parmenides, and Heraclitus (qq.v.). To explain being, he developed the theory of the existence of immaterial forms of objects, which he called "Forms" or "Ideas" and identified with being. To these "Ideas" P. counterposed non-being, identified with matter and space. According to P., the sensible world, which is the product of "Ideas" and "Matter", occupies an intermediate position. "Ideas" are eternal, "transcendental"; they neither arise nor perish, they are irrelative and do not depend upon time and space. Sensible objects are transient, relative, and they depend upon time and space. The centre of P.'s cosmology is the teaching of the "world soul", while the centre of his psychology is the teaching of the reincarnation of the soul, which lives in our body. P. distinguished the types of knowledge depending upon various cognisable objects. Authentic

knowledge is possible only of truly existent "forms". The source of such knowledge is the immortal human soul's reminiscence of the world of ideas, contemplated before its incarnation in the mortal body. We cannot have knowledge of sensual objects and phenomena, but only a probable "opinion". Between "Ideas" and sensible objects P. placed the mathematical objects, accessible to rational knowledge. The method of cognition is "dialectics", which P. understood as a two-way process: ascending by degrees of generalising concepts up to the highest kind and descending again from the most general concepts to those of lesser and lesser generalisation. In this process the descent involves only "forms" ("Ideas"), and not the sensible individual things. P. was a representative of the Athenian aristocracy. His teaching on society portrayed an ideal aristocratic state, the basis of which is slave labour (*Laws*); the state is governed by "philosopher-rulers"; it is watched over by soldiers, or "guardians"; below these free citizens are the "handicraftsmen". In the words of Marx, P.'s utopia was the Athenian idealisation of Egypt's caste system. Marx remarked that P. fully understood the role of the division of labour in the formation of the Greek "polis" ("city-state"). P.'s teaching played a prominent role in the further evolution of idealist philosophy.

Plekhanov, Georgi Valentinovich (1856-1918), Russian revolutionary and thinker, founder of the Social-Democratic movement in Russia, an eminent Marxist theoretician and publicist. P.'s world outlook and political activity underwent a complicated evolution. Initially P. was the leader of the Narodnik organisation "Land and Freedom" (later, "Black Redistribution"); later (in 1880), having emigrated from Russia, he studied the works of Marx and Engels and established connections with the Social-Democratic movement in Western Europe. As a result of this he deserted Narodism (q.v.) and became a convinced adherent of Marxism, an active propagandist of its ideas in Russia; the "Emancipa-

tion of Labour" group which he founded in Switzerland (1883) played a great role in the dissemination and victory of Marxism in the Russian emancipation movement. P. himself greatly contributed to the development of the Marxist theory, refuting the ideology of Narodism, "legal Marxism" (q.v.), revisionism, and bourgeois philosophy. After 1903, Plekhanov could not understand the peculiarities of the new epoch. He departed from revolutionary Marxism and took a compromising position in relation to the opportunists, and then became a Menshevik. During the First World War P. sided with the social-chauvinists. He did not accept the October Revolution of 1917. Although he took part in the factional struggle against the Bolsheviks, to the end of his life P. remained loyal to Marxism, to the cause of the working class. That is why Lenin, while calling the Menshevik tactics "the height of banality and meanness", at the same time stressed that "in philosophy Plekhanov upheld the righteous cause". P.'s works *The Development of the Monist View of History*, 1895 (q.v.); *Essays on the History of Materialism*, 1896; *The Role of the Individual in History*, 1898, and many others brilliantly expound the Marxist theory. P. assessed Marxism as a new stage in philosophy, showed its qualitative distinctions from all previous philosophical and sociological doctrines. P. developed the materialist understanding of history, showing what intricate relations exist between social being and social consciousness; he emphasised the role of social psychology in the struggle of ideas, which is the expression of the struggle between the antagonistic classes in a given society; P. was one of the founders of Marxist aesthetics and art criticism; he developed the Marxist teaching on the origin of art, of art as a special form of reflection of social life, of realism as the essence of art. P. laid the foundation of the Marxist history of Russian social thought, notwithstanding certain unacceptable principles in his assessment of Russian phi-

losophy. He disclosed the historic role of the Russian revolutionary democrats as the forerunners of Marxism in Russia. P. drew many valuable conclusions on the origin and development of religion, on the role of religion in social life, on its place among the other forms of social consciousness, on the attitude of the Marxist Party towards religion. In philosophical problems P. committed a number of errors: he underestimated the role of subjective factors in historical development, made concessions to the hieroglyph theory, gave inexact formulations in which he leaned towards "geographical materialism", and "reduced Marxism to Spinozism", etc. But these individual errors seem extraneous against the background of P.'s system of philosophical views as a whole and his lifelong defence of dialectical and historical materialism. P.'s philosophical works are rich and convincing, and the popularity and the captivating interest of his exposals make them even today valuable manuals for the study of Marxist philosophy.

Plotinus (205-270), Greek idealist philosopher, born in Egypt and lived in Rome. P. was the founder of Neo-Platonism, which intensified the mysticism of Plato's teaching. According to P., the world process begins with the incomprehensible and inexpressible divine. One, which is the eternal source of all being and emerges first as universal reason, then as the world-soul, and later as individual souls, as individual bodies including matter, which P. considers as non-being. For P., the object of human life is to ascend to the One. This can be achieved by restraining the bodily attractions as well as by developing spiritual forces, including those of cognition. At its supreme ecstatic stage of ascent the soul achieves the communion with God. P.'s teaching develops mystical dialectics (q.v.): the principle of opposites and their unity, determines harmony and beauty, evil and ugliness in the world.

Pluralism, the conception opposed to monism (q.v.), which holds that

all that exists consists of a multiplicity of equivalent isolated substances, irreducible to a single principle. P.'s views were the basis of Leibniz's (q.v.) monadology (see *Monad*). Modern idealists (pragmatists, neo-positivists, existentialists, and others) gravitate towards P. in their attempt to be above materialist and idealist monism. In the last analysis, however, P. in its objective content is opposed only to dialectical materialist monism. In sociology, P. serves as the basis for denying the existence of a single determining principle of society, for understanding history as a current of accidental events, and, consequently, for refusing to analyse the objective laws of social development.

Poincaré, Jules Henri (1854-1912), French mathematician, professor at the Paris University, member of the French Academy. His main works are devoted to mathematical physics, differential equations, combinatorial topology, etc. In 1905, simultaneously with Einstein (q.v.), P. arrived at some understanding of the special theory of relativity (q.v.). He devoted much study to general methodological problems of science; he maintained that the laws of science do not relate to the real world, but that they represent arbitrary conventions destined to promote a more convenient and useful (according to the "principle of the economy of thought" of Mach, q.v.) description of the corresponding phenomena. In Lenin's words, "the essence of Poincaré's 'original' theory amounts to a denial ... of objective reality and of objective law in nature". (Vol. 14, p. 165.) The conventionalism (q.v.) of P. represents one of the varieties of physical idealism (q.v.). P. was one of the forerunners of the intuitional (constructive) trend in mathematics.

Polarity, a conception, characterising the forms of contradiction (q.v.), i.e., antithesis (q.v.), the correlation of the extremes of any unity. P.'s sides stand in opposition to each other but at the same time are in need of each other. Thus, capital and wage

labour form the polar opposites of capitalist society.

Politics, participation in the affairs of the state (q.v.), its guidance, determination of the forms, aims, and the content of the activity of the state (see Lenin, *Miscellany*, Book XXI, p. 14). P. include problems of the state structure, the management of the country, leadership of classes (q.v.), problems of party struggle, etc. The fundamental interests of classes, the relations between the classes are reflected in P. P. also express the relations between nations (q.v.) and states (foreign politics). The relations between classes, and hence between their politics, arise from their economic position. Political ideas and the institutions corresponding to them are the superstructure of the economic basis (see *Basis and Superstructure*). This does not mean, however, that P. are the passive result of economics (see *Economics and Politics*). For P. to be a great transforming force they must correctly reflect the needs of the development of material life of society. The politics of the reactionary segment of the bourgeoisie hinder the progressive development of society, because they run counter to its objective needs. The strength of the Communist Party's policies lies in the fact that it takes into account these needs. The scientifically grounded P. are based on the laws of social development and directed to suit the interests of society. The P. of the Communist Party answer the essential needs of the people, find permanent support among the masses. Successful guidance of the building of communism is secured due to the integration of the correct P. with the corresponding organisational work. This fact is a guarantee of the reality of the P. itself. That is why the Communist Party attaches great significance to the political education of the masses, to the training of Party cadres. The Communist Party guides the development of culture and all the spheres of ideology: science, art, morality, etc. It condemns every manifestation of apolitical attitude and ideological unprincipledness in the cultural

development, demands a systematic struggle against reactionary ideology. The internal policy of the Communist Party, directed towards the building of communism, is linked up with its foreign policy, whose object is to ensure peaceful conditions for building communism in the USSR and save mankind from world war.

Polysyllogism, the complex syllogism, which is a sequence, chain of syllogisms, in which the conclusions of preceding syllogisms (called prosyllogisms) are included in the premisses of consequent ones (called episyllogisms). A P. in which each episyllogism is preceded by only one prosyllogism, is called linear. We distinguish the progressive and regressive relation of syllogisms in Pp. according to whether the conclusion of the prosyllogism becomes the major or the minor premiss of the episyllogism. A P. in which each episyllogism is preceded by two prosyllogisms is called a cascade P. Formal logic lays down certain general conditions for the correctness of various kinds of P.

Polytheism and Monotheism, the worship of many gods or of one god. P. arose from totemism (q.v.), fetishism (q.v.), animism (q.v.) in the period of the decay of primitive-communal society. Belief in the plurality of equal fetishes and spirits was replaced by belief in gods who assumed concrete appearance, name, and cult. Social division of labour, earthly relations of supremacy and submission were reflected in the hierarchy of gods. The consolidation of the slave-owning system, the creation of monarchies, led initially to the worship of one God, with recognition of the existence of others. Then from the Pantheon of gods one Almighty God was singled out—a copy of the earthly king; M. was thus established. Pure M., however, did not exist. Signs of P. are discernible even in such monotheistic religions as Islam (q.v.) and Judaism (q.v.), to say nothing of Christianity (q.v.), with its Trinity, the Virgin, and a great number of saints.

Pomponazzi, Pietro (1462-1524), Italian philosopher of the Renaissance.

He developed Aristotle's (q.v.) teachings in a materialist and anti-scholastic spirit. In his main work *De Immortalitate Animi* (1516) P. stressed the elements of sensualism (q.v.) in Aristotle's philosophy, and claimed that the soul, constituting the form of the body, was, nevertheless, mortal. This gave rise to indignation on the part of the clergy, and P.'s book was burned. Rejecting one of the main dogmas of religion, the immortality of the human soul, this theoretician of humanism (q.v.) stressed the fact that only refusal to believe this dogma corresponds to the real nature of man, because the object of his activity is found not in a life beyond, but here, in this earthly world. Adhering similarly to the conception of twofold truth (q.v.), P. aspired for the complete separation of philosophy and politics from religion.

Popovsky, Nikolai Nikitich (1730-60), Russian enlightener, philosopher, and poet, disciple of Lomonosov. He was professor of elocution and philosophy at the Moscow University (since 1755). Of the works of P. the following have been preserved: "Speech, delivered at the secondary school of Moscow University, on the beginning of lectures on philosophy" (1755), "Letter on how science benefits society and the education of youth" (1756), and others. In philosophy P. took the standpoint of deism (q.v.), although his views could be assessed generally as materialistic. He translated into Russian John Locke's *Some Thoughts Concerning Education*, Alexander Pope's *Essay on Man*, and a number of works of Quintus Horace, Titus Livy, and others. He was the first to lecture on philosophy in Russian at the University, proving that philosophy "is the mother of all sciences and arts", that it must be independent of theology and is destined to satisfy the inquisitiveness of the human mind concerning the nature and structure of the worlds in the Universe. P. advocated enlightenment and the development of the sciences, reasonable legislation and good government, and wider civil rights.

Population, all the people living in a given territory. Growth of P. is one

of the requisites for society's material life. P. is a unity of two aspects; socio-economic (P. as the aggregate of members of society who are in definite social relations among themselves) and biological (P. as the aggregate of biological individuals). The natural and social aspects of P. are closely connected, being sides of a single whole. P. as a socio-economic category includes the producers of material wealth and children and the aged who do not take part in social production, and also (in antagonistic class formations) the exploiting classes. As socio-economic conditions change the biological characteristics of P. are essentially altered (health, birth rate, reproduction, etc.). Each socio-economic formation has its own historically transient law of P. (capitalism, for example, is marked by relative surplus population). Unscientific theories (see Malthusianism) proceed from the false idea of eternal and immutable laws of P., justifying capitalist exploitation, oppression of the peoples in the colonies, and poverty and shortage of food by the high birth rate and other similar causes. In reality the growth of P. depends on diverse factors: the level of the productive forces, relations of production, the state and law, morality, religion, political and other ideas, and, lastly, on the geographical environment. However intricate the relationships between these factors, the main role in the growth of P. is played by the relations of production (q.v.), the socio-economic system which determines the position of the working people, the overwhelming majority of the population. Although other factors, operating in the opposite direction, may temporarily outweigh the influence of production relations, ultimately it is always decisive. This is the initial proposition for a Marxist analysis of P. problems.

Poretsky, Platon Sergeevich (1846-1907), Russian logician. Between 1887-88, at the Kazan University, he was the first in Russia to lecture on mathematical logic. P. contributed to the elaboration of the algebra of logic (q.v.). For this theory he found original and simple methods of solving the problem

of finding a set of consequences following from a given system of premisses and a set of hypotheses, from which these consequences are deducible (*O sposobakh resheniya logicheskikh ravenstv i ob obratnom sposobe matematicheskoi logiki* [*On the Methods of Solving Logical Equations and the Inverse Method in Mathematical Logic*], 1884). P.'s philosophical views can be described as natural-scientific materialism.

Port Royal, the celebrated Cistercian Abbey near Paris, which in the 17th century was the most active centre of Jansenism (a socio-religious movement based on the teaching of the Dutch theologian Cornelis Jansen). P.R. was a major centre of enlightenment in France in the 17th century. It was here that Pascal (q.v.) lived and worked. Various textbooks were written for use in this school, one of which was the well-known manual of logic (by Antoine Arnauld and Pierre Nicole). It was written in the tradition of Cartesian rationalism (q.v.), and contained, among other things, a detailed classification of propositions and an investigation of the distinction between synthetic and analytic (q.v.) methods. In 1712, Louis XIV, who took the side of the Jesuits in their struggle against the Jansenists, ordered the complete destruction of the Abbey.

Positivism, a widely spread subjective-idealist trend in philosophy of the middle 19th-20th centuries. It denies that philosophy is a world outlook, rejects the traditional problems of philosophy (the relation of consciousness to being, etc.) as "metaphysical" and unverifiable by experience. P. attempts to create a methodology or a "logic of science" which would stand above the antithesis between materialism and idealism. One of the main principles of the positivist methodology of science is extreme phenomenalism (q.v.), according to which the task of science is declared to be a pure description of facts and not their explanation. The positivist claim to "neutrality, non-partisanship" in philosophy has its profound social roots. The most important of them derives from the con-

tradictory attitude of the bourgeoisie to the specialised sciences: on the one hand, it is interested in the development of the natural sciences, without which the development of production is impossible; on the other hand, it rejects philosophical conclusions which go beyond the limits of natural-scientific theories and undermine the idea of the eternity of bourgeois society. P. was founded by Comte (q.v.), who introduced the term P. Historically, there are three stages in the development of P. The exponents of the "first" P. were Comte, E. Littré, and P. Lafitte (France), John Stuart Mill (q.v.) and Spencer, q.v. (England). Alongside the problems of the theory of knowledge (the problem of the general historical laws of its development—Comte) and logic (Mill), solved in a spirit of extreme empiricism and phenomenalism, the main place in the "first" P. was assigned to sociology (see Organic Theory of Society by Spencer), the object of which was to prove the natural and eternal nature of capitalism. The rise of the "second" P.—empirio-criticism (q.v.)—dates back to the 70s-90s of the 19th century and is associated with the names of Mach and Avenarius (qq.v.), who renounced even formal recognition of the objectively-real objects, which was a feature of the "first" P. In Machism the problems of cognition are interpreted from the viewpoint of extreme psychologism (q.v.), merging with subjectivism. The rise and formation of the "third" P. is linked up with the activity of the Vienna circle, q.v. (O. Neurath, R. Carnap, M. Schlick, P. Frank, qq.v., and others) and of the Berlin Society for Scientific Philosophy (H. Reichenbach, q.v., F. Kraus, and others), which combined a number of trends: logical atomism (q.v.), logical positivism (q.v.), general semantics, q.v. (close to these trends are operationism and pragmatism, qq.v.). The main place in the "third" P. is taken by the philosophical problems of language, symbolic logic, the structure of scientific investigations, and others. Having renounced psychologism, the exponents of the "third" P. took the course of reconciling the "logic of

science" with mathematics, the course of extreme formalisation of epistemological problems.

Possibility and Reality, categories reflecting the dialectical development of the objective world, the various stages and periods in the emergence and development of objects. P. expresses the objective tendency of development inherent in existing phenomena, the presence of conditions requisite to the appearance of the objective thing (object, phenomenon) or at least the absence of conditions that would exclude its coming into being. R. is the name for anything objective (object, condition, situation) which actually exists as the result of the realisation of a P. The mutual connection and conversion of P. and R. are closely linked with the law-governed, necessary development of the objective world, with recognition of the principle of determinism (q.v.). A distinction is made between real and abstract P. Abstract (or formal) P. expresses the absence in reality of any conditions that might exclude any given phenomenon, but does not assume the presence of any conditions making its appearance inevitable. It may also express a tendency which has not as yet developed and may be connected with lack of knowledge of the circumstances requiring analysis. In the latter case it may involve impossibility. Real P. denotes the presence of all the necessary conditions under which a P. will inevitably be realised. In certain circumstances, however, abstract P. may become real P., and vice versa. The quantitative relation between abstract and real P. may be expressed in probability (see Probability, Theory of). P. of any one phenomenon does not in itself exclude the P. of the opposite phenomenon, or the P. of its not occurring. Allowance for real possibilities, the steps taken to turn some of them into R., and removal of the danger of undesirable Pp. constitute an important part of human activity. Such activity is presupposed by the theoretical analysis of P., particularly the consideration of its relations to necessity and chance (q.v.). P. becomes R. only when

the full set of conditions for the existence of a certain phenomenon either arises spontaneously or is consciously prepared. The more there are of such conditions and the more essential these conditions are, the more likely a P. becomes. Thus, the P. of an economic crisis under commodity production is already implicit in the act of selling commodities. But the conversion of this P. into R. requires a whole set of conditions and relations that does not exist within the framework of simple commodity production. These arise only in capitalist society, where crises become inevitable. By combining certain materials and forces of nature, man is able to bring into being such phenomena as he desires (creating the full set of conditions required for such a phenomenon) and to prevent such phenomena as he does not desire (removing their cause). Such activity is not, of course, unconditional. It is limited by the objective laws of the world and develops in accordance with these laws. In social life, P. becomes R. through man's practical activity. For example, the building of communist society is impossible unless people work consciously for it under the leadership of a Communist Party, but this activity must be in accordance with the objective laws of social development. In the history of philosophy up to the time of Marx and Engels, the most profound analysis of P. and R. was given by Aristotle and Hegel (qq.v.).

Postulate, a principle or proposition in a scientific theory, which is taken as the initial proposition, incapable of proof within the framework of that theory. In modern logic and scientific methodology the concepts "P." and "axiom" (q.v.) are, as a rule, equivalent. Sometimes the difference in the meanings of these concepts derived from ancient philosophy is preserved: axioms signify the initial logical principles, and P. initial propositions in a special scientific theory.

"**The Poverty of Philosophy**", one of Marx's early works, which outlined the basic principles of scientific socialism. It was written in French in 1847 and was directed against the views

of the French petty-bourgeois philosopher and economist, the anarchist Proudhon (q.v.). Marx came out against the "dialectical" phraseology of Proudhon, demonstrating that the latter did not rise above the bourgeois outlook. Marx devoted much attention to criticism of Hegelian dialectics and the elaboration of materialist dialectics. A scientific analysis of the capitalist mode of production is given in *P.P.* and the foundations of Marxist political economy are laid. Marx deeply studied the economic situation, the historical role of the proletariat in the class struggle. "The condition for the emancipation of the working class," Marx wrote, "is the abolition of every class.... Meanwhile the antagonism between the proletariat and the bourgeoisie is a struggle of class against class, a struggle which carried to its highest expression is a total revolution.... It is only in an order of things in which there are no more classes and class antagonisms that *social evolutions* will cease to be *political revolutions*. Till then, on the eve of every reshuffling of society, the last word of social science will always be [here Marx quotes the following words of George Sand in her *Jan Žižka*]: 'Combat or death: bloody struggle or extinction. It is thus that the question is inexorably put.'" (Marx, *The Poverty of Philosophy*, p. 197.)

Practice, see Theory and Practice.

Pragmatics, a branch of semiotic (q.v.).

Pragmatism (Gk. *pragma*, things done), a widespread subjective idealistic trend in modern philosophy. The so-called "principle of pragmatism" is the core of pragmatic philosophy and determines the value of truth by its practical utility (see Peirce). In James' (q.v.) works P. is formulated both as a method of solving philosophical disputes by means of comparing "practical consequences", following from a theory, and as a theory of truth: truth is that "what works best in the way of leading us, what fits every part of life best and combines with the collectivity of experience's demands". A subjective understanding of "practice" and truth leads P. to define a concept (idea) as an

"instrument" of action (Dewey, q.v.), and cognition as the sum total of subjective "truths" ("humanism" of F.C.S. Schiller, q.v.). By practical utility, however, P. understands not confirmation of objective truth by the criterion of practice, but what meets the subjective interests of the individual. In explaining reality P. adopts the standpoint of "radical empiricism", which is closely related to empirio-criticism (q.v.). Objective reality is identified in P. with "experience", and the division of cognition into a subject and object is made only within experience. Proceeding from "radical empiricism" and the comprehension of truth as practical utility, P. "... deduces from all this a God for practical purposes, and only for practical purposes..." (Lenin, Vol. 14, p. 342.) In logic P. comes to irrationalism, in open form in James' works, and in disguised form by appeals for the creation of a "logic of scientific investigation" in Dewey's. P. regards the laws and forms of logic as useful fictions. P. subscribes to meliorism in ethics, while in sociology it varies from the cult of "outstanding individuals" (James) and apology for bourgeois democracy (Dewey) to an outright defence of racism and fascism (F.C.S. Schiller). At the present time P. appears in the form of "experimental naturalism", combining subjective idealism with anti-Marxism and anti-communism (Sidney Hook), or in the form of neo-pragmatism, combining P. with neo-positivism (q.v.), and semantic idealism ("semiotic" of C. W. Morris, operationism, q.v., of P.W. Bridgman, q.v., pragmatist interpretation of formal logic of C. I. Lewis, R. Carnap, q.v., and W. Quine). For a long time P. dominated the spiritual life of the USA, only recently has it given way to neo-positivism and religious philosophical conceptions.

Praxiology, a teaching within the framework of practical sociology; it is a method of considering various actions or aggregates of actions from the point of view of their effectiveness. Founded by the President of the Polish Academy of Sciences Tadeusz Kotarbinski, it is one of the methods of modern

sociological investigation. The essence of this method consists in practical (and historical) investigation and description of the various habits and methods of work, revealing their integral elements and hence arriving at various practical recommendations. P. studies the history of these categories, and undertakes concrete investigations of the work of collective bodies, analyses forms of labour organisation, its specialisation, the subjective (less frequently objective) factors in the change of organisation and the degree of efficacy of labour. P. studies the interaction between individuals, and between the individual and the collective, in the process of production. It is spread to some extent in Poland.

Predestination, Theory of, the teaching according to which everything in the world, including the phenomena of the human psyche, is predetermined by the sheer will of God (Augustin, Luther, Calvin, qq.v., pre-established harmony, q.v.), or by strict mechanical necessity. Consistent advocacy of the T.P. leads to denial of development and recognition of the fact that any activity is senseless. Modern science rejects the T.P. and corroborates the teaching of dialectical materialism on the self-motion (q.v.) of matter.

Predicables, types of predicates in Aristotle's logic. In *Topics* Aristotle counts four P.: genus, species, property, and accident. Porphyry, Aristotle's commentator, adds *differentia specifica* to this list. P. are opposed to individual names, because the latter, as distinguished from P., cannot be used as predicates. Aristotle's teaching on P. is linked with the teaching on the kinds of proposition—categories (*praedicamenta*).

Predicate (in traditional logic), an element of any proposition, which is either affirmed or denied in respect of the subject of the proposition. As a rule, the concept P. expresses the concept of properties. Aristotle himself was at variance with traditional logic in that he defined P. somewhat differently (and from the functional point of view more precisely), by uniting the predicate and the copula. Contemporary formal logic proceeds from a more

general conception of P., understanding it as a logical function which is specified for an object-field and assumes this or that truth-value. Unlike the traditional conception of P. as a one-term function, this function may be of two, three, etc., variables, i.e., it may express multi-term relations. Thus, "x is a river" is a one-term P., " $x < y$ " is a two-term P. and "x lies between y and z" is a three-term P. The substitution for variables of the names of individual objects belonging to those object-fields, for which the P. has sense, gives true or false statements.

Pre-established Harmony, recognition of divinely ordained harmonic changes of soul and body, denying cause-effect connection between the soul and the body and holding that every desire of the soul and the corresponding motion of the body are pre-established, preordained parallel to, and independently of, each other. The teaching of P.H. represents an attempt to overcome the dualism of spiritual and material substances. Hints of P.H. are to be found in Descartes' (q.v.) teaching, but it is explicit in the works of the occasionalists (q.v.), viz.: Arnold Geulinx, Nicolas Malebranche (q.v.). The concept P.H. was somewhat revised by Leibniz (q.v.), who professed P.H. of all monads in the Universe. According to Leibniz, the world and each one of the creatures inhabiting it develops by its own abilities, but these abilities are created and chosen by God in such a way as to predetermine the best possible order in the world.

Preformationism, an anti-dialectical conception of development which dominated biology in the 18th century. According to P., the properties and signs of the mature organism are laid in a ready form in the embryo. The influence of P. was undermined by Darwin's (q.v.) theory of evolution, according to which the development of the embryo is accomplished by means of successive transformations conditioned by heredity (q.v.) and appearing only in definite conditions of the external medium.

Premises (in logic), propositions from which a new proposition, or in-

ference (q.v.) is drawn. According to the kind of inference, the P. may be a great variety of propositions or their combinations. For the conclusion to be true the P. must be true and correctly (according to the laws of logic) combined in reasoning.

Pre-Socratics, name for the earliest Greek philosophers (7th to beginning of 4th century B.C.). The term is conventional because many of the most notable P. made their contribution to philosophy after Socrates (q.v.). It is not conventional in the sense that the P. did not pose the problem of the purpose and destiny of the individual, of the relation of thought to being, of the immanent dialectics of thought, and confined themselves to the study of nature, the Universe, and objective reality as it was apparent to the senses. These problems were all treated from the standpoint of a sensual Universe consisting of a perpetual cycle of Heraclitus (q.v.), Diogenes of Apollonia (5th to 4th centuries B.C.), Xenophanes, Pythagoras, Parmenides (qq.v.) and his Eleatic pupils, Empedocles, Anaxagoras, Leucippus, and Democritus (qq.v.). The main object of study of pre-Socratic philosophy—the Universe—was believed to consist of the usual sensual elements—earth, water, fire, and ether, which constantly interchange by means of densification and rarefaction. The dialectics of the elements is a characteristic feature of the natural philosophy of the P., particularly Democritus and Heraclitus. These elements are sensual and imbued with an organising but purely material principle (logos in Heraclitus, love and enmity in Empedocles, the eternally moving atoms in the atomists, etc.). The founders of Marxism-Leninism gave a high appraisal of the spontaneous materialism of the P., which emerged from the attempt to refute mythology and uphold scientific philosophy.

Priestley, Joseph (1733-1804), English scientist and materialist philosopher. He discovered oxygen and worked on the problems of optics and electricity. He was an advocate of the principles of the French Revolution. As a result of persecution P. emigrated

to the USA (1794). He continued the traditions of F. Bacon and Hobbes (qq.v.). In P.'s opinion, all matter possesses the properties of extent, density and impenetrability, its characteristics being determined by the presence of the forces of attraction and repulsion. Man's thought and sensations are the product of other organisation of the very same matter. P. rejected Locke's dualism (q.v.) from the mechanistic position: for example, he tried to explain association of ideas by vibration. He demanded the combining of experiments and theory. He paid great attention to the problems of hypothesis, analogy (qq.v.), etc. In sociology P. advocated the principle of determinism (q.v.), but opposed fatalism (q.v.). P. was an adherent of the ethics of eudemonism (q.v.). In his opinion, the greatest individual happiness is compatible with the happiness of other men.

Primary and Secondary Qualities, the terms used to distinguish the qualities (properties) of things according to their objectivity. The terms were introduced by Locke (q.v.), although this distinction was made earlier by Democritus, Galileo, Descartes, Hobbes (qq.v.). By primary, or objective, properties Locke meant motion, impenetrability, solidity, cohesion of particles, shape, volume, etc. Secondary, or subjective, qualities (colour, smell, taste, sound), according to Locke, "are nothing in the objects themselves" and they depend upon the primary properties. This point of view is explained by the mechanistic nature of Locke's materialism. Thus, all properties that could not be explained by means of mechanics were declared by him to be secondary, definable only by the subject's organisation and state. The singling out of subjective properties was based on confusion of the objective existence of the properties with their degree of adequacy and the form of their reflection in consciousness, and resulted from the misunderstanding of the special role played by thought in reflecting the properties of objects. Turning to account the inconsistencies of metaphysical materialism, the subjective ideal-

ists, D. Berkeley, D. Hume, and others, classed primary properties as subjective. Dialectical materialism denies the division of the properties of things into objective and subjective.

Primitive-Communal System, the first socio-economic formation (q.v.), which existed many thousands of years ago and was common to all peoples in the early stage of their development. The production relations of this system were the product of a low level of development of the productive forces, of the primitive state of the tools of labour, of the natural division of labour by sex and age. The basis of the production relations was common ownership of the means of production (tools of labour, land, dwellings, agricultural implements, etc.). Within the framework of common ownership there was also private ownership of weapons, clothes, household utensils, etc. In the P.C.S. production was carried out collectively, by the clans. The produce was divided into equal parts and consumed collectively. Only by working together could the primitive people secure their means of subsistence and protect themselves against the attacks of wild animals and neighbouring communes. On the basis of the first major division of labour (q.v.)—the separation of animal husbandry from cultivation—the productive forces of the P.C.S. began developing with considerably greater speed. With their development there arose and developed exchange, private property, and economic inequality of individual members of the commune. Slave labour led to further economic inequality and was responsible for the disintegration of the primitive commune. Collective production and equal distribution of the product began to fetter the productive forces. At the higher stage of development of the P.C.S. the second major division of labour took place: the separation of the handicrafts from agriculture. This facilitated the further break-up of the P.C.S. The result was the emergence of the poor and the rich, exploitation, classes (q.v.) and the state (q.v.). The P.C.S. was replaced by class societies,

e.g., the slave-owning system (q.v.) and feudalism (q.v.).

Primitivism, a formalistic trend in modern art which arose at the beginning of the 20th century. Its typical representative was the French self-educated artist Henri Rousseau (1844-1910). Inherent in P. is the emphatic rejection of the historically evolved artistic rules and technical achievements, which are deliberately replaced by imitation of the art patterns of primitive society, and admiration of the naive and simplified forms of children's creation. P. prefers pseudo-popular and pseudo-juvenile stylisation, exaggeration, and inflation of individual details to the reproduction of reality in development.

Principal Co-ordination, a subjective idealist theory developed by R. Avenarius (q.v.) and his disciples (R. Willy, I. Petzoldt, and others). According to this theory, between our "ego" (system C, or the central term) and the environment (system R, or the counter-term) there is P.C. (inseparable link). The objective world cannot exist without a certain "ego" which perceives it. People in their "experience" deal only with the values in a given expression (E—values)—sensations of green, cold, etc. ("elements")—and affectional relations of the pleasant, the true, the known, etc. ("characters"). This theory is incompatible with science, which considers man as the product of a long evolution of matter, and nature as existing before man and independently of him. Echoing Berkeley (q.v.) and Fichte (q.v.), the theory of P.C. leads to solipsism (q.v.). The criticism of P.C. is given in Lenin's *Materialism and Empirio-Criticism* (q.v.).

Principle, the leading idea, the basic rule of behaviour. In early ancient philosophy water, air, fire, the earth, etc., were taken as the prime elements. The P. was considered as the expression of necessity or the law of phenomena. Logically, the P. is the central concept, the basis of a system, and the generalisation and extension of some proposition to all the phenomena of the field from which the P. is abstract-

ed. The P. of activity, for example, means the ethical standard characterising the relations between people in society.

Probability Logic, logic in which propositions (q.v.) signify not only truth or untruth but may have the intermediate significance of probability of truth (p), of likelihood. The logical framework built on this basis is used to arrive at an approximate judgement of hypotheses not by comparing them with reality but through other propositions expressing knowledge already available to us. Thus, the degree of probability contained in the proposition "it will rain tomorrow" may be estimated by reference to the meteorological data available. Consequently, the p of a hypothesis is a function of two arguments: the hypothesis itself (h) and the available information (k). If h follows logically from k , p is true to the extent that k is true; if h contradicts k , p is false; in all other cases p has an intermediate significance. The problem of the precise numerical value of the p of certain propositions in relation to others is open to discussion and has been treated in various ways by representatives of various trends in P.L. The p of complex hypotheses, when the p of all the propositions comprising them is known, is calculated according to the rules of mathematical calculation of probability (see Probability, Theory of), P.L. being one of the interpretations of this calculation. It would seem that the most fruitful application of P.L. is in inductive logic (q.v.). Reference to P.L. was made by Aristotle and the sceptics of ancient times, but Leibniz was the first philosopher to have serious ideas on the subject. The theory of probability which arose at the end of the 17th century could more properly be described as P.L. or as an undivided science of probability. The separation of P.L. from the theory of probability began in the middle of the 19th century, when the attention of the latter became concentrated on mass chance events. Even today, many attempts have been made to regard the study of probabilities as an

integral science with two branches, the theory of probability and P.L.

Probability, Theory of, the study of mass-scale random events, i.e., of events that occur repeatedly under certain circumstances. When, for instance, several times a coin is tossed in the air, the result of each throw being an individual elementary random event, there can be only two alternatives: the coin must land heads or tails. In many instances of the operation of chance the most important factor is, of course, what will happen in each individual case. With this the T.P. is not concerned. But mass random events cover an extremely wide field (e.g., the sex of an infant, frequency of defects in mass production, etc.). They occur also in physical, chemical, biological, and social phenomena. Hence the extremely wide application of the T.P. in technology and the natural and social sciences. One of the basic properties of mass-scale random events on which the theory is based is the stability of their relative frequencies (see Great Numbers, Law of), i.e., of the ratio of the number of experiments (or observations), in which the mass-scale random event occurs to the total number of experiments (or observations). This quantity is stable, particularly over a large number of experiments, and it is called the probability of the given mass-scale random event. The probability of any given event is calculated experimentally, but once it is given a mathematical expression, we can judge by the probability of certain initial events the probability of other events connected with them. The concepts of chance and probability are not part of pure mathematics. Neither can the T.P. be considered part of pure mathematics, although it can be made part of it by use of axiomatising (see Axiomatic Method). In spite of the value of such mathematical treatment, the T.P. remains a science in its own right, with its own specific subject-matter, its function being to reveal the objective regularity in chance phenomena. These regularities, however, are statistical in character (see Laws, Statistical and Dynamic). The

investigation of probability, therefore, gives a fuller insight into law and also into the problem of the relation between chance and necessity. Moreover, it should be stressed that the probability of events is one of their objective properties and not the result of our observations of them, as is held by the advocates of the subjective-idealist approach to the T.P. (e.g., the German mathematician Richard von Mises). The history of the T.P. is usually divided into four periods: the first embraces the formation of its elementary concepts and theorems (Pascal, Fermat, Bernoulli) when no concrete scientific material was available for its application. In the second period, covering the 18th century and the beginning of the 19th, the need for calculations of probability arises in various spheres: the theory of errors (Gauss), the theory of accuracy in shooting (Poisson and Laplace), but so far the claim of the T.P. to the function of generalised logic still holds. The third period, covering the second half of the 19th century, saw the development of statistics on the basis of obsolete theoretical material, and the beginnings of the break-away of the T.P. from probability logic. A revolution in method was brought about by Chebyshev, who placed a new emphasis on strictness of proofs and evaluations. In the fourth period, in the 20th century, there was a sudden widening of the application of the T.P. in various fields of technology and the natural and social sciences and it was recognised as a science. In this period an extremely important role in the development of the T.P. is played by the Soviet mathematicians S. M. Bernstein, A. N. Kolmogorov, A. Y. Khinchin, and others.

Process, a regular, successive changing of a phenomenon, its transition into another phenomenon (see Development).

Proclus (410-85), founder of the school of Neo-Platonism (q.v.), born in Constantinople and died in Athens. P. was the initiator of the dialectical notion of triadism (see Triad and also Hegel). Because of his effort to fit the contents of ancient mythology in a

single philosophical system, P. is characterised in historico-philosophical literature as a systematiser of Hellenism, a scholastic of Hellenism. Proceeding from the idea of Plato (q.v.) that the singular is revealed in plurality, and that the latter strives to secure unity, P. recognised three stages of the development of all that exists: sojourn, aspiration forward, the reverse aspiration. According to P., development proceeds not by division or transformation, but as a result of fullness of strength, in consequence of which one creates the other, itself not undergoing change. Main works: *The Elements of Theology, Platonic Theology*.

Production, the process of consuming labour power and creating the means of production and articles of personal use necessary for the existence and development of society. The process of P. as the purposeful activity of people by which they act upon external nature and transform it to make it conform to their needs and at the same time change their own nature, is a perpetual and natural condition of human life. The basic elements of every process of P. are: purposeful activity of people, their labour (q.v.), the object of labour and the means of labour. In the process of P. men also influence one another, uniting in a definite way for joint activities. Therefore, P. always bears a social character. Consequently, there are two sides to P: the productive forces (q.v.) and the relations of production (q.v.). P. is inseparably linked with distribution, exchange, and consumption, the three of which forming an integral whole. P. is the starting point and the determining factor with respect to consumption. P. is connected with consumption through distribution which, conditioned by the mode of production (q.v.), by the form of ownership, establishes the share of individual members in the social product. P. always exists in a definite, historically established social form. It may be the primitive, the slave-owning, the feudal, the small-scale commodity, the capitalist, the socialist, or the communist social form. The general fea-

tures of P. (the unity of its main elements, its relation to distribution, exchange, and consumption) assume a different nature depending upon its historical type, i.e., the mode of production, upon the nature of the relations of production (see Capitalism, Socialism).

Productive Forces, the means of production and people equipped with production experience and habits of work. The P.F. express the attitude of men to the objects and forces of nature used for the production of material wealth. The main productive force of society are the producers, the workers who constantly improve the instruments of labour, use more widely the wealth of nature, enrich their production experience, raise the productivity of labour. The condition of the P.F. are an index to the degree of human society's power over nature. The P.F. undergo constant development: first of all the instruments of labour are perfected, and this determines the necessity for the development of the relations of production (q.v.) and the mode of production (q.v.). The history of human society shows that in the formations with antagonistic classes, at a certain stage of the development of material production, there arises a contradiction, a conflict between the P.F. and the relations of production. The relations of production begin to lag behind the level of development of the P.F., they become outmoded, outlive themselves, and turn from a form of development of the P.F. into an obstacle and hindrance to them. The delay in the development of the P.F. of contemporary capitalism, where the relations of production have long ago become obsolete, corroborates this proposition. Under the socialist mode of production, when the relations of production are constantly and in a planned way brought in accord with the growing P.F., there is powerful and accelerated development of the latter. The creation of the material and technical basis, i.e., the P.F., of communism is a decisive link in the chain of the economic, social, and cultural problems involved in building communist society.

Progress and Retrogression in Social Development, opposite forms of social development as a whole or individual aspects of it, signifying respectively either the progressive development of society on an ascending line, its rise, or the reversion to the old, outlived forms, stagnation, and decay. The criterion of social P. is the degree of development of the productive forces, of the economic system, and the institutions of its superstructure determined by it, together with the development and dissemination of science and culture, the development of the individual, the degree of extension of social freedom. The development of the mode of production is basic and decisive here. In individual historical periods, in individual countries an essential, if not decisive significance for the description of social development from the point of view of P. or R. may, on the strength of their relative independence, attach to such social phenomena as political life, culture, education, etc., although they are secondary, derivative and determined by the economic system. The history of the countries where a fascist dictatorial regime was established, or is established (see Fascism) may serve as example of social R. determined by political factors. The development of antagonistic socio-economic formations is extremely contradictory. Although in certain periods of history these formations serve as stages of P., in the period of decline and decay, the features of R. become the dominant ones. However, in this period R. cannot be universal, inasmuch as the basic tendency in the development of mankind as a whole is not R. but P., which in the case in point is expressed in the emergence of the elements and prerequisites of a new society and in the development of certain aspects of social life. Thus, for example, the R. observed in the development of bourgeois society in the imperialist era is accompanied by P. in many branches of science and technology, as well as in a number of other social phenomena. However, to assess the vitality of a given society, its ability to show P. or R., it is more im-

portant to determine the general tendency of its development, which aids classes and social groups interested in social P. to cognise more deeply and apply the laws of social development. The concepts "P." and "R." are interpreted differently in philosophy and sociology. The scientists in the period of the progressive development of capitalism (Vico, Herder, Hegel, qq.v., and others) recognised P. and tried to find its rational foundation. Scientists in the period of the decline of capitalism either reduce the concept "P." to the spheres of individual cultures and civilisations (Spengler, Toynbee, qq.v.) or do not admit the possibility of studying P. in history. They try to explain R. by the action of purely subjective factors, the R. of nazi Germany, for example, by the features of Hitler's personality and by the activities of the National-Socialist Party. Marxism-Leninism gives a scientific explanation of P. & R. P. as a progressive development without relapses into R. is possible only in a non-antagonistic, communist society.

Prolegomena, a short introduction to some science, the object of which is a preliminary acquaintance with its contents, problems, and the method of investigation. *Prolegomena zu einer jeden künftigen Metaphysik, die als Wissenschaft wird auftreten können*, by Kant serves as introduction to the *Critique of Pure Reason* (in fact a short summary of this work).

Proletarian Internationalism, the ideology of the international solidarity of the proletarians and labouring people of all countries, one of the basic ideological principles by which the working class and its party are guided. The idea of P.I. was first enunciated by Marx and Engels in the *Manifesto of the Communist Party* (q.v.), which proved the community of interests of the workers of all countries in the struggle for liberation from capitalism. The essence of P.I. is expressed in the slogan "Working men of all countries, unite!" The working class of every nation cannot regard its struggle dissociated from the struggle of the proletariat of other nations, for its

enemy is not only the bourgeoisie of its own country but the bourgeoisie of other countries. Hence the common fundamental interests of the world proletariat as a whole. In P.I. the love of the proletariat for its country, the desire to see it free from class and other kinds of oppression, is integrally bound up with the support of the struggle of the working people of other countries for peace, democracy, and socialism. A scornful attitude to other nations, even small ones, is alien to P.I., for every nation makes its own contribution to world culture. The Great October Socialist Revolution and the victory of socialism in the USSR weakened the world system of imperialism, undermined its foundations, and rendered great support to the international proletariat in its just struggle; at the same time P.I. was shown by the support which the international working class rendered to the Soviet Republic. The ideas of P.I. are embodied in the solution of the question of nationalities in the USSR and other socialist countries and in the creation of a new type of the multinational state founded on friendship between nationalities. With the formation of the world socialist system many more aspects of the content of P.I. have become manifest. One of the manifestations of P.I. in contemporary conditions is the friendship and mutual help of the countries forming the world socialist system. The safeguarding of the security of the socialist community, the struggle for peace and against war, aid to the peoples of backward countries in developing their national economy and culture are among the most important requirements of P.I. P.I. is inseparably linked with socialist patriotism, with devotion to socialism, to the world socialist system. The building of communism in the USSR is a great internationalist task of the Soviet people, answering the interests of the world socialist system as a whole, the interests of the international proletariat, the whole of mankind. In our times the principles of P.I. demand an uncompromising struggle against all varieties of national seclusion, against the ideol-

ogy of cosmopolitanism, and the resolute defence of the unity of the Workers' and Communist Parties. All striving to divide peoples on a nationalist or even racial basis, all Great-Power attitudes to other peoples are incompatible with the ideology of P.I. These are manifestations of petty-bourgeois ideology, which replaces the class approach by a geographical or racial approach and condemns the peoples to isolation and national parochialism, diverts them from the international revolutionary movement, and leads to the weakening of the anti-imperialist struggle.

Proof, process of reasoning designed to establish the truth (or falsity) of an idea. The idea to be proved is called the thesis. The inferences on which the proof is built, and from which the thesis logically follows, are called arguments (q.v.). Arguments are assumed to be true and must not involve premisses which assume the thesis to be proved, otherwise the result is the error known as circular evidence (q.v.). A P. which establishes the truth of the thesis is called simply P.; one which establishes the falsity of the thesis is called a refutation. P. may be direct, i. e., it may consist of a series of deductions whose premisses are arguments or propositions inferred from arguments, or it may be arrived at by means of additional assumptions. The latter type of P. is built up in the following manner. Certain propositions are proved with the help of assumptions, after which the P. of these propositions is converted in accordance with certain special rules into a P. of the original thesis (without assumptions). Pp. arrived at with the help of assumptions include: (1) those whose assumptions are eliminated by means of the deduction theorem (q.v.); (2) P. by cases, in the following form: if we know of the existence of cases A_1 , or A_2 ... or A_k , we first prove thesis B, assuming A_1 , then A_2 , and so on, up to A_k . Thesis B is thus proved without assumptions; (3) apogic P. (q.v.). Pp. are subject to various errors due to *ignotio elenchi*, acceptance of unfounded or erroneous arguments, or due to the employment of incorrect methods. A. P.

containing an error is invalid. But the detection of error in a P. does not constitute P. of the falsity of the thesis. It is possible to have Pp. that establish the truth of a thesis not as a certainty but as a probability (see Probability Logic).

Proof of the Existence of God, arguments seeking to prove the main dogma of religion—the existence of God—put forward by various idealist philosophers. The three basic arguments are as follows. The cosmological argument (found already in Plato and Aristotle, qq.v., and maintained by Leibniz and Wolff) states that God exists as the prime cause of all things and all phenomena. This argument is based on the unscientific assumption that the world must be finite in time, and that its prime cause is non-material. The teleological argument (proposed by Socrates and Plato, qq.v., subsequently developed by the stoics, q.v.) states that everything in nature has a purpose that can be explained only by assuming the existence of a supernatural rational being, which arranges all phenomena harmoniously. This argument was disproved by Darwin's (q.v.) theory of evolution, which proved the natural causes of purposefulness. The ontological argument was advanced by St. Augustine, who asserted that all men conceive of God as the perfect being. This conception, he argued, could not arise unless a perfect being existed in reality. Therefore God exists. In the Middle Ages this argument was taken up and defended by Anselm of Canterbury (q.v.). Its weakness in assuming that what is thought must be real was so obvious that it was criticised not only by the materialist philosophers but by many theologians, e.g., Thomas Aquinas (q.v.). Other arguments for the existence of God, epistemological, psychological, and moral, are advanced by various idealist philosophers. Arguments for the existence of God were disproved within the framework of idealism by Kant (q.v.), who asserted that God is a being above experience (transcendental) and known only by reason, and therefore the existence of God cannot

be proved. Analysis of the arguments for the existence of God reveals that they all contain a logical mistake (see Circular Evidence) and rest ultimately on blind faith.

Propaedeutics, preliminary exercise, preparatory, introductory course in some science, expounded in a systematised and concise form. P. precedes a more detailed study of the corresponding branch of knowledge. A school course of philosophy is sometimes called philosophical P.

Property, a side of an object which determines its difference from, or similarity to, other objects and is manifested in the interaction with them. (For example, extension, elasticity, colour, electric conductivity, etc.) Every P. is relative. In relation to wood, iron is hard, in relation to diamond it is soft. Each individual thing possesses a countless number of Pp., the unity of which expresses its quality (see Quality and Quantity). Pp. inherent in all objects or connected with the very nature of matter are called universal (see Attributes). There are specific and general Pp., basic and non-basic, necessary and accidental, essential and non-essential, external and internal, compatible and incompatible, separable and inseparable, natural and artificial, etc. Dialectical materialism asserts that all Pp. of things are inherent in the things themselves, i. e., are objective. Pp. do not exist independently and they can be separated from a thing only abstractly. A study of separate Pp. of objects is a stage in cognising their qualities.

Propositional Calculus, the logical system (see Calculus) which formalises reasoning based on true relations between propositions which are regarded in abstraction from their internal subject-predicate structure. Various formulations of P.C. are possible. There is, for example, the inductive definition of a formula: (1) propositional variables p, q, r, \dots are formulas; (2) if A is a formula then (A) is a formula; (3) if A and B are formulas, then $(A) \rightarrow (B)$, $(A) \vee (B)$, $(A) \cdot (B)$ are formulas; (4) nothing else is a formula. An axiom is a formula of the following types: 1)

$A \rightarrow (B \rightarrow A)$; 2) $(A \cdot B) \rightarrow A$; 3) $(A \rightarrow B) \rightarrow ((A \rightarrow (B \rightarrow C)) \rightarrow (A \rightarrow C))$; 4) $(A \cdot B) \rightarrow B$; 5) $A \rightarrow (B \rightarrow (A \cdot B))$; 6) $A \rightarrow (A \cdot V B)$; 7) $B \rightarrow (A \cdot V B)$; 8) $(A \rightarrow C) \rightarrow ((B \rightarrow C) \rightarrow ((A \cdot V B) \rightarrow C))$; 9) $(A \rightarrow B) \rightarrow ((A \rightarrow B) \rightarrow \bar{A})$; 10) $\bar{A} \rightarrow A$ where the line over the symbols is a sign of negation (q.v.); a sign of conjunction (q.v.); a sign of implication (q.v.) and V a sign of disjunction (q.v.). The following rule of inference is assumed: from A and $A \rightarrow B$ B is directly inferred. This is the basis for a definition of the formula, inference and proof deduced from P.C. P.C. is non-contradictory (see Non-Contradiction) and complete (see Axiomatic Theory, Completeness of). The decision problem (q.v.) is decidable. For non-classical P.C. see Constructive Logic and Many-Valued Logic.

Propositional Function, one of the main concepts of contemporary formal logic (q.v.). P.F. is characterised by the fact that it relates one of the values of truth (truth, falsehood) to the objects of a given object-field. For example, the concept "horse" (i.e., the concept of the property of "being a horse") from this point of view fulfils the role of a function, ascribing to the objects of a given object-field (e.g., the field of material bodies) the value "truth", if the object is a horse and the value "falsehood", if the object is not a horse. The introduction of the P.F. and quantifiers (q.v.), performed within the limits of a functional calculus (q.v.) makes it possible to express the structure of judgements more profoundly and completely than within the limits of a propositional calculus (q.v.), to reflect a wider range of conclusions and proofs, used in reasoning.

Prosyllogism, see Polysyllogism.

Protagoras (481-411 B.C.), Greek philosopher, a leading Sophist (q.v.), lived in Abdera; he was expelled from Athens for his atheism, and his book *On the Gods* was burnt. Bourgeois researchers interpreted P. as an absolute sceptic, translating extant fragments of his work as follows: "Man is the measure of all things: of those which are, that they are; of those which are not, that they are not." But the Greek word corresponding to "that" may be

translated differently: "existing, so long as they exist", etc. With this interpretation P. is not a subjectivist and sceptic; his thesis contains an element of a materialistic shade of anthropologism; this agrees with the assessment of Sextus Empiricus which amounts to the fact that for P. "matter is unstable" and "the main causes (logoses) of all things are in matter".

Protestantism, the third kind of Christianity (q.v.), after Orthodoxy (q.v.) and Catholicism (q.v.), originating in the period of the Reformation (q.v.). P. is the name of a number of various independent religions or churches differing in dogmatic and canonical principles. The Protestant religion has its own specific features. Protestants do not recognise the Catholic purgatory, reject Orthodox and Catholic saints, angels, the Virgin, worshipping only the divine Trinity. The main distinction between P., on the one hand, and Catholicism and Orthodoxy, on the other, is that P. professes an immediate link between God and man. In the Protestant view, grace is communicated to man by God, without the intermediary of the church and "salvation" is achieved only by man's own faith and God's will. This doctrine undermined the primacy of spiritual power over secular power, making the Catholic Church and the Pope of Rome redundant, liberating man from feudal chains and arousing in his soul the feeling of personal responsibility, opening the way for the bourgeois-democratic liberties and bourgeois individualism. As a result of the different relations between God and man in P., not only the clergy and the church but also the religious cult are assigned a secondary place. There is no worship of icons or relics, the number of sacraments is reduced to two (Baptism and the Eucharist), divine service consists, as a rule, of sermons, congregational prayer, the singing of psalms. Formally, P. is based exclusively on the Bible, but in practice every Protestant religion has its own symbol of faith, authorities, "sacred" books, etc., its own kind of "sacred tradition". Contemporary P. is spread mainly in the Scandinavian

countries, Germany, Switzerland, Britain, and the USA. In the 20th century the oecumenic movement has gained considerably in P., resulting in the creation of the World Council of Churches.

Proudhon, Pierre-Joseph (1809-65), French political figure, philosopher, sociologist, and economist, one of the founders of anarchism (q.v.). P.'s works are: *Qu'est-ce que la propriété?* (1840), *La Philosophie de la misère* (1846), and others. In philosophy P. was an idealist, eclectic; he vulgarised Hegelian dialectics, transforming it into a rough scheme, into a teaching of the mechanical combination of "good" and "bad" aspects in every phenomenon. P. considered the history of society as the struggle of ideas. While declaring big capitalist property as "stolen", he was perpetuating small property. He defended the utopian idea of organisation under capitalism of a "just exchange" between individual commodity producers. The founders of Marxism criticised the teachings of P. and his adherents.

Psyche, the product of interaction specific to a subject between that subject and the object. To simple speculation P. takes the form of phenomena of man's so-called subjective world accessible to self-observation: sensations, perceptions, ideas, thoughts, feelings, etc. Speaking about the essence of P., it is necessary to distinguish it as a philosophical concept and as a concrete scientific concept. The philosophical concept of P. has a direct bearing on the fundamental problem of philosophy (q.v.). In this respect the concept "P." is identified with the concepts "consciousness", "thought", "cognition", "mind", "idea", "spirit", etc., and is regarded by dialectical materialism as a special property of a highly organised matter, which is the reflection of the objective reality in the form of ideal images (q.v.). Matter and P. are in opposition, but only within the limits of the fundamental problem of philosophy, i.e., the problem of the relation of thinking to being, for P. cannot exist outside and independent of mat-

ter. Lenin wrote: "To operate beyond these limits with the antithesis of matter and mind, physical and mental, as though they were absolute opposites, would be a great mistake." (Vol. 14, p. 246.) As a concrete scientific concept, P. is simultaneously the product and condition, specific to the subject, of the interaction with the object. In the process of such interaction, systems of nervous links are formed in the human brain; ensuring the reflection of reality, these systems are at the same time the regulators of the process of the interaction of the subject and the object, allowing man to orientate himself in the surrounding world. P. as a material structure, with its own reflecting function, is not reducible to a nervous phenomenon: every individual element of this structure is built according to the laws of physiology as a result of the interaction of the organs and tissues of the organism; but P. itself is formed in the process of the interaction of the subject with the object and in this sense it is formed according to other, psychological, laws. The appearance of P. is connected with the development of life, with the process of complication of the forms of interaction between living beings and their surroundings, with the appearance of the signal connections of the organism and the surroundings. In the process of animal evolution the special organ of P. is formed, first the nervous system and, later, its highest section, the brain. With higher animals and man such an organ is the cortex of the big cerebral hemispheres. The P. of man developed in the process of labour inseparably linked with the development of speech. It differs qualitatively from the P. of animals, which is the result of biological development. The specific feature of human P. is consciousness of reality, which ensures prevision of events and planning of actions. The transition to the higher form of the development of the P. was the result of the reconstruction of the organ of the P. — the brain: in the human phase, the mechanisms of the nervous activity of animals were complemented with the mechanisms of the

second signal system, i.e., the signaling of reality by means of words (see I. Pavlov). From its very origin human P. has been a socio-historical product. In individual development the P. of contemporary man is formed in the process of his mastering the forms of activity developed in the course of history (see Psychology and Higher Nervous Activity).

Psycho-Analysis, the general theory and method of treating nervous and psychical diseases proposed by S. Freud, and a theoretical tenet of Freudism (q.v.). The main propositions of P. are the following: the subconscious (q.v.) which dominates the psyche is inhibited in the depths of the psyche by "censorship", a psychic instance formed under the influence of the system of social interdictions. In special "conflicting" cases the unconscious inclinations evade "censorship" and appear before the consciousness as dreams, slips of the tongue or of the pen, neurotic symptoms (the appearance of diseases), etc. Since the psychic is primary with respect to the somatic (corporeal) it is necessary to investigate the psyche by subjective methods. One such method introduced by P. is the so-called "method of free associations", a method of interpreting dreams, slips of the pen, etc. These methods are called upon to divine the "truth", i.e., the sexual condition which the apparent sense (or visible nonsense) of the manifestations of the unconscious conceal. P. is a glaring example of a "vicious circle": the supposed supremacy of the unconscious, which it is required to prove, "is proved" in every concrete case of P. by means of arbitrary interpretations, based on this supposition itself. In the latter period of his activities Freud, and later his disciples and contemporary investigators, transplanted the subjective methods of P. into social history, all the events of which they arbitrarily interpret as manifestations of the unconscious inclinations of the individual and the people as a whole. P. is the theoretical and methodological basis of a number of trends of

the modern psychological school (q.v.) in sociology.

Psycho-Physical Parallelism, one of the trends in psychology, dualistically (see Dualism) offering a solution of the problem of the relation between the psychical as the ideal (q.v.) and the physiological, or physical, as the material. The adherents of P.P. (W. Wundt, T. Lipps, H. Ebbinghaus, E. B. Titchener, T. Ribot, and others) regard the psychical and the physiological as mutually independent, parallel, cause-effect lines. But as corporeal injury, for instance, affects the psychical condition, and the sense-content of the psychical processes changes the course of physiological processes, P.P., as a rule, is supplemented by the theory of psycho-physical interaction (L. Busse, C. Stumpf, O. Külpe, and others), according to which the psychical and the physiological have constant influence one upon the other. Here, as in the vulgar materialist conception, the very principle of the correlation of the ideal content of the psyche and physiology is erroneous. In reality the content of the psychical processes is determined causatively by the objective world and man's practical and theoretical mastery of it. The physiological processes constitute the necessary material mechanism, ensuring the vital activity and all the social functions of man, including the process of cognition, reflection. But physiology by itself does not determine the content of the psychical processes. That is why epistemologically the psyche must be contrasted not to the physiological mechanism of reflection but to what is reflected. In the last analysis, P.P. necessarily leads to idealistic conclusions in the spirit of psychosomatics (q.v.).

Psycho-Physical Problem, the problem of the relation between the psychical and the physical. The P.P. became particularly acute in the 17th century, when Descartes affirmed the existence of two substances (matter—the substance which has extent but does not think, and the soul—the substance that thinks but has no extent) and counterpoised the soul and the body.

In contemporary psychology there have always been tendencies towards a false solution of the P.P., e.g., the theory of psycho-physical parallelism (q.v.) and its varieties. According to this theory, psychical and physical phenomena seem to represent two parallels, sets of phenomena independent of each other, the links of which correspond to each other. The dialectical materialist approach to the P.P. is based on the proposition that the unity of the world implies its materiality. The psychical is not a special principle (substance), but a product of the development of matter.

Psychological School in Sociology, a subjective idealist conception of society which spread at the end of the 19th and the beginning of the 20th century. The representatives of the P.S. sought the key to the understanding of the social phenomena in the psyche of individuals or in the collective psyche (psychical interaction of individuals). The founder of the P.S. was the American sociologist Lester Ward. Ward saw the qualitative peculiarity of society in the psychological character of social phenomena. Another prominent exponent of the P.S. was the French sociologist Gabriel Tarde, who considered men's imitating one another (vogue, tradition) to be the main law of sociology. The German sociologist Georg Simmel was also close to the P.S. The beginning of the 20th century saw the decay of the P.S., the rejection of frank, straightforward psychologism. The psychological theories of society merge with so-called "cultural sociology" (A. Weber and others). Contemporary psychologism does not constitute a special school, but is a peculiar methodological principle. The application of psychologism to social phenomena is practised to a greater extent in American social psychology (E. Bogardus, L. Bernard, and others). Freudism (q.v.) is also widespread. Psychologism may be considered as a kind of social reformism, since it is based on the aspiration to reform society by means of psychology. Psychologism in sociology also serves as a means of influencing the people.

Psychology, a science, dealing with one of the aspects of the interaction of the subject and the object. The object of P. is psychic activity (q.v.), the psychic qualities and conditions of the subject. The border-lines, distinguishing P. from other related sciences (theory of knowledge, logic, ethics, aesthetics, and others), have never been clearly defined. P. dates back to antiquity and it developed for long within the sphere of philosophy. The history of P. has been the arena of a fierce struggle between materialism and idealism. The fundamental problem whose solution determines the materialist or the idealist positions in psychology is the problem of the nature of psyche: whether it is the product of the development of matter or is a substance independent of matter. In the middle of the 19th century, with the introduction of the experimental method in P., it became an independent field of knowledge. However, the false subjectivist methodological positions of many representatives of P. at that time plunged P. into a crisis. In the 20th century, it split into a number of idealist and mechanistic trends—behaviourism, *Gestalt* psychology, Freudism (qq.v.), and others. P. as a science founded on dialectical materialism was created in the USSR. Scientific P. proceeds from the Marxist-Leninist theory of knowledge and its natural scientific basis is the theory of reflexes in the psyche, propounded by Sechenov (q.v.) and developed by I. Pavlov (q.v.). Contemporary P. is very much differentiated and besides general P., which investigates the nature of psychic activity and its laws, it includes child P., pedagogical P., labour P., art P., and others. One of the basic problems of P. is the investigation of human labour, especially in connection with man's modern technological control. Under socialism P. investigates the formation of the moral make-up of the new people, especially of the young generation, seeks new means and methods to assist an all-round development of the individual, his physical and mental capabilities. By disclosing

the laws of psychical activity, its appearance and development, P. provides valuable data for the construction of a dialectical-materialist theory of knowledge and logic (see Psyche, Higher Nervous Activity).

Psychology of Creative Work, the field of psychology which investigates the laws of man's activity in creating what is new and original in science, technology, art, and other forms of labour activity. The object of the P.C.W. includes also the creative elements in learning and recreation. Despite the wealth of descriptions of the creative process, the P.C.W. has been but slightly worked out. Attempts to disclose the P.C.W. by the theories of "intuition", "unconscious work", and others are not of scientific interest, inasmuch as their authors erroneously consider creative work as an unexplained phenomenon, accessible only to the elect. Often enough the role of any labour or any activity (q.v.) whatsoever, including thinking, has been denied in the act of creation; it was considered that the discovery of the new comes about by itself or as a result of unconscious work. Materialist psychology proceeds from the fact that creative work, in its developed forms, is a result of labour. The motives and aims of creative activity arise from the requirements of society, and the possibility of solving a given creative problem appears when the conditions necessary for it are provided in the course of social development. Scientists, inventors, artists make use of the knowledge and the means which have been worked out and stored in the development of science, technology, and the arts. However, the creative element proper often presupposes the discovery of a new mode, means or method of action, reflecting the properties and relations of objects and phenomena hitherto unknown. Concentrating all his attention on a task, man usually cannot observe himself, and that is why often enough the finding of the solution is experienced by him as something sudden, although in reality it is the result of an intensive and persisting work. Creative ac-

tivity demands the maximum application of the initiative, knowledge, and abilities of man. Such application is reflected in the will and the particular emotional conditions depicted in detail in many works of literature.

Psychology of Religion, a trend in psychology which investigates emotional experiences over the belief in the supernatural, the emotions, feelings, called forth by religious preaching and staging, the means of religious suggestion and autosuggestion, the cultivation of religious fear, the feeling of sinfulness leading to the appearance of a religious faith, religious ecstasy, and also the psychic factors promoting the conservation of religious faith, etc. Contemporary theologians pay great attention to the psychological aspect of religion, attempting to turn religion into an eternal factor of inner life, into a psychic factor. The representatives of the empirical P.R. come out under the banner of positivism, the "objective" study of religion (James, Starbuck, Flourney, Ribot, Godin, and others). This school studies the religious feelings of separate individuals, reducing religion to a subjective psychic condition. It completely ignores the social causes which distort people's psyche as well as their world outlook along religious lines. Adherents of the empirical P.R. make wide use of different questionnaires, methods of observation and experiment. The psychology of religion openly attempts to prove the existence of God. A number of its works are carried out with the purely practical purpose of working out methods of religious influence upon the human psyche. Perverted emotions, broken will, morbid manifestations of the human psyche—neurosis, hysteria, ecstasy, etc., are used to strengthen religion, enhance the church's authority. The perversion of the human psyche by religion and the use of it for religious purposes is particularly fanatical in religious sects in which "direct" intercourse of believers with God is staged.

Psycho-Somatics, a subjective idealist theory, which regards man as the integral unity of soul and body, but

with the psyche transformed into something isolated from social historical practice and into the primary principle and basis of all processes in the human organism. In the spirit of Freudism P. elevates into absolute the role of psychical reactions in human behaviour, in the inception of diseases, and in maintenance of health. P. appeared in the thirties of the 20th century (Alexander and Dunbar).

Public Authority, one of the main attributes of the state (q.v.) as distinct from pre-class tribal organisation. Its significance was for the first time disclosed by Engels (*The Origin of the Family, Private Property and the State*, q.v.). P.A. is isolated from the people, defends the interests of the exploiters, the minority of society. It is exercised by men for whom government becomes a profession (officialdom, army, police, etc.). Important adjuncts of P.A. are the courts, prisons, and other penal institutions.

Public Opinion, a certain aggregate of ideas and concepts which express the attitude of one or several social groups to events and phenomena of social life, to the activity of classes and individuals. P.O. is manifested in the approval or condemnation of a man's actions by the people around him. It is formed purposefully by class organisations and institutions and also spontaneously when people are guided solely by practical experience and tradition. That is why P.O. reveals not only a difference of interests, but also an unequal degree of social awareness. In an antagonistic society two mutually exclusive P.O. always exist as a reflection of the interests of the exploiters and the exploited. In socialist society P.O. differs radically in both its nature and its features. Here the struggle of opinions is not antagonistic and the differences are resolved through the growth of the communist consciousness of society's members, stimulated by criticism and self-criticism (q.v.) and ever growing consideration for the interests of the people. This is promoted by the activities of the Communist Party armed with the knowledge of the laws of social development.

The conversion of socialist statehood into communist public self-administration (q.v.) determines the growing role of P.O. as a means of communist education and a peculiar regulator of people's behaviour.

Purism, a trend in modern art; appeared in the twenties of the 20th century in France and detached itself from cubism (q.v.). Its founders (A. Ozenfant, b. 1886, and Le Corbusier, pseudonym of Charles-Édouard Jeanneret-Gris, 1887-1965) proclaimed the main task of art to be the "purification" of reality from what seems to be alien to it, namely the "ideological complexity", by reducing the vital phenomena and events to their elementary, simplest forms. Inasmuch as "man is a geometrical creature", art must also be permeated with geometry, and "a picture can be constructed in the same way as a machine". P. makes a fetish of the machine, transforming man into its appendage and adjunct. In a number of works of Fernand Léger (1881-1955), W. Baumeister (1889-1955), and others, the image of man is reduced to a mechanism, to a peculiar aggregate of pistons, gears, and cylinders. Still life has become the favourite genre of P.

Purpose, a result anticipated in the mind and on the achievement of which human action is concentrated. P. is a regular feature of man's cognitive activity; it expresses his dependence on the surrounding world and on objective laws with which the purposeful activity of people must be co-ordinated. P. which runs counter to these laws is unrealisable. The dialectical interaction between necessity and freedom is expressed in purposeful activity of people. P. is also a conscious motive which guides and regulates action. It pervades practice as an intrinsic law of actions, which determines their mode and nature and to which man subordinates his will. P. may be distant, immediate, direct, general or specific, intermediate or final. The supreme ultimate P. of the Soviet people, communism, has now become a direct P. In science (biology, sociology, cybernetics) P. also designates a stable condition of a system to be achieved

through feedback, q.v. (see Purposefulness).

Purposefulness, an aspect and manifestation of the intricate causal connection and law-governed development of the organic world, of social systems, man's actions, and so on. P. is expressed in various ways in different spheres: in the organic world, in the adaptation of organisms to the environment; in social life, in the withering away of obsolete social orders and the rise of new ones capable of promoting the progress of society, in the activity of people aimed at achieving definite aims, etc. Facts of organic P., utilised by teleology (q.v.) for proving God's existence, received scientific explanation in Darwin's (q.v.) theory of natural selection. The P. of the forms of social life is scientifically demonstrated in Marxist economic theory and historical materialism. Cybernetics (q.v.) in its general form means the adverse action of feedback (q.v.), in which the information about the discrepancy between the required and actual state turns into a cause for the ever greater approximation of the system to the required state. The highest form of P. is that of human activity in which (and only in which) a purposeful aim is included in the cause-and-effect chain as its most important link. All actions of men corresponding to some purpose are purposeful in the broad sense. In a more profound sense, only that activity is purposeful which conforms not only to the given conditions, but also to the general trend of development and is based on knowledge of the objective laws and requirements of development.

Pyrrho of Elis (c. 365-275 B.C.), Greek philosopher, founder of antique scepticism (q.v.). His teaching is clearly expounded in the works of his disciple Timon. P. concerned himself chiefly with ethics, the problems of

happiness and its achievement. He sought to attain imperturbable happiness (see Ataraxia) by abstaining from sufferings (see Apathia), scepticism being the means of achieving this. According to P., we cannot know anything about the things, and, therefore, it is best to refrain from judging them, the moral value of this action lying in the achievement of a peace of mind. P.'s teaching influenced the New Academy (see Academy of Plato) and Roman scepticism.

Pythagoreans, followers of the Greek philosopher Pythagoras of Samos (c. 580-500 B.C.). The Pythagorean school flourished until the end of the 4th century B.C., making a valuable contribution to the development of mathematics and astronomy. However, by absolutising abstract quantity and divorcing it from material objects, the P. arrived at an idealist philosophy, according to which quantitative relations constitute the essence of objects. Thus, having discovered that a certain quantitative interval is the basis of musical tones and harmony, the P. absolutised this discovery in their teaching on the cosmic "harmony of the spheres". This teaching gave rise to Pythagorean mathematical symbolism and mysticism of numbers which was full of superstitions and combined with P.'s faith in the transmigration of the soul. As the school developed, its idealistic and mystical tendency grew. Pythagoreanism was not only a philosophical and mathematical school; it was also a religious brotherhood and political organisation of the slave-owning aristocracy. Pythagoras founded a reactionary Pythagorean Union in Croto (South Italy). Five hundred years later, in the epoch of the decline of the antique slave-owning system, the Pythagorean mysticism of numbers was adopted and revived in Neo-Platonism (q.v.).

Q

Quality and Quantity, philosophical categories reflecting important sides of objective reality. The world consists not of ready, finished things, but represents a sum total of processes in which things are constantly changing, coming into being, and undergoing destruction. But from this it does not follow that they do not have a definite form of existence, are absolutely unstable, and are indistinguishable among themselves (see Relativism). However much an object changes, for a time it remains a given qualitatively definite object, and not another. The qualitative definiteness of objects and phenomena is what makes them stable, what differentiates them, and makes the world boundlessly diverse. Quality is the essential definiteness of an object by virtue of which it is the given object and not another, and differs from other objects. The quality of an object is not reduced to its separate properties. It is bound up with the object as a whole, embraces it completely, and is inseparable from it. That is why the concept of quality is associated with the being of an object. While remaining itself, an object cannot lose its quality. But each object is bound by thousands of threads with other objects, is in diverse relations with them, and represents the unity of the singular, the particular, and the universal (qq.v.). Besides qualitative definiteness, all objects also possess quantitative definiteness: a definite magnitude, number, volume, speed of its processes, degree of development of its properties, etc. Quantity is that definiteness of a thing,

owing to which it can be (really or mentally) divided into homogeneous parts or assembled from these parts. Homogeneity (similarity, identity) of parts or objects is a distinctive feature of quantity. The differences between dissimilar objects are qualitative, the differences between similar objects are quantitative. In contrast to quality, quantity is not associated so closely with the being of an object; quantitative changes do not at once lead to the destruction or essential change of an object. Only after reaching a definite limit for each object do quantitative changes cause qualitative changes. In this sense quantitative relations differ from qualitative relations by an outward relation to the nature of the objects. That is why in the process of knowledge (for example, in mathematics) they can be separated from their content as something indifferent. The exceptionally wide applicability of mathematical theories to spheres of natural science and technology differing in their concrete content is explained by the fact that mathematics studies quantitative relations. Quality cannot be reduced to quantity, as metaphysicians try to do. No object possesses only qualitative or only quantitative properties. Each object represents the unity of a definite quality and quantity (see Measure). Disturbance of the measure leads to a change of the given object or phenomenon, to its conversion into another object or phenomenon (see Transition from Quantity to Quality).

Quantification of the Predicate, establishment of the volume of the

predicate (q.v.) of a proposition. In traditional formal logic, judgements are divided according to the volume of the subject (q.v.); two kinds of judgements are distinguished: universal (for example, "all squares are rectangles") and particular (for example, "some students are sportsmen"). W. Hamilton (q.v.) proposed also to take into account the volume of the predicate, for example, besides two kinds of affirmative judgements in which the predicate is taken not in its full volume and which Hamilton calls universal-particular and particular-particular, two more kinds are singled out: universal-universal (for example, "all equilateral triangles are equian-gular triangles") and particular-universal (for example, "some trees are oaks") in which the predicate is taken in its full volume. Such Q.P. makes it possible to consider the judgement as an equation. In mathematical logic, Q.P. is understood to mean the linking of variable predicates by quantifiers (q.v.) and the transition from functional calculus of the first order to functional calculus of the second order.

Quantifiers, operations in mathematical logic which link subject variables, variable propositions or variable predicates of various logical functions, thus forming expressions which are completely and definitely characterised by their truth-value or falsehood. There are universal Q. (symbol \forall) and existential Q. (symbol \exists). For example, given the propositional function (q. v.) "X possesses the property of N", then a universal quantifier $\forall x$ constructs the proposition "every X possesses the property of N", while the existential quantifier $\exists x$ constructs the proposition "there exists X possessing the property of N".

Quantity, see Quality and Quantity.

Quantum Mechanics (quantum theory), the department of physics that studies the motions of small-scale particles. The foundations of Q.M. were laid in 1924 by Louis de Broglie (q.v.), who discovered the wave-corp-
 uscular nature of physical quantities. As a consistent system Q.M. was developed by Schrödinger, Heisenberg

(qq.v.), and others in 1925-27. The basic features of Q.M. as a physical theory (wave-corp-
 uscular dualism, q.v., the uncertainty principle, q.v., etc.) derive from the existence of the quantum of action (q.v.). In conditions when the quantum of action can be neglected, Q.M. turns into classical mechanics (see Correspondence Principle). Unlike classical mechanics, the behaviour of an individual particle in Q.M. is governed by probability, statistical laws. Consequently, in Q.M. the concept of trajectory of motion and the classical motions of causality are meaningless. The unusual properties of small-scale particles are reflected in the so-called wave function, which provides a quantum-mechanical characteristic of a particle's state. This function is derived from the quantum-mechanical "wave equation", which is the fundamental law of motion of elementary particles. For small velocities this is Schrödinger's equation. For high velocities the law of motion of very small particles is expressed by Dirac's equation, which takes into account the requirements of relativity theory (q.v.). Q.M. has contributed to the understanding of an extremely broad range of phenomena in physics, chemistry, and even biology: atomic structure, radioactivity (q.v.), the periodic system of elements, etc. Insofar as Q.M. deals with matter at a deeper level than classical physics, it has posed such philosophical problems as the relationship between subject and object, knowledge and physical reality, chance and necessity, determinism and indeterminism, physical "observability" and mathematical formalism, etc. Different philosophical approaches to these problems are directly manifested in the different interpretations of the basic features of Q.M., the wave function in the first place. The essence of the wave function cannot in principle be expressed in the language of classical physics, insofar as it ascribes to particles simultaneously wave and corpuscular properties, which are mutually exclusive in the classical sense. In treating of microcosmic particles one must approach them

from the point of view of materialist dialectics, which provides a key to the understanding of dialectical contradiction and dialectical synthesis, and especially one must expand our notions of space and time, thereby going beyond the confines of Q.M. In a period when physics was unable to do this, the Copenhagen school of Q.M. gained prominence, declaring the wave function to be merely "a record of our knowledge concerning the state of microcosmic particles" (see Bohr, Copenhagen School, Complementarity Principle). Some idealistically reasoning scientists went so far as to reject the objective nature of the microcosm and causality in it, tending to overemphasise the role of the observer and the instrument. Actually, though, the wave function is a reflection of the objective properties of microcosmic particles and it is entirely wrong to draw subjectivist conclusions from the unconventional nature of these properties. It is hardly accidental that with the development of modern physics, with its discovery of the reciprocal interchangeability of elementary particles, their structure and their inseparable connection with vacuum, which thereby confirmed the objective nature of the "paradoxes" of Q.M., many outstanding scientists, such as Heisenberg and Bohr, gradually moved away from positivist methods.

Quantum of Action, h , a universal constant equal to 6.55×10^{-27} erg/sec. A fundamental quantity in quantum mechanics (q.v.), it was discovered by Planck (q.v.) in 1900. Q.A. can be regarded as the boundary between small-scale and large-scale phenomena. The domain in which it can be neglected and assumed to be zero is the macroscopic domain. As contrasted, in the domain of microscopic events the Q.A. cannot, as a matter of principle, be assumed to tend to zero. The basic importance of the Q.A. is that it establishes the connection between dialectically contradictory and mutually exclusive properties of microscopic particles. This connection is expressed in equations of Louis de Broglie, q.v. (see also Wave-Corpuscular Dualism, the Uncertainty Principle).

Quietism, a passive contemplative attitude to life, renunciation of vigorous activity, the name of a trend in Catholicism (q.v.) which arose in the 17th century. Q. is a consequence of fatalism (q.v.) and it is inherent to a certain extent in all religions. Marxist ethics, rejecting fatalism, holds that although man depends on circumstances, circumstances also depend on him. It condemns indifference, lack of initiative, and non-resistance to evil and urges man to work actively to realise the lofty ideals of communism.

R

Racism, a reactionary theory, justifying social inequality, exploitation, and wars by the fact that people belong to different races. The insolvency of R. lies in that it reduces human social natures to their biological, racial features and arbitrarily divides races into the "higher" and "lower" ones. In Nazi Germany R. was the official theory which served to justify aggressive wars and mass annihilation. The rapid development of formerly backward peoples, particularly in the socialist countries, and the absence of racial antagonism among them have convincingly refuted R.

Radioactivity, spontaneous disintegration of atomic nuclei due to irradiation of various kinds. We distinguish natural and artificial R. (creation of radioactive isotopes). Today R. is widely used in science (to define the age of minerals, etc.), in technology (atomic tracers), in armaments (atomic bombs), etc. The discovery of R. (A.H. Becquerel, 1896) destroyed the belief in the indestructibility of the atom. A scientific, dialectical-materialist explanation of the discovery of R. was given by Lenin in his *Materialism and Empirio-Criticism*; he asserted that matter is inexhaustible and all bounds in the cognition of matter are relative.

Radishchev, Alexander Nikolayevich (1749-1802), Russian writer and materialist, father of revolutionary thought in Russia; was born in St. Petersburg and studied at Leipzig University (1766-71). In the notes to his translation of Mably's *Thoughts on Greek History* (1773), he condemned autocracy as "the condition most alien to human nature". In "A Letter to a

Friend Living in Tobolsk" (1782) R. affirmed that the kings never waived their power for the sake of the "liberty" of the people. The ode of R. *Liberty* (1783) glorified the "great example" of the English and American revolutions—the execution of the king by Oliver Cromwell and the armed struggle of the American colonies for independence. In his work *Zhitiye F.V. Ushakova* (*The Life of F.V. Ushakov*), 1789, R. declared that an uprising of the people driven to "extremity" was the earnest of liberation of "suffering society" and he cursed those who believed that an appeal to the monarchs would alleviate the lot of the people. The conception elaborated by R. in these works, which gave further development to the idea of Enlightenment of the 18th century (first of all of *Histoire philosophique du commerce des Deux-Indes* of Raynal, and Diderot, q.v.), was thoroughly substantiated by the data on Russian life, cited in R.'s main work — *Puteshestviye iz Peterburga v Moskvu* (*The Journey from St. Petersburg to Moscow*), 1790. This work shows the futility of attempts to help the people by means of liberal reformism and sets the task of instilling revolutionary ideas in the people as a condition for the imminent popular revolution. R.'s political ideas were based on a generalisation of the most important events of the 17th-18th centuries: the victorious bourgeois revolutions in the West and the fiasco of Catherine II's policies of "enlightened absolutism", which showed (with particular evidence after the peasant war of 1773-75) the futility of the peasants' hopes in those "at the top". For the publication of *The Journey* R. was condemned to death, the

sentence being commuted to exile to Siberia (up to 1797). In exile R. wrote the philosophical treatise *O cheloveke, yego smertnosti i bessmertii* (*On Man, His Mortality and Immortality*), 1792, in which, examining the problem of the supposed immortality of the soul, he contrasted two diametrically opposite systems of views: those of the French and English materialists of the 18th century (Holbach, Helvétius, Joseph Priestley) and the German idealists of the 17th-18th centuries (Leibniz, Herder, Mendelssohn). Describing the arguments of the former as founded upon experience and proof, and considering the affirmation of the latter to be speculative, close to "imagination", R. at the same time tried to apply dialectical ideas in the materialist system of proofs of the mortality of the soul, particularly Leibniz's idea that the "present is pregnant with the future". He adduced proof that nothing in man's life on earth indicates the possibility of the existence of the soul after his death. However from the position of limited metaphysical materialism R. could not reinterpret the activity of human cognition, on which the representatives of German idealism speculated. Disappointed to a certain extent in the outcome of the French Revolution and witnessing the repetition of Catherine II's ostentatious liberalism in the administration of Alexander I, R. committed suicide.

Ramakrishna (real name Gadadhar Chatterji) (1834-86), public figure in India in the middle of the 19th century, reformer of Hinduism (q.v.). R. advocated a single religion true for all mankind, the philosophical prerequisites of which were taken from the Vedānta (q.v.) and shakti-tantra. He tried to reconcile the different schools of Vedānta, representing them as different stages of the spiritual experience of yoga. Acknowledging as the supreme principle of being the absolute Shāṅkara (*nirguna brahman*) free from any internal distinction, he at the same time rejected the concept that the world is illusory and defended the importance of public activities. He understood the latter in a very

narrow sense and reduced them essentially to philanthropy and concern for universal "spiritual perfection", in which he saw the key for overcoming the disasters of the iron age (*kali-yuga*), the features of which were the omnipotence of money, the dominance of foreign invaders, etc. In his pronouncements on *kali-yuga* he exposed the evil consequences of the British colonial administration and maintained a naive belief in the revival of science by means of faith. R.'s preaching did not go beyond a passive protest against colonial rule. Yet his preaching of a single religion in the India of those days with her numerous religious sects and doctrines—all of them survivals of feudal ideology—was a sort of appeal for national unity.

Rationalism 1. A teaching in the theory of knowledge, according to which universality and necessity—the logical attributes of true knowledge—cannot be deduced from experience and its generalisation; they may be deduced only from the mind itself: either from concepts innate in the mind (theory of innate ideas, q.v., of Descartes, q.v.), or from concepts existing only in the form of the predispositions of the mind. Experience exerts a certain stimulating influence upon their appearance, but the character of absolute universality and absolute necessity is given to them by preceding experience and the judgements of the mind or a priori forms absolutely independent of experience. In this sense R. is in opposition to empiricism (q.v.). R. came into being as an attempt to account for the logical peculiarities of mathematical truths and mathematical natural science. Its representatives in the 17th century were Descartes, Spinoza, Leibniz; in the 18th century, Kant, Fichte, Schelling, and Hegel. The limitation of R. lies in its denial of the thesis that universality and necessity came into being through experience. R. absolutises the indisputable nature of these logical attributes, does not recognise the dialectics of transition of knowledge from the lesser universality and necessity to the greater and absolute ones. This limitation

of R. was overcome by Marxism, which examines knowledge in its unity with practice (see *Cognition; Theory and Practice*). 2. Rational character of thought and world outlook. It tells not only on the theory of knowledge, but also on psychology, ethics, and aesthetics. In psychology, R. places in the forefront the intellectual psychical functions, reducing, for example, will to reason (Spinoza); in ethics, the first place is given to the rational motives and principles of moral activities, and in aesthetics, to the rational (intellectual) character of creative work. In all these cases R. means belief in reason, in the reality of rational judgement, in the force of argument. In this sense R. is opposed to irrationalism (q.v.). 3. In theology, R. is a trend, according to which only those dogmas of faith are acceptable which the mind considers to be in conformity with logic and the "natural light" of the intellect.

Reactology, a mechanistic conception, regarding the psyche of highly developed animals and man as an arithmetical sum of reactions on external influences. It was current in Soviet physiology and psychology of the 1920s-30s. The term "R" was introduced by K.N. Kornilov, *Ucheniye o reaktsiyakh cheloveka s psikhologicheskoi tochki zreniya (Teaching on the Reactions of Man from the Psychological Point of View)*, 1922. Like behaviourism (q.v.), R. left out of account the dependence of the external influences upon the internal situation, upon the whole system of the organism's higher nervous relations. R. played a certain positive part in the struggle against idealist psychology and physiology. The mechanistic tendencies of R., however, often grew into idealism.

Realism, Medieval, a trend in medieval scholasticism, maintaining that universal concepts (see *Universals*) possess real existence and precede the existence of singular objects. M.R. continued Plato's line in the solution of the problem of the relation between the concept and the objective world, between the universal and the singular.

M.R. served as the philosophical basis of Catholicism. Its prominent exponents were Anselm of Canterbury (q.v.) and Wilhelm of Shampo. Thomas Aquinas (q.v.) was close to this trend as well. The representatives of nominalism (q.v.) fought against realism. This struggle was a reflection of the two trends in philosophy—materialist (nominalism) and idealist (realism).

Realism, Naive, a spontaneous materialist understanding of the world inherent in every person, the conviction that all objects exist independently of human consciousness. But N.R. is not a consistent, theoretically conceived scientific world outlook. A false interpretation of N.R. is given by subjective idealism (see *Berkeley, Mach, and others*). The Machists, for example, claim that N.R. is a world outlook according to which man deals only with his sensations and the existence of a material world is of no importance to him.

Realism, Socialist, an artistic method presupposing a truthful, historically concrete reflection of reality taken in its revolutionary development. It originated at the beginning of the 20th century, in the conditions of the crisis of capitalism, the upsurge of the proletarian struggle and the preparation for the socialist revolution in Russia (Gorky's novel *Mother* and his plays, poems by Demyan Bedny and other proletarian poets). For the first time in world art, workers became the heroes of artistic works. Being a logical continuation and development of the best realist traditions of past art, S.R. is a new stage in man's artistic progress. Its essence is fidelity to the truth of life, no matter how stern it may be, this being expressed in artistic images from the communist angle. The chief ideological and aesthetic principles of S.R. are as follows: devotion to communist ideology, service to the people and partisanship, close bonds with the working people's struggle, socialist humanism and internationalism, historical optimism, rejection of formalism and subjectivism, and of naturalist primitiveness. To be equal to the tasks of S.R. means

to have a thorough knowledge of human life, thoughts and sentiments, to be fully responsive to human experiences and to be able to portray them in good artistic form. This is why S.R. is a powerful instrument for educating people in a communist spirit. Based on the Marxist-Leninist world outlook, S. R. promotes the artists' endeavours and helps them choose various forms and styles consistent with their individual inclinations.

Reality, the being of things as opposed to non-being, and also to other possible forms of being. In the history of philosophy R. was clearly distinguished from actuality in the other sense; R. was more often treated as the being of something essential in a given thing, as the being of itself, while actuality was understood as the presence of all the essential and the inessential in a given thing. Usually R. was considered the being of something to the exclusion of all the contingent in it, i.e., that which is not by necessity connected with the given being (see Matter, Essence, Existence).

Reason and Intellect, the stages or the modes of thinking, propounded in some systems of pre-Marxian philosophy. By R. is usually meant the faculty to reason correctly, to make conclusions, to expound one's thoughts logically. By intellect is meant the capacity to find the causes and essences of phenomena, to investigate them comprehensively, to disclose the unity of opposites. The beginnings of this division are to be found in the teachings of Plato, Aristotle, Nicholas of Cusa (qq.v.). They occupy a special place in Kant's and Hegel's (qq.v.) philosophy. In Kant's opinion, sensations stem from the action of an unknowable "thing-in-itself" on the sense-organs, are ordered by means of a priori forms of sensibility (space and time) and the reason (categories of unity, plurality, causality, possibility, necessity, and others). Reason imparts a form to sensuous contents and, therefore, cognises things not as they are, but as they appear. Further motion of cognition is possible with the help of the intellect, whose forms of syn-

thesis are the ideas of the soul, the world, and God. In an attempt to cognise the objects of these ideas the human mind arrives at insoluble contradictions (antinomies). The way to the world of "things-in-themselves" is shut out also for the theoretical reason. There remains recourse to the "practical reason" and to broadening the world outlook at the expense of faith. In Hegel's opinion, reason does not go beyond static definiteness, abstract identity, abstract universality, fixed opposites separated from one another (essence and appearance, necessity and chance, life and death, etc.). Discursive thought, however, is not enough, it is merely the necessary stage which allows one to rise higher, towards the intelligible forms of cognition. The dialectical negative-intelligible aspect of thought is the resolution by one-sided and limited definitions of themselves and their transition into their opposites. The speculative positive-intelligible aspect of thought contains in itself those resolved opposites beyond which discursive reason cannot go, and precisely in this it reveals itself as concrete and integral. Although rejecting Hegel's idealism, Marxism highly assesses the critique of metaphysics and dialectics, contained in his teachings on R. & I.

Reasonable Egoism, Theory of, a theory in ethics advanced by the Enlighteners of the 17th-18th centuries, based on the following principle: correctly understood private interest should coincide with social interest. In the ethics of Helvétius, Holbach, Diderot, Feuerbach the T.R.E. expressed the interests of the rising bourgeoisie in its struggle with ascetic religious morality and served as the ideological preparation for bourgeois revolutions. The Enlighteners proceeded from the possibility of a harmonious combination of private and social interests while preserving private property. In their view, the T.R.E. reflected the practice of the revolutionary bourgeoisie, free enterprise, private initiative, and their "social interest" was in fact the class interest of the bourgeois. Chernyshevsky, Dobrolyubov, and

other Russian revolutionary democrats used the T.R.E. to justify the struggle of the toiling masses. In their ethics private interest as the motive of human behaviour was filled up with social content. They saw the significance of life and the criterion of man's action in unselfish service of the people, in their emancipation from the chains of serfdom, in the revolutionary transformation of reality in the name of the "popular good". Although the T.R.E. played a historically progressive role, it was metaphysical, for it appealed to man in general, to his abstract "eternal" nature.

Red Shift (metagalactic), recession of frequencies of electromagnetic radiation (of light or radio waves) emitted by galaxies (q.v.). Specifically, the lines of the visible part of the spectrum are shifted to its red extremity, whence the name. Its most natural explanation is by reference to the Doppler effect, i.e., the result of galaxies moving away from each other. The R.S. thus constitutes evidence that the Metagalaxy (q.v.), or at least the observable part thereof, has been expanding over a period of milliards of light-years. This does not warrant the assumption of an "expanding" Universe, since the Metagalaxy, vast as it is, is but a small part of the Universe.

Reducibility, a form of expressing the necessary connection between elements of a logical or scientific theory in general. The moods of the figures of a syllogism were reduced to moods of the first figure by Aristotelian syllogistic. In mathematical logic, expressed in the form of a deductive theory, R. is an operation for obtaining axioms from the respective propositions of a theory. R. establishes the rational ties between the propositions of a theory which have a different degree of community. Therefore it acts as a necessary moment in the development of a theory itself. But attempts to reduce theories, differing in their concrete nature, to one another are always doomed to failure. For example, attempts to reduce the laws of higher forms of motion to lower, of complex to simple, have proved

untenable, although each higher form of movement contains the lower as a subordinate element. The desire to explain the properties and laws of more complex systems by the laws of simpler systems is a characteristic feature of the metaphysical method of thinking. This naturally does not imply denial of the relative role played by the lower forms of motion in studying the higher forms.

Reflection 1. A basic concept of materialist epistemology. Dialectical materialism differentiates psychic R. as a property of highly organised matter from the general property of R. inherent in all matter. Psychic R. arises as a result of the action of objects on the reflectory apparatus of animals and man, the analytically synthetic processing of the traces of that action and the application of the products of processing as substitutes, representatives, or models of objects. With the help of models of things and their properties a subject orients itself in the environment. Psychic R. has two sides: (1) content of R. or the image, and (2) the mode of its material existence, i.e., the ways the influences of objects are processed in the reflectory apparatus. The content of psychic R. is characterised by two main features: (1) the relation of isomorphism (q.v.) existing between the imprint in the reflectory apparatus and a definite aspect of the object exerting the influence; in specific cases isomorphism appears in different kinds and levels of similarity; (2) the property of objectivity. The latter signifies that in the content of R. the subject receives not the condition of his receptors, nerves and brain, as physiological idealists (q.v.) claim, but the content of the objects of the external world. The objective content is directly viewed by the subject in the ideal form of R. (see the Ideal), i.e., in the form of an image of the object. Human knowledge qualitatively differs from the psychic R. of animals by its social nature manifested in the existence of consciousness (q.v.) associated with language, and in active transformation of the external world. The general

property of R. inherent in all matter is akin to sensation because there is some isomorphism; but it is not identical with sensation because there is no objectivity: isomorphic imprints in inorganic nature are inert, i.e., they are not utilised as models, as instruments of orientation. Owing to isomorphism between the influences and imprints in inorganic nature the general property of R. is the genetic foundation, the prerequisite, for the appearance of psychic R. It is also the natural (physical) foundation of the process of man's knowledge of reality around him, since man in his cognitive activity, in discovering essential properties and relations of things, utilises, and relies on, the direct results of the interaction of things and mediated results. 2. A term widely used in pre-Marxist philosophy and denoting the reflection and investigation of the cognitive act. It holds different contents for different systems. Locke (q.v.) considered R. as the source of special knowledge, when observation is directed towards the internal activity of consciousness, whereas sensation has external things as its object. For Leibniz (q.v.), R. is nothing more than attention to what happens in man himself. For Hume (q.v.), ideas are R. of impressions we receive from outside. For Hegel (q.v.), R. is a mutual reflection of one in another, e.g., in the essence of a phenomenon. 3. To reflect means to apply consciousness to one's self, to ponder upon one's own psychical state.

Reflection, Theory of, the materialist teaching on man's cognition of reality, the processes of reflection (q.v.) in living nature, technology and on the prerequisites of this reflection in inanimate nature. Apart from the problems of the theory of knowledge (q.v.), which studies the ways and means of man's acquiring true knowledge, the universal logical forms (categories) and laws of cognition, the Marxist T.R. covers the problems concerning the natural scientific basis of man's cognitive activity, the origin and essence of his consciousness and also the property of reflection in

inanimate nature. With the appearance of cybernetics (q.v.) great importance attaches to the problem of applying this property in communications, automation, and telemechanics. Consistent application of materialism to the solution of complex problems of cognition became possible thanks to the spread of materialist dialectics to the sphere of cognitive activity. In Marxist philosophy materialist dialectics is at the same time the theory of knowledge and dialectical logic. The terms T.R. and theory of knowledge are synonymous in Marxist philosophical literature when reference is made to their essence or to the range of problems relating to the specifics of human knowledge.

Reflexes, Conditioned and Unconditioned, adaptive reactions of man and animals determined by the stimulation of receptors and the activity of the central nervous system at different levels. U.R. are inborn responsive reactions of the organism, and are the same among all individuals of the given species. They are characterised by a constant connection between the action on a receptor and a definite responsive reaction, ensuring the adaptation of the organism to relatively stable conditions of life. U.R. are effected as a rule by means of the spinal cord and the lower parts of the brain. Intricate complexes and chains of U.R. are called instincts (q.v.). C.R. are reactions in response to the stimulation of receptors acquired in the course of the organism's life; in higher animals and man C.R. are developed by the formation of temporary connections in the cerebral cortex and they serve as a mechanism of adaptation to the intricate changing conditions of the environment. According to modern ideas, the C.R. end not in action but in perceiving and assessing their results (see Feedback). Sechenov (q.v.) was the first to point to the reflectory nature of the psyche. The objective method of C.R. evolved by I. Pavlov (q.v.) underlies the doctrine of higher nervous activity (q.v.), in particular the doctrine of the two signal systems (q.v.). This doctrine is one of the

scientific foundations of materialist psychology and the dialectical materialist theory of reflection (q.v.).

Reformation, a widespread anti-feudal and anti-Catholic movement in Europe in the first half of the 16th century, ushering in the beginning of Protestantism (q.v.). The R. was the first immature bourgeois revolution in human history; the bourgeoisie in alliance with part of the noblemen came out against the ruling church. Starting in Germany, the R. engulfed a number of European countries and brought about the defection from the Catholic system of England, Scotland, Denmark, Sweden, Norway, Holland, Finland, Switzerland, partially Germany, Bohemia, and Hungary. The R. cheapened and simplified the church, raised interior personal faith above the external manifestations of religion, imparted divine sanction to the standards of bourgeois morality. In the countries where the R. triumphed, the church on becoming dependent upon the state, enjoyed less power than in Catholic countries, and this facilitated the development of science and secular culture as a whole. The national character of the new religion was in keeping with the process of formation of bourgeois nations. In the R. the Christian-plebeian camp existed alongside with the noblemen's and burghers' camps. Its representatives came out not only against the clergy but also against the nobility; not only against feudal inequality, but also against inequality in property status. In this they based themselves on certain evangelical principles dating back to early Christianity (see Münzer). The Catholics' answer to the R. was counter-Reformation, which managed to prevent the further spread of Protestantism in Europe and to eradicate it in Poland and France.

Reformism, a political trend inside the workers' movement, which denies the necessity of class struggle, the socialist revolution, and the dictatorship of the proletariat, professes class collaboration and hopes by mere reforms to transform capitalism into a "welfare society". R. appeared in the

last quarter of the 19th century. Its social basis is the bribed upper stratum of the working class, the so-called labour aristocracy. R. is closely connected with revisionism (q.v.). Contemporary R. is represented by the Socialist International, an international union of reformists; it was established in 1951. By 1962, it united 40 parties numbering more than ten-and-a-half million members. The root-evil of all social-reformist theories consists in that they try to combine what is incompatible: private ownership and social justice, social inequality and general prosperity. Contemporary R. has no single integral world outlook. The theorists of R. (A. Philip, V. Eichler, P. Bonnel, I. Strachey and others) eclectically combine the ideas of neo-Kantianism, positivism, abstract anthropologism, and Christianity. R. maintains that dialectics is obsolete, advocates smooth evolutionism; it rejects materialism and declares the natural-historical and economic inevitability of socialism a myth: socialism is "deduced" from the sphere of the spirit, from the ethical ideas of the individual, which are beyond time and beyond classes. The aesthetic traditions of socialism are betrayed; alliance with clericalism (q.v.), the conciliation of science with religion have become the policy of Right Social-Democracy. A characteristic feature of the leaders of contemporary R. (Spaak, Brandt, and others) is outspoken anti-communism (q.v.). "Anti-communism has brought social reformism to an ideological and political impasse. This is one of the main reasons for the crisis of Social-Democracy." (Programme of the CPSU.) The crisis of Social-Democracy constitutes the natural consequence of the general crisis of capitalism (q.v.), the result of the whole history of R. The adoption of new programmes (1958-61) marked the end of the postwar evolution of R., its growth into the system of capitalist relations. The exponents of Right socialism defend state-monopoly capitalism, support the aggressive ventures of imperialist reaction. Only the art of political pharisaism cultivated

during decades, the relatively low level of class self-consciousness of the proletariat and the postwar economic "boom" keep them on the surface of political life at present. The last decade was marked by a real decline in the role and influence of R. The process of liberation of the working class from the influence of R. is going on uninterruptedly. The struggle with R., the overcoming of the split in the working class is one of the urgent tasks of the communist movement. Exposing the treacherous role of the Right leaders of Social-Democracy, criticising the Right opportunist practice and the ideology of R., the Communist Parties actively advocate co-operation with the Social-Democratic masses in the struggle for peace, democracy, and socialism.

Reichenbach, Hans (1891-1953), philosopher and logician, professor of physics at Berlin University. In his early works he analysed the epistemological nature of geometry and the logical structure of relativistic physics. In the twenties of this century R. was one of the organisers of the Society of Scientific Philosophy in Berlin, which, with the Vienna circle (q.v.) formed the basis for the movement of logical positivism (q.v.). After the nazis came to power in Germany R. emigrated to the USA. He engaged in the analysis of causality, regularity, the relations of causality and probability, the working of statistical and dynamic laws, etc. Although R. went over to logical positivism, nevertheless in some of his works (for example, *Experience and Prediction*, 1938) he was very close to materialism. As a logician R. was well-known mainly for his contribution to probability logic (*The Theory of Probability*, 1935) and for his investigations of the logical analysis of propositions expressing scientific laws (the so-called theory of nomological propositions).

Relation, a necessary moment in the interconnection of all phenomena determined by the material unity of the world. The R. of things is as objective as the things themselves. Things do not exist outside R. and the latter is

always the R. of things. The existence of each thing, its specific features and properties, and its development depend on the sum total of its Rr. to other things of the objective world. The properties themselves, necessarily inherent in one process or another or in a thing, are manifested only in their Rr. to other things and processes. Development of a phenomenon leads to a change in its Rr. with other phenomena, the disappearance of some Rr. and the appearance of other Rr. On the other hand, changes in the sum total of Rr. in which the given object exists may lead to a change in the object itself. Rr. are as diverse as things and their properties. It is necessary to differentiate internal Rr. of different, particularly opposite sides of an object and its external Rr. with other objects. Account should be taken, first, of the relative nature of differences in internal and external Rr., second, the passage of one into another, and, third, the fact that external Rr. depend on internal Rr., manifest and reveal them. Social Rr. are of a special nature. Man enters into Rr. with the things he creates, the objective world, and other people. As a result, in the world he is mastering he contemplates himself and begins to treat himself as a man (gains self-consciousness) only by treating another man as his own likeness. This is what explains, on the one hand, the social nature of human consciousness, and, on the other, the necessity of studying social Rr. in order to know history. In dialectical logic, "the relations (= transitions = contradictions) of notions = the main content of logic, by which these concepts (and their relations, transitions, contradictions) are shown as reflections of the objective world". (Lenin, Vol. 38, p. 196.) In mathematical logic, Rr. are opposed to properties like multiple predicates to a singular predicate (see Predicate). "More", "equal", "cause" are the examples of dyadic Rr. "Among" and others are triadic Rr. In formal logic, the theory of Rr. was developed by De Morgan (q.v.), C. Peirce, and E. Schröder. The logical theory of Rr.

studies the general properties of Rr. and the laws governing them. A calculus of Rr. related to a calculus of classes forms an essential section of the theory of Rr. This studies the connections between Rr. and operations with them and establishes the laws by which some Rr. can be deduced from others.

Relations of Production, one of the most important concepts of Marxist-Leninist social science, reflecting the objective material relations, existing in any society independently of human consciousness. They are formed between people in the process of social production, exchange, and distribution of material wealth. The R.P. are an indispensable aspect of any mode of production (q.v.), for men cannot produce without uniting somehow for joint activities and mutual exchange of their activities. The basis of the R.P. is the relation of the ownership (q.v.) of the means of production. With social, collective ownership the members of society are equal as regards the means of production, and in the process of production relations of collaboration and mutual help are formed between them. If ownership is private, relations of domination and subjection are inevitably established between men. Those who possess many implements and means of production may economically subordinate to themselves those who have few or no means of production. Thus, on the basis of social and private ownership there emerged the two possible main forms of relations of production found in history: collaboration and mutual help or domination and subjection. Social ownership appeared in history in the form of the property of the clan, the tribe, the commune, public or state property, co-operative and collective-farm property, etc.; private ownership appeared in history in three basic forms: slave ownership, feudal ownership, and capitalist ownership, to which correspond the three main types of exploitation of man by man. Private ownership of producers, based on personal labour has existed and still exists today, but this form is always

subordinated to the R.P. dominating in the society in question and gradually decays under their determining influence. Besides the two main forms of R.P., in periods of the fall of one and the rise of another socio-economic formation (q.v.) there emerged transitional relations of production. The peculiarity of these relations is that they combine in one economic structure economic relations of different types and even of different natures. For example, in the period of the decay of the primitive-communal system (q.v.) the remnants of tribal relations were combined in the patriarchal family with the rudiments of slave-owning relations. In the period of the decay of the slave-owning relations there arose in a number of countries the colonate, combining in itself the elements of slave-owning and feudal relations; in the period of the transition from capitalism to socialism some economic forms combine in themselves relations based on collective and private ownership (state capitalism, joint state-private enterprises, semi-socialist forms of the co-operatives in the village, etc.).

Relativism, an idealist theory of relativity, conventionalism, and subjectivity of human cognition. Asserting the relativity of knowledge, R. denies objective cognition, maintaining that our knowledge does not reflect the objective world. Such a point of view was already clearly expressed in Gorgias' (q.v.) philosophy, although with him R. had a positive significance for the development of dialectics. As a whole R. is common to the agnostic and subjective-idealist systems. It was, for example, one of the epistemological principles of "physical" idealism (q.v.). Dialectical materialism recognises the relativity of cognition only in the sense that its every historical stage is limited by a given level of development of the productive forces and of science, and not in the sense of negating objective truth. Some trends of contemporary philosophy use R. as a means of struggle against materialist philosophy (see Truth, Absolute and Relative).

Relativity, Theory of, a physical theory, according to which physical processes occur in a uniform way in all systems moving rectilinearly and uniformly relatively to one another (the special T.R.) and also with acceleration (the general T.R.). It follows from this that one can only judge of the movement of a system by the changes in the distances between the bodies forming this system and other bodies ("bodies of calculation"), whose presence alone imparts sense to the concept of movement. Einstein (q.v.) formulated the special T.R. in 1905 and the general T.R. in 1916. T.R. proceeds from the so-called classical principle of relativity advanced by Galileo and Newton, according to which mechanical processes occur uniformly in the systems moving rectilinearly and uniformly relative to one another. The development of optics and electrodynamics led to the conclusion that this principle is applicable to the transmission of light, i.e., of electromagnetic waves (the velocity of light is independent of the movement of a system). This conclusion was explained by the special T.R., which renounced the concept of absolute time, absolute simultaneity and absolute space. Einstein postulated that time depends on the movement of a system and the intervals of time change in such a way that the velocity of light in the given system does not alter according to the movement. Spatial scales are also subject to change. A large number of physical conclusions were drawn from these premises. Usually they bear the name of "relativist", e.g., based on T.R. They should not be confused with philosophical relativism (q.v.), which denies the objective nature of scientific knowledge. Of great importance is Einstein's conclusion that mass of a body is proportional to its energy. This correlation is widely applied in practice. In 1907-08, the conclusion was drawn from the T.R. that four-dimensional geometry should be used for a description of physical processes (see Multi-Dimensional Space, Minkowski). By developing and generalising the T.R. Einstein arrived at the general T.R. In

classical mechanics acceleration has an absolute meaning, since it is accompanied by inertia which is absent in systems undergoing no acceleration. The force of inertia makes it possible to consider acceleration without any reference to a system of calculation relatively to which the acceleration takes place. Einstein held that inertia, being dependent on acceleration, is equivalent to the forces of gravity which cause similar acceleration of bodies in immobile systems or in systems moving without acceleration. Hence, even accelerated movement is not absolute: the movement of a system accelerated in the absence of the field of gravitation cannot be distinguished in terms of inner effects from the rest of the system or its uniform and rectilinear movement in the field of gravitation. Essentially, the general T.R. is a new theory of gravitation. It is based on the assumption that four-dimensional space-time continuum in which the forces of gravity operate is subject to the correlations of non-Euclidean geometry. The correlations of non-Euclidean geometry on a surface can be graphically presented as common Euclidean correlations on curved surfaces. By analogy, Einstein regarded the deviation of geometrical correlations in four-dimensional space-time from Euclidean correlations as a curvature of space-time. He identified such a curvature with the action of the forces of gravity and the fields of gravitation. Gravitation is the curvature of space-time. This assumption was borne out in 1919 by astronomical observations, which showed that the ray of a star, the prototype of a straight line, is curved in the vicinity of the Sun under the influence of gravitation. Unlike the special theory, the general T.R. has not so far acquired the nature of a complete and indubitable physical conception. The philosophical conclusions of T.R. fully confirm the correctness of the ideas of dialectical materialism and of the assessments of the development of contemporary physics which were given by Lenin in his *Materialism and Empirio-Criticism*. The idealist and positivist trends in phi-

losophy have tried to use the T.R. to substantiate their claim that science is subjective and that physical processes depend on observation. The actual meaning of T.R. is that physical processes are independent of the choice of the systems of calculation. In all systems these processes proceed uniformly. T.R. provides a picture of objective processes and is a more exact reflection of reality than classical mechanics.

Religion, a fantastic reflection in people's minds of external forces dominating over them in everyday life, a reflection in which earthly forces assume non-earthly forms. From the theological point of view (which philosophical idealism attempts to justify) R. is linked with the eternal inner feeling of man, expressing his connection with some spiritual principle. R. is a specific form of social consciousness, characterised by a unity of world outlook, feelings, and cult (ritual-magic ceremonies). The basic and decisive feature of R. is belief in the supernatural. Marxism considers R. as a socially conditioned and hence historically transient phenomenon. In the course of a long historical period people did not know of any R. It came into being at a definite stage in the development of the primitive-communal system (q.v.) as the reflection of human importance before the awesome and incomprehensible natural forces. In a class society R. is rooted for the most part in the helplessness of men in the face of elements in social development, in the exploitation and want of the masses. In the words of Lenin, R. here is "one of the forms of spiritual oppression which everywhere weighs down heavily upon the masses of the people, overburdened by their perpetual work for others, by want and isolation." (Vol. 10, p. 83.) With the victory of the socialist revolution R. gradually loses its influence on social consciousness. Dissemination of the scientific communist world outlook among the people is gradually reducing R. to naught. The final end of R. and its elimination from human life is only possible in a developed communist so-

ciety. However, the disappearance of R. is not an automatic process; it presupposes persistent work of educating the masses in the spirit of atheism, extensive propaganda of natural-scientific knowledge and the Marxist world outlook. A comprehensive treatment of the essence of R., and the attitude of the Communist Party towards R. is given in Lenin's articles "Socialism and Religion", "The Attitude of the Workers' Party to Religion", and others.

Renaissance (philosophical), a term used in the history of philosophy to denote the general sociological and philosophical doctrines that developed in Europe (primarily in Italy) during the period of feudal decline and the establishment of early bourgeois society (15th to early 17th centuries). While scholasticism (q.v.) remained the official philosophy in this period, the rise of humanist culture (see Humanism), the revival of the philosophical legacy of antiquity, and a series of important scientific discoveries enabled the progressive philosophy of the R. to break free of theology and develop anti-scholastic trends. These first showed themselves in ethics, bringing about a revival of the ethical doctrines of stoicism (Petarch) and epicureanism (Laurentius Valla), which struck at the prevailing Christian morality of the time. The major role in the philosophy of the new age was played by natural philosophical conceptions (Nicholas of Cusa, q.v., Cardano, Telèsio, q.v., Paracelsus, Bruno, q.v., Campanella, q.v., etc.), which testified to the collapse of the scholastics' picture of the world and their methods of explaining nature. Although the transitional character of the R. was evident in some of these conceptions (preoccupation with astrology, magic, alchemy, and other unscientific interpretations of the world), the general line of development of natural philosophy came to mean the increasing supremacy of the materialist understanding of the world, most typically expressed in the philosophical views held by Bruno. The anti-scholastic direction of the philosophy of the R. was even

more apparent in the philosophical doctrines that grew up directly from the new natural science (particularly the heliocentric system of Copernicus, q.v.), and depended less than natural philosophy on the philosophical systems of antiquity. The most important results of the scientific trends in the R. were the methods of experimental mathematical investigation of nature, philosophically generalised in the works of Leonardo da Vinci and particularly Galileo (q.v.), the determinist interpretation of reality, as opposed to its teleological interpretation by the scholastics, and the formulation (by Kepler in astronomy and Galileo, in mechanics) of genuinely scientific laws of nature free of elements of anthropomorphism (q.v.). The determining features of R. philosophy were: metaphysical understanding of the ultimate elements of nature as absolutely unqualitative and inanimate in spite of the views of some natural philosophers; absence of a historical view of nature and, consequently, a deistic inconsistency which set a place apart for God in an infinite world (Galileo and, to a certain extent, Francis Bacon, q.v.). The vast socio-economic changes that took place in the new age were also reflected in much of the sociological thought of the time, particularly the characteristic view of society as a conglomeration of isolated individuals, which expressed the growing individualism of the bourgeoisie (see Machiavelli). The emergence and consolidation of national states were reflected in the new conceptions of state power as something completely independent of religious sanction and the authority of the church (Machiavelli, Bodin, and Modrzewski). The R. saw the appearance of utopian philosophers such as Münzer (q.v.), who demanded the socialisation of property on the basis of the "holy scriptures", and the first attempts were made to outline a communist social system, which at that time could not but be utopian (see More and Campanella).

Revelation, a concept of religious idealist philosophy signifying supersensuous direct perception of truth acces-

sible only to the chosen at a moment of mystic enlightenment. Idealist philosophers connected with R. are striving for truth and good. For those to whom R. is not accessible truth becomes an object of faith. Science rejects such an explanation, because it associates R. with blind faith in the supernatural. R. should be distinguished from intuition (q.v.).

Revisionism, an opportunist trend, hostile to Marxism, but acting on behalf of it in the workers' revolutionary movement. It got its name from the fact that it reconsiders, revises the Marxist doctrine, its revolutionary programme, strategy and tactics. R. appeared at the end of the 19th century, at a time when Marxism was victorious over all kinds of non-proletarian socialism and was spreading widely among the working masses. The main representatives of the old R. (end of the 19th-beginning of the 20th century) were Bernstein and Kautsky (qq.v.) in Germany, F. Adler and O. Bauer in Austria, the Right-wing Socialists in France, and others. In Russia the "economists", Mensheviks, and, later, after the October Revolution, the Trotskyites, the Bukharinites, sought to revise Marxism. R. attempts to implant bourgeois ideology in the working-class movement, to accommodate Marxism to bourgeois interests, robbing it of its revolutionary spirit. The revisionists engage in the "bourgeois emasculation" (Lenin) of Marxism in all its component parts—philosophy, political economy, scientific communism. The replenishment of the working class by the petty bourgeoisie and the bribing of the higher strata of the proletariat—the so-called labour aristocracy—by imperialism, serves as the social basis of R. The successors of the old R.—the contemporary leaders of the Right-wing Socialist parties—have finally deserted Marxism and gone over to the bourgeoisie. In the strict sense of the word, contemporary Right-wing socialism can no longer be called R. and in Marxist literature it is designated as reformism (q.v.). By contemporary R. is meant the Right-opportunist trend, which

appeared in later years (particularly in 1956-58) in some of the Communist parties of capitalist countries (Gates, Bittelman in the USA; A. Giolitti in Italy; Lefebvre in France, etc.) and in the Communist parties of some socialist countries (Yugoslavia, Hungary, Poland, GDR). A clearcut characteristic of the main features of contemporary R. is given in the Programme of the Communist Party of the Soviet Union. "Right opportunism, which is a reflection of bourgeois influence, is the chief danger within the Communist movement today. The revisionists, who mask their renunciation of Marxism with talk about the necessity of taking into account the latest developments in society and the class struggle, in effect play the role of pedlars of bourgeois-reformist ideology within the Communist movement. They seek to rob Marxism-Leninism of its revolutionary spirit, to undermine the faith which the working class and all working people have in socialism, to disarm and disorganise them in their struggle against imperialism. The revisionists deny the historical necessity of the socialist revolution and the dictatorship of the proletariat. They deny the leading role of the Marxist-Leninist party, undermine the foundations of proletarian internationalism, and drift to nationalism." In philosophy the revisionists distort the main principles of dialectical and historical materialism, substituting for them a set of ideas taken from contemporary bourgeois philosophy and sociology. They replace materialist dialectics by sophistry and eclecticism and propagate subjectivism. At the same time the revisionists belittle the significance of the conscious activities of the masses, the role of the subjective factor in history. They adopt the position of vulgar materialism, counting on the spontaneous "transformation of capitalism into socialism". Characteristic features of R. are distortion of the fundamental problem of philosophy, denial of the division of the philosophical trends into two camps—materialism and idealism, renunciation of the principle of partisanship in ideology, the divorce

of theory from practice. Contemporary R. does great harm to the Communist and working-class movement, seeks to sow disorder among the Marxist-Leninist parties, to disrupt the socialist camp, to lure the working class away from the revolutionary struggle against imperialism. R. has suffered a decisive rebuff and has been ideologically defeated. However, at the present time the struggle against it, like the struggle against dogmatism (q.v.), constitutes one of the most important tasks of the Communist parties.

Revolution, Bourgeois, a type of social revolution concerned mainly with resolving the contradictions between the productive forces and the feudal or semi-feudal economic and political system. The category includes revolutions in the colonies and dependent countries against imperialism and feudal survivals. The historical function of B.R. is to get rid of the obstacles to capitalist development. The fact that some revolutions of this type may carry out certain anti-capitalist measures does not alter their general character, since they leave intact the foundation of bourgeois society, namely, private ownership of the means of production. History has recorded many bourgeois revolutions in various countries at various times. The process of liquidating feudalism, which began in the 16th century (the Great Peasant War in Germany, the Revolution of the Netherlands), has not yet reached completion (e.g., the numerous bourgeois revolutions in the colonies and dependent countries of Africa, Asia, and Latin America). There is bound to be, therefore, a great variety of specific forms of B.R. and of the forces that motivate it. Whereas in the period that preceded the rise of monopoly capitalism the leading role in B.R. belonged entirely to the bourgeoisie, in the period of imperialism the influence of the proletariat on the course and results of B.R. has sharply increased; in a number of cases the leadership passes to the proletariat (Russian revolution of 1905, the new democratic revolution in China). The most general way of classifying B.R.

is to divide them into upper-crust bourgeois and bourgeois-democratic revolutions. The upper-crust B.R. is carried out under the leadership of the bourgeoisie without any wide participation by the people and does not lead to deep-going social changes, for example, the 1867-68 revolution in Japan, the Young Turk Revolution and various contemporary revolutions in Asian and African countries, which have proceeded no further than the winning of national sovereignty. A special form of B.R. is found in the bourgeois-democratic revolution. Its features are active participation of the proletariat and the peasantry, a link-up with the agrarian revolution and the peasant movement for fundamental reform of land relations, and action by the masses with demands differing from those of the bourgeoisie. There are several types of bourgeois-democratic revolutions, each with its distinctive historical role and motive forces: (1) the bourgeois-democratic revolutions of the period of struggle against feudalism which took place under the leadership of the bourgeoisie and ensured its economic and political domination, e.g., the French Revolution of 1789-94; (2) the bourgeois-democratic revolutions of the early period of imperialism and the first stage of the general crisis of capitalism. The proletariat acting in alliance with the peasantry becomes the leader of this type of B.R., which clears the ground for the accelerated development of capitalism and creates the conditions for the development of the bourgeois-democratic revolution into a socialist revolution, e.g., the February 1917 revolution in Russia; (3) the bourgeois-democratic revolutions of the second stage of the general crisis of capitalism (the revolutions in the People's Democracies, q.v.); (4) the bourgeois-democratic revolutions in the colonies and dependent countries during the third stage of the general crisis of capitalism, known as the national-democratic revolutions. Successful revolutions of this type lead to the setting up of independent National Democracies (q.v.).

Revolution, Social, a turning point

in social life, signifying the overthrow of the obsolete and the establishment of a new progressive social system. In contrast to the theorists of the liberal bourgeoisie and opportunism, who regard social revolution as fortuitous, Marxism-Leninism teaches that revolutions are the necessary, natural result of the development of class society. The epoch of social revolutions completes the process of evolution, the gradual ripening in the womb of the old society of the elements or prerequisites of a new social system. S.R. resolves the contradiction between the new productive forces and the old relations of production, destroys the obsolete relations of production and makes way for the further development of the productive forces. It is as a result of revolutions that the requirements of the law that the relations of production conform to the character of the productive forces (see Correspondence of Production Relations, etc.) are fulfilled. The old production relations are strengthened by their bearers—the ruling classes, who safeguard the existing order by means of state authority. Hence, in order to clear the way for social development, the progressive classes must overthrow the existing state system. The basic problem of every revolution is the problem of political power. The transfer of power from the hands of the ruling reactionary class into those of the revolutionary class is accomplished through a sharp class struggle. Revolution is the highest form of the class struggle. During revolutionary epochs the broad masses of the people, who formerly stood aloof from political life, rise to a conscious struggle. That is why revolutionary epochs always signify great acceleration of social development. Revolutions must not be confused with so-called palace coups, putsches, etc. The latter forcibly change the top governing section, replace individual persons or groups within the same class in power. The character of revolutions is determined by the social tasks they accomplish and by the social forces that participate in them. In this respect the socialist revolution differs radic-

ally from all previous revolutions (see Revolution, Bourgeois), for it produces more profound changes in the life of the people: abolishes the exploiting classes and eradicates all forms of exploitation of man by man. An example of such a revolution is the Great October Socialist Revolution. The uneven economic and political development of the capitalist countries in the period of imperialism leads to revolutions breaking out at different times in different countries. From this it follows that the transition from capitalism to socialism on a world scale is bound to constitute a whole historical epoch. During this period one country after another falls away from the capitalist system, further deepening the crisis of that system. Besides socialist revolutions the national liberation revolutions and various kinds of democratic liberation movements are of great significance during this epoch. These revolutions destroy the crumbling colonial system of imperialism, and deal further blows at its rears. "Socialist revolutions, anti-imperialist national liberation revolutions, people's democratic revolutions, broad peasant movements, popular struggles to overthrow fascist and other despotic regimes, and general democratic movements against national oppression—all these merge in a single world-wide revolutionary process undermining and destroying capitalism." (Programme of the C.P.S.U.) In the present-day epoch the world capitalist system as a whole has already ripened for the social revolution of the proletariat. However, in each individual country the possibilities of development of the revolution depend upon a number of conditions (see Revolutionary Situation). Depending upon concrete historical conditions, and first of all upon the strength of the working class and its allies on the one hand, and upon the degree of resistance of the reactionary classes, on the other, the revolution may be realised by peaceful or by armed means.

Revolution, Socialist, a radical transformation of society, marking the transition from capitalism to socialism. S.R. replaces the production relations

of domination and subjugation based on private ownership by relations of co-operation and mutual assistance, and thereby abolishes all exploitation of man by man. The fundamental principles of the S.R. were elaborated by Marx and Engels, who discovered the laws of social development. They proved that S.R. was a natural result of society's development and described it as the historic mission of the proletariat. They inferred the necessity of destroying the bourgeois state machinery and establishing the dictatorship of the proletariat (q.v.) to build socialism. S.R. begins in the absence of any ready forms of the new mode of production and is, therefore, creative in nature. The construction of a new society takes a definite length of time, which Marx defined as a special period of transition from socialism to communism (its first phase). The dictatorship of the proletariat serves as the instrument for building the new society. The conclusion on proletarian dictatorship is the chief element of Marx's revolutionary theory. By analysing the imperialist stage of capitalism, Lenin carried Marxism forward and enriched it with some vastly important, fundamentally new propositions: the possibility and necessity of the proletariat gaining victory first in one or several countries, which necessitates the co-existence of countries with different socio-economic and political systems; the revolution first breaking the weakest links in the chain of the world capitalist economy; the hegemony of the proletariat and the growth of national bourgeois-democratic revolutions into socialist revolutions; the link between the struggle of the workers in the advanced capitalist countries and the national liberation movement of the peoples in colonies; the revolutionary situation (q.v.); skillful combination of objective and subjective factors; the multiformity of the S.R., and a number of other propositions. Socialist construction in the U.S.S.R. and other countries has shown that the leadership of the revolution by the working class and the establishment of the dictatorship of the proletariat, the

alliance of the working class and the peasantry, the abolition of capitalist property, the socialist transformation of agriculture, planned economic development, cultural revolution, abolition of national oppression, defence of socialist gains, and proletarian internationalism constitute the main regularities of S.R. Depending on the level of the development of the productive forces, the combination of national peculiarities, the general cultural level of the people, their historical traditions, the alignment of class forces in the country and in the world, these regularities determine the specific features of the transition from capitalism to socialism in the country concerned. Thus, depending on these conditions, the revolution may be peaceful or armed. Marxism-Leninism holds that the sharpness and intensity of the class struggle depend on the strength of resistance by the reactionary bourgeoisie to the majority of the people, on the use of force by this bourgeoisie. In our time the theory of S.R. has been developed further, yielding a number of new conclusions: on the need for favourable conditions to accomplish a revolution by peaceful means; on the possibility of non-capitalist development in backward countries and the establishment of national democracy (q.v.); on the possibility of transitional stages in the struggle for proletarian dictatorship; on the union of all democratic movements opposing the tyranny of the financial oligarchy in one mighty anti-imperialist torrent.

Revolutionary Situation, the sum total of the objective conditions, expressing the economic and political crisis of a given social system and determining the possibilities of a social revolution. As pointed out by Lenin, the R.S. is characterised by the following principal symptoms: impossibility for the ruling classes to maintain their supremacy in an immutable form. For a revolution to break out it is usually not enough that the "lower strata do not want" to live in the old way; another condition is that "the upper strata cannot" live so.

The want and misery of the oppressed classes must be unusually pressing. There must be a considerable rise in the activity of the masses, who allow themselves to be robbed quietly in a "peaceful" period, but in stormy times are driven to independent historical action both by all the circumstances of the crisis and the "upper strata" themselves (see Lenin, Vol. 21, p. 214). The mere presence of a R.S. is not enough for the victory of the socialist revolution. Besides the objective conditions there must also be subjective conditions, i.e., ability of the revolutionary masses to fight bravely and selflessly, the presence of an experienced revolutionary party, carrying out a correct strategical and tactical guidance. The Marxist theory of the R.S. rejects petty-bourgeois adventurism and putschism in approaching the problem of revolution. It opposes revolutions being "pushed on" artificially, particularly with the aid of wars.

Rickert, Heinrich (1863-1936), German idealist philosopher, who, together with Windelband (q.v.), was the leader of the Freiburg school of neo-Kantianism (q.v.). He considered the object of investigation to be the study of the possibilities and methods of cognition in various fields. He devoted special attention to the methodology of the historical sciences and philosophical investigations. R. maintained that there are two methods in science: generalised abstraction in the natural sciences, and individualised abstraction in the historical sciences. The first method, involving an infinite variety of objects, allows the formulation of a system of universal concepts and laws; the second permits the establishment of relations between certain events and phenomena and moral "values", the ideal essences of the Platonic type, freely chosen by man. The ethical views of R. exerted considerable influence upon contemporary sociology. R.'s main works are: *Der Gegenstand der Erkenntnis* (1892), *Die Grenzen der naturwissenschaftlichen Begriffsbildung* (1896), and *Main Problems of Philosophical Methodology, Ontology, and Anthropology* (1934).

Robinet, Jean-Baptiste (1735-1820), French materialist philosopher. The main sources of his views were the teachings of Locke (q.v.) and Condillac (q.v.), but he was also influenced by Leibniz's (q.v.) ideas. R. recognised material substance which is infinite in space and time. The diversity of nature is ruled by the principle of universal unity and harmony determined by the causal relation of things. In the understanding of causality R. made concessions to Hume's (q.v.) conception. R. was an adherent of hylozoism (q.v.); he considered the animalcules, the tiniest living creatures, as the elementary bricks of the Universe. The inconsistency of R.'s materialism is expressed in his recognition of a god who created the world from material substance. According to his theory of knowledge, sensations are the source of knowledge, including theoretical thought. He distinguished three kinds of cognition: sensation, discourse, and intuition, and three corresponding types of truth: sensory, demonstrative, and intuitive. He considered ideas as the copies of objects, and criticised Plato's (q.v.) idealism, limiting sensory cognition to external phenomena, but his conviction of the unlimitedness of human cognition distinguished his views from the theories of agnosticism (q.v.). His main work: *De la nature* (1761-66).

Romance, a specific socio-psychological and aesthetic striving and mood, penetrating both human activity and the creative art of some artists. Maxim Gorky derived the necessity for the organic inclusion of revolutionary R. in the artistic method of socialist realism from the fact that the source of R. is in the reality reflected by art, in the heroic life of the proletariat and of the brave fighters for freedom and happiness, in the creative labour of the builders of a classless society. Our reality is heroic and hence romantic. Revolutionary R. is a particular aesthetic form for bringing out the struggle between the new and the old in social development, by employing a feeling for the new and by clearly realising the prospects and aims of social devel-

opment. Revolutionary R. is an artistic form of historical prevision, the embodiment of the artist's vision born by life itself and directed towards its transformation.

Romantic School, the first mature expression of romanticism. It existed in Germany at the end of the 18th century and the beginning of the 19th century. Its efflorescence was in the years 1798-1800 when a close collaboration was established in Jena between the literary critics Friedrich and August Schlegel, Karoline Schlegel, the poets Tieck and Novalis, the philosophers Schelling (q.v.) and Friedrich Schleiermacher (q.v.). The journal *Athenaeum* was published during this period (1798). The R.S. came out against the rationalism of the Enlightenment, opposing to its "soulless rationality" the cult of feeling and creative ecstasy, which, they maintained, reveals the mysteries of nature more profoundly than the tedious work of the scientist. The romanticists saw as the motive force of cognition the experience of the contradiction between the finite and the infinite, the aspiration for the infinite, the frustration born of the unattainability of the infinite, an ironical attitude towards oneself and one's creation. The exponents of the R.S. maintained love, a mystical cult of nature, artistic creative work, religious experience, to be the means of possible access to the infinite. They idealised the feudal-Catholic past, some of them went over to Catholicism and became ideologists of the Restoration. The R.S. later appeared in France, Poland, Italy, Spain, Denmark, and the USA.

Romanticism, an artistic method in European art which replaced classicism in the 20s-30s of the 19th century. It arose from two different sources: a) the liberation movement of the people, awakened by the French revolution of 1789, the struggle of the people against feudalism and national oppression; b) the frustration of broad social circles with the results of the revolution of the 18th century. This determined the formation of two trends in artistic R. One of them was the reaction to the

victory of the bourgeois system, expressing at the same time fear of revolutionary and popular movements. As a rule, criticism of capitalism was here one-sided and reactionary, seeing only its dark sides and not seeing the progressive element which was brought about by the victory of the new system. This trend found a way out of the socio-historical contradictions in the creation of illusory ideals which were an apology for the medieval past. Hence the attachment of the romanticists (Tieck, Schlegel, Novalis, Zhukovsky, Kaulbach, and others) to unusual situations and fantastic images. The other basic trend of R. had a progressive revolutionary direction, expressing the protest of the wide social circles against the bourgeois, as well as against the feudal system, against reactionary politics. Although the aesthetic ideals of this trend of R. were also occasionally utopian, while its images were often distinguished by their duality and inherent tragicalness, they nevertheless expressed a certain understanding of the contradictions of bourgeois society and interest in the life of the broad masses of people, and were directed towards the future. Among the artists of progressive R. were Byron and Shelley, Hugo and Sand, Mickiewicz and Petöfi, Ryleyev and Küchelbecker, Géricault and Delacroix, Bryullov and Rude, Schubert, Chopin, Schuman, Berlioz and Liszt.

Roscelin, Joane (c. 1050-c.1112), scholastic from Compiègne (France). He is known for his polemics with Anselm of Canterbury and Abélard (qq.v.) and for his heretical interpretation of the Trinity as a complex of three separate gods. This tritheist teaching was condemned by the church and R. was compelled to renounce it at a council in Soissons (1092). He was one of the founders of the nominalist tradition in medieval philosophy (see Nominalism). As testified by Anselm, R. affirmed that general conceptions are only names, titles, merely "vibrations of the air" (*flatus vocis*). In reality, according to R., there exist only single sensorily perceptible things.

Among his works only a letter to Abélard has been preserved.

Rousseau, Jean-Jacques (1712-78), representative of the Left wing of the French Enlighteners (see Enlightenment). R. became famous as a philosopher, sociologist, and aesthetician, author of artistic works of world value, and one of the theoreticians of pedagogy. Main philosophical and sociological works of R.: *Discours sur l'origine et les fondements de l'inégalité parmi les hommes* (1755) and *Le contrat social* (1762). He advocated deism (q.v.). Alongside with the existence of God R. also recognised the immortal soul. He taught that matter and spirit are two eternally existing principles (see Dualism). In the theory of knowledge he adhered to sensationalism (q.v.), although he also maintained that moral ideas are innate. As a sociologist R. took a radical position. He severely criticised feudal class relations and the despotic regime, and supported bourgeois democracy and civil liberties, the equality of people irrespective of their birth. R. saw the causes of inequality in the establishment of private property. At the same time he stood for the perpetuation of small property. Being an exponent of the theory of social contract (q.v.), R. held, in opposition to Hobbes (q.v.) that in the "natural state" there was not only no war of everybody against everybody, but that friendship and harmony reigned among people. In his work *Emile ou De l'éducation* (1762) R. severely criticised the old feudal class system of education and demanded that education should aim at the training of active citizens, who respected labour. R.'s pedagogical views were petty-bourgeois; his ideal was the honest handicraftsman. The founders of Marxism-Leninism highly appraised the historical role of R., noting at the same time his idealism and bourgeois limitation.

Rural Commune, a form of economic association which arose at the last stage of the primitive-communal system. As distinct from the earlier primitive communes (See Patriarchy, Clan), the R.C. rests not on a consanguine basis. Marx pointed out that the

“rural commune” is becoming the first social group of free people not connected by sanguine ties”. (*Archives of Marx and Engels*, Book I, Russ. ed., p. 284.) By its nature R.C. is dual. It combines two elements: (1) private ownership of all the means of production (except the land) and individual production and individual appropriation, and (2) collective ownership of the ploughland (regularly divided for individual, private use), meadows, forests, and pastures. All peoples had the R.C. As a survival of the old social relations it continued to exist in the slave, feudal, and even capitalist societies.

Ruskin, John (1819-1900), English aesthetician and critic. Studied, and then taught at Oxford University (1869-84). His idealist outlook was greatly influenced by Carlyle (q.v.). From the position of conservative romanticism R. criticised bourgeois society, its parasitism and depraved morals; he saw “the main root” of unjust wars in the “will of the capitalists”. R.’s ideal was patriarchal-handicraft production, which he sought to revive. R. considered the education and moral upbringing of people as a means of deliverance from social disasters, assigning a great role to art in this cause. The aesthetic feeling is innate in man. Art originates from the “imitative instinct” and the instinctive desire is to embody or describe something; but the objective basis is the divine beauty of nature, untouched by man. Perfect art reproduces the beauty of reality and through it man is morally uplifted. R. exerted great influence on the cultural life of England. His main works: *Modern Painters* (1843-60, in five volumes), *The Stones of Venice* (1851-53, in three volumes), *Lectures of Art* (1870), *The Art of England* (1883).

Russell, Bertrand (1872-), English philosopher, logician, public figure. R. contributed considerably to the development of modern mathematical logic. He developed the logic of relations, perfected the language of logical

symbols. At the beginning of the 20th century, R., together with Whitehead (q.v.), following Frege (q.v.), made attempts to elaborate the logical basis of mathematics (see Logicism). He wrote a large number of philosophical works on natural science problems. R. maintains that philosophy draws its problems from natural science, and that its task is the analysis and explanation of the principles and concepts of natural science, that the essence of philosophy is logic, the logical analysis of language. R. is justly regarded as the most prominent representative of modern neo-positivism (q.v.). In the solution of the fundamental problem of philosophy R.’s outlook underwent evolution from objective to subjective idealism. Man, according to R., has to do with sense data. What man perceives is a “fact” or a complex of “facts”. Facts cannot be considered as physical or psychical; they are neutral. According to R., what is empirically corroborated should be ascribed not to the sphere of pure physics, but to physics plus the corresponding section of psychology. Psychology is an essential component of every empirical science. In the theory of knowledge R. is an agnostic: denying the materialist theory of knowledge, he suggests the philosophy of scepticism in its place. At the present time R. is an active participant in the movement for general disarmament, his articles and speeches against war and for peace serve the cause of human progress.

Ryle, Gilbert (1900-), English philosopher, one of the leaders of the so-called linguistic philosophy (q.v.), professor of philosophy at Oxford. For R. the task of philosophy is merely to solve problems arising from the imperfect understanding of our means of knowledge. He maintained that in a number of cases the grammatical form of expression of thoughts is bound to confuse us and leads to what are called errors of category. In his main work *The Concept of Mind* (1949) R. advances a conception very close to behaviourism (q.v.).

S

Saint-Simon, Claude-Henri de Rouvroy (1760-1825), French utopian socialist. The son of a count, he was brought up by Jean d'Alembert; during the French Revolution was close to the Jacobins; took part in the War of Independence of the United States. S.S. subscribed to the views of the French materialists, opposed deism and idealism, particularly German idealism, and put up against them "physicism", i.e., a study of nature. He resolutely upheld determinism, extending it to the development of human society, and paid special attention to substantiating the idea that history is governed by laws. S.S. held that history must contribute to human progress as much as the natural sciences. Each social system is a step forward in history, but the driving forces of social development are progress of scientific knowledge, morality, and religion. Correspondingly, history passes through three phases: theological (the period of the domination of religion, which covers the slave and feudal societies), metaphysical (the period of the fall of the feudal and theological systems), and positive (the future social system based on science). His idealist approach to history did not prevent S.S. from expounding the idea that social progress is an objective process and advancing surmises on the role of property and classes in the development of society. Moreover, his sociological concept helped to show that every new social system springs naturally from preceding historical development. According to S.S., the society of the future will be based on scientifically organised and planned large-scale industry, but with the preservation of private property and classes. The dominating role in it will be

played by science and industry, by scientists and industrialists. Among the latter S.S. put also the workers, merchants, and bankers. Planning of industry will be done in the interests of the majority of society's members, especially the poor and the lowly. All must be given the right to work; each man works according to his ability. Particularly important is the surmise that the future society instead of ruling over people will administer things and manage production. The utopian nature of the views of S.S. stands out in his failure to understand the historic role of the proletariat as the builder of the new society and of the revolution, as the means of transforming the old society, and in the naive hope that by propaganda of a "positive" philosophy it will be possible to achieve rational organisation of the people's life. After his death, his doctrine was advocated by B.P. Enfantin (1796-1864) and A. Bazard (1791-1832). Before long, however, the school of Saint-Simonists degenerated into a religious sect, which accentuated the weak sides of the doctrine. Main works: *Lettres d'un habitant de Genève à ses contemporaines* (1803), *Mémoire sur la science de l'homme* (1813-16), *Travail sur la gravitation universelle* (1821-22), *Du système industriel* (1821), *Catéchisme des industriels* (1823-24), and *Nouveau christianisme* (1825).

Sāankhya, one of the major orthodox systems of ancient Indian philosophy. Being a dualist doctrine, S. recognises the existence of two prime elements in the Universe: material, *prakṛti* (matter, nature) and spiritual, *purusa* (consciousness). *Purusa* is neither the supreme God, the creator, nor the universal spirit. It is the eter-

nal, unchanging individual consciousness which contemplates both the course of life of a living being in which it finds abode and the process of evolution of the Universe taken as a whole. *Prakṛti* is in constant change and development and is subject to the law of cause-effect connection. All changes of *prakṛti* depend on the correlation in which the three *gunas* are represented in it, the main material properties of the *gunas* being *sattva* (clarity, purity), *tamas* (inertia) and *rajas* (activity). A combination of these *gunas* produces the entire diversity of nature. Contact of *prakṛti* with the *purusa* determines the beginning of the evolution of the individual and the Universe. Each living being consists of three parts: *purusa*, the subtle body, and the gross material body. The subtle body comprises the intellect, sense-organs, and the relevant elements and emotions of the Ego. The subtle body is the concentration of *karma* (see Hinduism) and follows the *purusa* until the latter achieves complete liberation from being incarnated in any substance. The gross material body consists of material elements and perishes with the death of a being. The foundation of the S. system is ascribed to the legendary wise man Kapila, but the first systematic exposition of S., *Sāṅkhya-kārikā*, was given by Isvara-Krishna in the middle of the 1st millennium of our era.

Santayana, George (1863-1952), an American philosopher and writer, proponent of critical realism (q.v.). Admitting the objective existence of the material world, S. held that only "essences" could be cognised, i.e., real or possible qualities of things which appear in cognition as signs of objects. In his understanding of the "essences" S. was close to Plato (q.v.) and Husserl (q.v.). S. regarded consciousness as an epiphenomenon: consciousness is not a reflection of reality but more or less significant poetry. In aesthetics he defined the beautiful as "objectification of pleasure". In ethics supported escapism: happiness should be sought in liberating the spirit from the flesh, from the world and knowledge. In

sociology (*Dominations and Powers*, 1951), S. put forward a theory which explains the development of society by the instinct of self-preservation and the striving for material benefits, etc. In political science S. was an anti-democrat who favoured the power of the elite. Rejecting theological dogmas, S. recognised religion as the poetry of social behaviour. Main work: *Life of Reason* (5 vols., 1905-12).

Saravati, pseudonym **Dayananda Mulshankar** (1824-83), Indian idealist philosopher and religious reformer, founder of Arya Samaj (Bombay, 1875), a reformist Hindu society, preaching "return to the Vedas" and revival of the ancient religion of the Aryans. He attacked idolatry, polytheism, domination of the priests, superstition, retrograde customs, etc., and strove to "cleanse" Hinduism from medieval superimpositions. Religious reformism combined quaintly in S. with his ideas of enlightenment. While advocating universal scientific education, he at once sought to present science as a projection of the Vedas (q.v.). In philosophy, S. was a follower of Mādhva's dvaita Vedānta, on the basis of which he sought to conciliate all the six main philosophical systems of antiquity. He attempted to oppose the ancient Indian idealised varna system to the medieval feudal and caste system and contemporary Western bourgeois civilisation. Constitutional monarchy was his political ideal. S. advocated independent national development for India and was a spokesman of the Indian bourgeoisie, then in the process of formation, to whose interests he adapted the ancient philosophical and political ideas.

Sartre, Jean-Paul (1905-), French philosopher and writer. S. is an exponent of so-called "atheistic existentialism". His main works: *L'Être et le Néant* (1943), *L'Existentialisme est un Ahumanisme* (1947), *Critique de la raison dialectique* (1960). His views were shaped under the influence of Husserl and Heidegger (qq.v.). There is also a definite connection between his philosophy and the doctrine of Kierkegaard (q.v.); Freud's method

of psychoanalysis also exerted a certain influence on S. Anthropocentrism and subjectivism are characteristic of his philosophy. He conceives man as "being for himself" from which there are such derivative forms as "being in itself" (i.e., the objective world, space and time, quantity and quality, etc. Thus, the objective world, being irrational and determinated, is the opposite of human activity, which is free and does not depend on objective laws. Such an idealist concept of freedom (its essence is expressed in the principle: "Man is what he makes himself") underlies Sartrean ethics. In a number of his works S. makes the futile attempt to prove existentialism with the help of Marxist philosophy. S. was in the ranks of the French Resistance during the 2nd World War; he is waging an active struggle against the revival of fascism and for peace; S. is a member of the World Peace Council.

Scepticism, a philosophical conception questioning the possibility of objective knowledge of reality. Consistent S. is close to agnosticism (q.v.). S. is most widespread in periods of social development when the old social ideals are already tottering, but the new ones have not yet asserted themselves. As a philosophical doctrine, S. emerged during the crisis of antique society (4th century B.C.) as a reaction to the preceding philosophical systems which had tried to explain the sensual world by means of contemplative arguments and in so doing had often contradicted one another. S. reached its peak in the teachings of Pyrrho, Arcesilaus, Carneades, Aenesidemus, Sextus Empiricus (qq.v.), and others. Following the traditions of the sophists (q.v.), the first sceptics drew attention to the relativity of human knowledge, the impossibility of proving it formally and its dependence on various circumstances (living conditions, the state of the sense-organs, the influence of traditions and habits, etc.). Doubt as to the possibility of any generally recognised and demonstrable knowledge underlay the moral conception of antique S. The sceptics

of old preached abstention from judgements for the sake of achieving complete peace of mind (*ataraxia*) and thereby happiness, the objective of philosophy. But the sceptics themselves by no means refrained from judgements. They wrote works criticising the contemplative philosophical dogmas and putting forward their tropes (q.v.), or arguments, in support of S. There were various sceptic tendencies in the philosophy of the 17th and 18th centuries. On the whole, S. played an important role in refuting the dogmas of medieval ideology. The works of Montaigne, Charron, Bayle (qq.v.), and others questioned the arguments of the theologians, thus preparing the ground for the adoption of materialism. On the other hand, the S. of Pascal, Hume, Kant (qq.v.), and others restricted the possibilities of reason in general and cleared the way for religious faith. In modern philosophy, the traditional arguments of S. have been adopted for its own aims by positivism (q.v.), which considers all judgements, generalisations, and hypotheses as useless if they cannot be tested by experience.

Schelling, Friedrich Wilhelm Joseph von (1775-1854), German philosopher, third (in point of time) of the famous German classical idealists. Professor in Jena, Erlangen, and Berlin; member of the Munich Academy of Sciences. In the nineties he published a series of works on problems of the philosophy of nature. Using Kant's (q.v.) views and Leibniz's (q.v.) doctrine of living monads and the purpose in nature, S. introduced the idea of development into the understanding of nature. In his *System des transzendentalen Idealismus* (1800) S. tried to combine Fichte's (q.v.) subjective idealism with the objective idealism of his own system. According to S., philosophy must supply the answer to two questions: how does the development of unconscious-spiritual nature lead to the birth of consciousness? And, on the contrary, how does consciousness, which in itself is only a subject, become an object? The first question is answered by the "philosophy of nature", and the

second by the doctrine of "transcendental idealism". S. believed that his system differed from Fichte's subjective idealism, since to Fichte's tenet that the subjective is primary he opposed—in the philosophy of nature—investigation in which the objective is primary. By the subjective S. understood not the consciousness of the individual but the mind's direct contemplation of the object itself, or "intellectual intuition". Unlike Fichte, S. extended "intellectual intuition" to all levels of thinking ("reflection") of consciousness about its own activity. In developing this doctrine, S. joined the reactionary wing of the Romantic school (q.v.), according to which intuition is the lot of only a few of the elect. As consciousness attains comprehension of its own spontaneity it understands itself to be both free and subject to necessity. The regular process in which spirit and nature, subject and object, freedom and necessity, are combined is manifested and operates necessarily through the free action of individuals. However, to S., this process is not open to knowledge, but only to faith, and the guarantee of historical and moral progress lies only in God. S.'s doctrine, conceived as dialectics of necessity and freedom in history but developed on the basis of idealism and mysticism, turned out in reality to be fatalism (q.v.) and complete denial of historical prevision. From the "philosophy of nature" and the system of "transcendental idealism" S. went over to the "philosophy of identity" (q.v.), a new form of objective idealism. The main problem in S.'s doctrine becomes the idea of the identity of object and subject, the supreme law is declared to be the law of the identity of indivisible reason with itself. The process of comprehending identity, the transition from the indivisible to the multiple takes place in the absolute. S.'s doctrine of freedom was further developed in *Philosophische Untersuchungen über das Wesen der menschlichen Freiheit* (1809). Together with Fichte, S. understood freedom as recognised necessity; he saw in freedom not the heroic deed of

an individual but the achievement of society. However, in contradistinction to this view, S. mystifies the problem of freedom, connecting it with the problem of evil in the world; he proclaims purely individual principle which has its origin in the transcendental world "comprehensible by reason" to be the ultimate root of freedom. From about 1815, S. passed over to a new and final phase in his development: to the mystical "philosophy of mythology and revelation". His teaching in this period is distinguished by extreme intensification of mystical elements. He brands all philosophies based upon reason; to them he counterpoises the "philosophy of revelation", which seeks truth beyond the limits of reason—in "religious experience". The public propaganda of the "philosophy of revelation" as developed by S. failed. The young Engels, in brilliant pamphlets, explained to his contemporaries the reactionary contents of S.'s "philosophy of mythology and revelation".

Schiller, Ferdinand Canning Scott (1864-1937), English pragmatist, professor at Oxford and Los Angeles. S. called his variety of pragmatism (q.v.) "humanism". He regarded truth as man's creation, and declared all human knowledge to be subjective. Following James' (q.v.) understanding of truth, S. nevertheless believed that only good results can be the criterion of truth. He understood "reality" as "experience", as a plastic shapeless mass, subject to the influence of man's will: "the world is what we make it". Thus S. arrives at solipsism (q.v.), declaring it to be theoretically possible, although inconvenient in everyday life. In his "metaphysics" he combined subjective idealism with evolution theory, which he regarded as a purposeful process directed by divine power. S. pragmatically interpreted formal logic, replacing it by the "logic of application". He took the laws and forms of logic to be postulates and convenient fictions. From the position akin to that of Nietzsche's he acclaimed fascism as a means of creating the "superman". Main work: *Humanism* (1903).

Schiller, Johann Friedrich (1759-1805), German poet and aesthete. His views were formed under the influence of Rousseau's and Lessing's (qq.v.) ideas, the movement of *Sturm und Drang*. In 1871, S. published the drama *Die Räuber*, full of protest against despotism and social injustice, and then the *Kabale und Liebe*, which, in Engels' words, was "the first German politically tendentious drama". S. acclaimed the French Revolution, but later he was disappointed in it. His drama and philosophical lyrics are penetrated with humanism and hate for tyranny; they evince great profundity in portraying feelings and characters. But in his search for an abstract aesthetic ideal, the poet departed from reality in some of his works. In the nineties, S. became a follower of Kant's philosophy and aesthetics, but he did not follow him in everything (for instance, he criticised the formalism of Kant's categorical imperative, q.v.). He regarded art as a means of moulding the full man, freely creating good, and considered that only art helps man to achieve real freedom. Although his demands for freedom were purely spiritual, they constituted a protest against the feudal regime. S.'s main philosophical works are: *Philosophische Briefe* (1786), *Über Anmut und Würde* (1793), *Briefe über die ästhetische Erziehung des Menschen* (1795).

Schleiden, Matthias Jakob (1804-81), German biologist, professor at the University of Jena. He was one of the authors of the cell theory (see Cell); investigated the structural unity and development of organisms. S.'s philosophical views were close to those of Kant (q.v.). Main work: *Beiträge zur Phylogenesis* (1838).

Schleiermacher, Friedrich Ernst Daniel (1768-1834), German Protestant theologian and philosopher. He was for many years a preacher, a professor at the University of Berlin. S.'s views are a combination of the ideas of Spinoza, Kant, Fichte, Schelling, Jacobi (qq.v.), and others. His philosophy was dominated by Romantic, anti-Enlightenment trends (see Romantic

School). He deduced religion and morality from the inner disposition of the subject. According to S., the basis of infinite being is the unity of the world, or God, in whom all contradictions are reconciled. In contrast to Hegel, S. said the laws of dialectics were not universal. For him, dialectics expressed only the movement of knowledge. He further developed the criticism of the Old Testament as begun by Spinoza, extending it to the New Testament. His ideas stimulated further criticism of all the sources of Christianity (see Young Hegelians). None of these criticisms, however, went beyond the framework of the religious world outlook. His philosophico-religious views greatly influenced the ideology of Protestantism. Main works: *Reden über die Religion* (1799), *Monologen* (1810).

Schlick, Moritz (1882-1936), Austrian philosopher and physicist, one of the leaders of logical positivism (q.v.) and founder of the Vienna Circle (q.v.). As a physicist he studied the problems of theoretical optics, was one of the first interpreters of the theory of relativity (q.v.), 1917. In his book, *Allgemeine Erkenntnislehre* (1918), he formulated ideas which were later adopted by logical positivists, particularly the teaching on the analytic a priori nature of logic and mathematics and the principle of verification (q.v.). Besides defending the general conception of logical positivism (*Positivismus und Realismus*, 1932), he tried, from the idealist position, to analyse special philosophical problems (space and time, causality and probability) and ethics (significance of value judgements, free will). He put forward a non-scientific theory on the "inexpressibility of the content", according to which "immediate experience", the content of our knowledge, cannot be transmitted to another. For him, only "structural relations of experience" can be expressed in words and transmitted. He criticised Carnap's and Neurath's (qq.v.) conventionalism (q.v.).

Scholasticism, the name given to medieval "school philosophy" whose

followers—the scholastics—tried to give a theoretical substantiation to the religious world outlook. S. rested on the ideas of ancient philosophy (Plato, q.v., and especially, Aristotle, q.v., whose views S. adapted to its own purposes). The dispute over universals (q.v.) was prominent in medieval S. Historically, S. is divided into several periods: early S. (9th-13th centuries) was under the influence of Neo-Platonism, q.v. (Erigena, Anselm of Canterbury, Avicenna, Averroës, Maimonides, qq.v.). "Classical" S. (14th-15th centuries) was dominated by "Christian Aristotelianism" (Albert the Great, Thomas Aquinas, qq.v.). The disputes between the Catholic (Suarez, Cajetan) and Protestant (Melancthon) theologians, which took place in late S. (15th-16th centuries) were ultimately a reflection of the struggle waged by the Catholic Church against the Reformation (q.v.). The 19th century saw the period of neoscholasticism, which unites various schools of Catholic philosophy (Thomism, the Platonic-Augustinian school, the Franciscan school, etc.).

Schopenhauer, Arthur (1788-1860), German idealist philosopher; taught in Berlin and Frankfurt on the Main (from 1832). Main work: *Die Welt als Wille und Vorstellung* (1819). S. became famous only after the revolution of 1848, when the bourgeoisie, frightened by the revolutionary people, turned to reaction. The influence of S.'s ideas increased particularly in the epoch of imperialism (q.v.). He was an enemy of materialism and dialectics; counterpoised metaphysical idealism to the scientific understanding of the world. Having accepted Kant's views of the appearance (q.v.) as notions conditioned by consciousness, he rejected the "thing-in-itself" and maintained that blind and irrational will is the essence (q.v.) of the world. His voluntaristic idealism is a form of irrationalism. The will which rules the world excludes any laws of nature or society and hence the possibility of scientific cognition. Denial of historical progress is another peculiarity of S.'s voluntarism. His world outlook, permeated as it was

by hate of revolution and the people, is utterly pessimistic. His aesthetic views had great influence; he fought progressive, realistic art and preached aestheticism which scorns reality and is alien to the vital interests of the people. He set off desirelessness and passive contemplation of artistic intuition against the meaningful creative art. The summit of S.'s philosophy was the mystic ideal of nirvana—absolute serenity, killing the "will to live", which he borrowed from Buddhism (q.v.). His views constituted the ideological basis of Nietzsche's (q.v.) philosophy.

Schrödinger, Erwin (1887-1961), Austrian physicist, professor at Dublin University (from 1940), foreign member of the Academy of Sciences of the USSR (from 1934). Developing the teaching of de Broglie (q.v.), he founded wave, or quantum, mechanics (q.v.). In 1926, he discovered the basic (the so-called wave) equation of quantum mechanics. His outstanding physical idea was the wave theory of matter. In the unified field theory and the generalised theory of gravity, he tried to show that the corpuscular structure of matter, its discontinuity, are the result of its wave structure, of continuity. S. was also interested in statistical physics (q.v.), biophysics, the history of science, and philosophy. His main philosophical idea was the conviction that subject and object are indivisible, that there is a mistaken notion of their division and that the outside world is "objectivised" by modern philosophy and science. For this reason S. turned to ancient philosophy, in which, according to him, there was no such conflict, beginning with the hylozoism (q.v.) of Ionic natural philosophy and ending with the doctrine of the Vedas (q.v.). From this position S. interpreted the results of modern science, especially the quantum theory.

Schwann, Theodor (1810-82), German biologist, professor at the Louvain and Liège universities (Belgium). One of the founders of the cell theory (see Cell). Main work: *Mikroskopische Untersuchungen über die Ubereinstimmung*

in der Struktur und dem Wachstum der Tiere und Pflanzen (1839). Elements of deism (q.v.) and teleology (q.v.) are inherent in his philosophical views.

Science, a form of social consciousness which represents a historically developed system of knowledge whose truth is verified and constantly made more precise in the course of society's practical experience. The power of scientific knowledge lies in its general character, universality, necessity, and objective truth. In contrast to art, which reflects the world in artistic images, S. cognises it in concepts by means of logical thinking. In direct opposition to religion, which gives a distorted, fantastic picture of reality, S. bases its conclusions on facts. The strength of S. lies in its generalisations; behind the accidental and chaotic it finds and studies objective laws, without the knowledge of which conscious and purposive practical activity is impossible. The needs of material production, the requirements of society's development are the driving force of S. The progress of S. consists in its passing on from the disclosure of relatively simple causal-consequential relations and essential connections to the formulation of more profound and fundamental laws of being and thinking. The dialectics of scientific cognition, new discoveries and theories do not cancel out former results and do not negate their objective truth; they only specify the bounds of their application and determine their place in the general system of scientific knowledge. S. is closely connected with the philosophical world outlook, which arms it with the knowledge of the most general laws governing the development of the objective world, the theory of knowledge, and a method of investigation. Idealism leads S. into the blind alley of agnosticism and subordinates it to religion. In present-day conditions only the philosophy of dialectical materialism is capable of ensuring the correct approach to reality and opening the way to broad and fruitful generalisations. Arising out of the requirements of society's productive activity and subject to the

constant stimulating influence of the latter, S. in its turn greatly affects the course of society's development. Present-day production is inconceivable without S., whose role is constantly growing. Being brought closer to production in the process of building the material and technical basis of communism, S. is becoming a direct productive force of society.

Scientific Prevision, prediction of natural and social phenomena, not yet observed or not yet established by experiment, based on a generalisation of theoretical and experimental data and consideration of the objective laws governing development. S.P. can be of two kinds: (1) it may concern existing phenomena which are unknown or have not yet been observed experimentally (for example, prediction of anti-particles, new chemical elements, deposits of minerals, etc.); (2) it may bear on phenomena which must arise only in the future given definite conditions (for example, the prediction by Marx and Engels of the inevitable downfall of capitalism and the victory of the communist formation, Lenin's conclusion concerning the possibility of building socialism in one single country, the propositions of the Programme of the CPSU about the main features of future communist society and the ways of building it). S.P. is always based on the extension of cognised laws of nature and society to a sphere of phenomena which are unknown or have not yet arisen, a sphere in which these laws should preserve their force. S.P. inevitably also contains elements of supposition, especially as regards concrete future events and their dates. This is determined by the emergence, in the course of development, of qualitatively new causal connections and possibilities which did not exist previously and, insofar as society is concerned, by the especial complexity of its development because in society the agents are people endowed with a mind, individual characters, etc., as a result of which unexpected situations may arise. Practice is always the final criterion of the correctness of S.P. Denial of the objective laws

of reality (agnosticism, scepticism), also leads to denial of S.P., as the unavoidable outcome of the idealist theories of social development. On the other hand, recognition of S.P. is based on a materialist understanding of history.

Sechenov, Ivan Mikhailovich (1829-1905), father of Russian physiology and founder of materialist psychology in Russia. He was professor of the Medico-Surgical Academy (1860-70) and Moscow University (1891-1901), Honorary Member of the Academy of Sciences since 1904. S. was an irreconcilable fighter against idealism in physiology and psychology. His philosophical and socio-political views were greatly influenced by the Russian revolutionary democrats, particularly Chernyshevsky. In his scientific activity S. was guided by three main methodological principles—the proposition on the material unity of the world, the principle of determinism and the genetic approach to the object studied, particularly to psyche (q.v.). S. initiated experimental physiological investigations of the central nervous system, in particular the brain. His major discoveries were made in the physiology of the nervous system, i.e., research into central inhibition and the properties of “inertness” of the nerve tissue. The extension of the reflexory principle to the activity of the brain (“Reflexes of the Brain” and “Who and How Should Elaborate Psychology”) marked the beginning of the reflexory theory of the mental activity of animals and man. He introduced new concepts (the “sensory instrument”, or analyser, acquired reflexes, etc.) which served as points of departure for Pavlov (q.v.) in creating the doctrine of higher nervous activity. S. made an important contribution to the natural scientific treatment of such problems of materialist epistemology as the nature of the sensory reflection and its cognitive function (“First Lecture at Moscow University”, “Impressions and Reality”, “Object, Thought and Reality”), as the connection and transition from sensory reflection to thinking and the nature of

thought processes (“Elements of Thinking”), the role of objective, practical activity in shaping images and mental abilities, and a number of other problems.

Secondary Qualities, see Primary and Secondary Qualities.

Sectus Empiricus (c. 200-250), Greek philosopher and physician, follower of Aenesidemus (q.v.). The extant works of S.E. *Hypotyposes pyrrhoniennes*, *Adversus mathematicos* sum up the arguments used by ancient sceptics (see Scepticism) to refute the idea of “dogmatic” philosophy about the possibility of proving indisputable knowledge. Demonstrating the impossibility of any universal obligatory scientific, theological, ethical, and other truths, S.E. advised philosophers to refrain from any solutions and knowledge in order to achieve complete peace of the mind and bliss, the realisation of which is the aim of philosophy. S.E. proposed that man be guided in life by natural requirements, inclinations, habits, laws, traditions, and above all by common sense.

Self-Consciousness, the process of man singling himself out from the objective world, awareness of his relation to the world, awareness of himself as a personality, his behaviour, actions, thoughts, sentiments, desires, and interests. An animal is identical with its activity, it changes nature only by virtue of its presence, i.e., is related to it directly. Man, however, mediates his relation to nature by his social practical activity and above all by the use of tools. Thanks to labour he is singled out from the natural connections: in the process of labour he correlates his aims and tasks with the natural material and takes into account his own possibilities. By changing nature, he changes himself. By creating products in the process of labour, man, as it were, doubles himself, and in the object of his activity contemplates his handiwork. He differentiates himself as producer from the objects of his activity. But since labour is always of a social character, man begins to be aware of himself as a particle, a cell of the given

historical system, regarding another man as similar to himself and seeing in him a man. Language plays an important part in the shaping of S.C. because language is the direct reality of thought and discharges its function for man only because it exists for others. S.C. (as an earnest, as an inclination) arises simultaneously with consciousness as a derivative from it, but is displayed at a considerably higher stage in the development of mankind. At first man differentiates himself from the object, becomes aware of the object of his activity and of himself as a subject only in the process of acting on things. Then S.C. is manifested as a generic, collective element: man is still fully absorbed by the genus which carries human essence. As the gentile system declines, civilisation appears and the individual emerges, the S.C. of the personality as such arises. In the history of philosophy, S.C. was an active principle and it frequently exhausted the understanding of the practical activity of man (see Fichte, Hegel, Young Hegelians). Moreover, S.C. was frequently regarded as a creative element in relation to the objective world. In reality S.C., being an active principle, can be understood only as a result of man's productive activity in society and as its aspect; it depends on the reflection of the objective world and is determined by it.

Self-Motion, movement which has its source and cause in the moving thing itself. From the very beginning the conception of S.M. was the opposite of "external impulse" as the sole cause of changes in nature. In the history of philosophy the origin and development of the category of S.M. was associated, first, with the question of the "beginning" of the world, the prime cause of world processes and, second, with difficulties in explaining the actual processes of development. Materialists tried to explain movement by forces and properties inherent in nature itself: combination and division of the primary elements (Ionian philosophy), "love" and "hate" (Empedocles), atoms and void (Leucippus

and Democritus). Deduction of change from an ideal transcendental element was characteristic of idealist systems (Plato). The problem of understanding the cause of movement became especially acute with the appearance of the Christian dogma of the creation of the world. To prove the S. M. of the world it was necessary to reveal the source and mechanism of its movement within itself, but theology placed this source outside of it (activity of God). The mechanistic concept of causality (and change) is theoretically (methodologically) untenable because it cannot withstand the idea of the "prime impulse" (Newtonian mechanics) and is incapable of explaining real processes of development. A radical transformation of the method of thinking was required for a scientific explanation of S.M.: dialectics had to come to the aid of materialism. The Spinozian idea of *causa sui* (cause of itself), the Leibniz principle of the monad as the self-moving and self-determining substance, the Kantian ideas of the development of the heavens, earth, and man, the evolution idea in Schelling's philosophy and, lastly, Hegel's idealist dialectics—all were the landmarks in developing the S.M. conception which consists of nothing else but "an exhibition of contradiction" (Hegel). Marxist philosophy, upholding the materialist approach to S.M., emphasises that this category has a dialectical content, is incompatible with a mechanistic understanding of development (simple decrease, increase, repetition) and is inseparably connected with the dialectical conception of development as the unity of opposites.

Self-Realisation, Theory of, an objective idealist ethical theory of the 19th-20th centuries, according to which the moral demand made on man is that he "realise" in his actions his inner, strictly individual Ego; this Ego at the same time is in harmony with the absolute Ego, or the universal spirit, i.e., in essence with God. Thus, this theory actually avoids the problems of human development. In different variants this theory was expounded

by the British objective idealists (Francis Bradley, Bernard Bosanquet, John Muirhead), the American personalists (Mary Calkins, Josiah Royce, William Hocking, Borden Bowne), and others.

Semantic Philosophy, see General Semantics.

Semantics, see Semiotic.

Semblance, the outward manifestation of the essence or, to be more exact, certain aspects of the essence of things as immediately perceived by the senses. The subjective factor in S. lies in the fact that S. gives only an inadequate, distorted expression of the essence of things (refraction observed when an object is immersed in water, apparent movement of the Sun round the Earth, etc.). It is incorrect, however, to treat S. as purely subjective, for it is always in some way connected with objective reality, of which it is a manifestation. Even the subjective factor which distorts reality is often determined by objective factors. The task of cognition is to reduce S. to reality and explain how the latter is manifested in S. (see Essence and Appearance).

Semiotic, a science which engages in the comparative study of sign systems (see Sign), from the simplest signalisation systems to natural languages and formalised languages (q.v.) of science. The main functions of a sign system are: (1) the function of transmitting a communication or expressing sense (see Denotation and Sense); (2) the function of communication, i.e., ensuring understanding by the listeners (readers) of the transmitted communication, and also a motive to action, an emotional influence, etc. The exercise of any of these functions presupposes a definite internal organisation of a sign system, i.e., the presence of different signs and laws of their combination. In conformity with this, three main divisions are singled out: (1) syntactics, or the study of the internal structure of the sign systems regardless of the functions they perform; (2) semantics which studies the sign systems as a means of expressing sense; (3) pragmatics which studies the relation of the sign systems to those

who use them. The biggest role in the development of S. methods is played by a study of systems possessing, on the one hand, sufficiently rich media for expressing sense, and on the other, a sufficiently clearly defined structure. Up to now such systems have been above all formalised languages of mathematics and particularly of mathematical logic. Metalogic (q.v.) is the most developed S. subject. S. studies promote the formalisation of new spheres of science (cf. the recently developing calculi in mathematical linguistics, experiments in formalising certain concepts of pragmatics, the concepts of "verse metre", etc.). The concepts and methods of S. acquire great importance in view of the development of the theory and practice of the rational storing and automatic processing of information; in this sphere S. comes in close contact with cybernetics. The main principles of S. were first formulated by the American logician and mathematician Charles S. Peirce; subsequently they were expounded and systematised by the philosopher Charles Morris (*Foundations of the Theory of Signs*, 1938). Questions of S. were in fact considered as early as the 1920s by Polish logicians of the Lvov-Warsaw school (q.v.).

Seneca, Lucius Annaeus (4 B.C.-65 A.D.), prominent exponent of Roman stoicism, the tutor of Nero who subsequently sentenced him to death. His numerous works and the biggest of them, *Epistolae morales ad Lucilium*, have been preserved in the original. S. adhered to the pantheism (q.v.) of the Greek stoics, i.e., regarded the world as a single material and rational whole and elaborated chiefly moral problems which, when properly solved, enable man to attain calm and undisturbed spirit (see Ataraxia). He sought to link his ethics, individualist in the main, with the tasks of society and the state. The ethics of S. exerted a great influence on the Christian ideology. Engels called S. the uncle of Christianity.

Sensation, the elementary result of the action of the objective world on man's sense-organs (analysers). Diverse

factors of the environment (electromagnetic oscillations, molecules of chemical substances, etc.) stimulate the peripheral part of an analyser, the receptor; the stimulus in the form of discrete impulses is transmitted along the nerve canals to the central part of the analyser, the cerebral cortex, where S. arises. Thus, S. is secondary in relation to material reality. According to the specific character of the external stimuli, Ss. are divided into separate groups: visual, tactile, auditory, gustatory, olfactory, etc. Each group of Ss. possesses specific modality—a sum total of qualities incomparable with the qualities of Ss. of other groups. Thus, colours do not resemble sounds, taste or smells. The most developed Ss. are visual; next come tactile, auditory, gustatory, and olfactory. A feature of the relation existing between the Ss. and the properties of the objects of the material world causing them is that different properties of external objects may correspond to one and the same quality of S. The process of getting to know the objective world begins with S. In this process they perform two functions, first, separate Ss. act as a signal; for example, colour signals the temperature of heated metal. The source of our knowledge of the temperature of a given body is not the colour itself but a correlation between colour and temperature known in advance. The second and most important function of S. is that as part of the image given in perception (q.v.) it conveys connections and relations inherent in the objective world. S., like other forms of sensory contemplation, is the channel through which man is directly connected with the objective world. In his *Materialism and Empirio-Criticism* Lenin criticised the idealist interpretation of S.

Sensationalism, a doctrine in epistemology (q.v.) which considers sensations the sole source of knowledge. If sensations are regarded as a reflection of objective reality, consistent S. under certain conditions leads to materialism (Holbach, Helvétius, Feuerbach). But if sensations are regarded only as subjective, behind which noth-

ing exists or the unknowable thing-in-itself is posited, S. leads to subjective idealism (Berkeley, Hume, Kant, Mach, Avenarius, Bogdanov). Therefore S. by itself is not yet a materialist line in philosophy. Although it played a big part in the development of materialist philosophy, its limitations made it often powerless in struggle against idealism. Sensation can become a necessary side of cognition only given its organic unity with other sides of the cognitive process: practice and abstract thinking (see Knowledge; Theory and Practice; Contemplation; Empiricism; Rationalism).

Separation of Powers, the teaching of the division of powers into legislative, executive, and judicial. Locke (q.v.) was the first to suggest the idea of the S.P.; later it was developed by Montesquieu (q.v.). The teaching of the S.P. served as the ideological foundation of the alliance of the bourgeoisie and the aristocracy and of the limitation of absolutism by concentrating legislative power in the hands of bourgeois representative institutions. In the bourgeois state the S.P. is purely formal; in a number of cases it is used to justify the "strong" presidential, executive power.

Set Theory, a branch of mathematics dealing with one of the main categories of philosophy, logic, and mathematics—the category of the infinite—by exact methods. It was founded by Georg Cantor. The subjects of S.T. are the properties of sets (sum totals, classes, ensembles) which are for the most part infinite. The fundamental principle of the S.T. is the establishment of different "orders" of infinity. The classical S.T. proceeds from the recognition of the applicability of the principles of logic, unquestionable in the sphere of the finite, to the infinite sets. However, as early as the end of the 19th century the development of the S.T. brought to light difficulties, such as paradoxes (q.v.), connected with the application of the laws of formal logic, particularly the law of the excluded middle (q.v.) to the infinite sets. In the polemics that started in connection with this, some impor-

tant epistemological problems of mathematical cognition were formulated: the nature of mathematical concepts, their relation to the real world, the concrete content of the concept of existence in mathematics, etc. In the course of these polemics there arose such trends in philosophy and mathematics as formalism (q.v.), intuitionism (q.v.), logicism (q.v.). Special attention is deserved by the constructive trend in Soviet mathematics. The methods of the S.T. are largely employed in all fields of modern mathematics. They have significance as a matter of principle in the problems of the substantiation of mathematics, particularly for the modern form of the axiomatic method (see Axiom). All the problems of substantiating mathematics by logical means are nothing but problems of substantiation of the S.T. However, efforts to substantiate the S.T. itself encounter difficulties which have not been overcome up to now.

Shelgunov, Nikolai Vasilyevich (1824-91), Russian revolutionary democrat and public figure, follower of Herzen, Belinsky, and Chernyshevsky (qq.v.). As a journalist he wrote on problems of history, politics, and economics; he was also an art critic and populariser of natural scientific knowledge. In his leaflets "To the Young Generation" and "To the Soldiers" (1861), he severely criticised the peasant reform and called for a peasant revolution. He assisted in introducing Marxism into Russia. In his article "The Urban Proletariat in England and France" (1861) he enunciated the fundamental ideas of Engels' book *The Condition of the Working Class in England*, recalling its author as "one of the best and noblest of Germans", to whom "European economic literature owes its best work on the economic life of the English worker". In his social views S. did not reach up to materialism, although he spoke of the role of the masses in history and of the significance of the development of production for social progress. He believed that Russia could pass over to socialism through the peasant commune. He criticised

the doctrine of innate ideas from positions of materialist sensationalism. As an adherent of Chernyshevsky's aesthetic views, S. fought the "art for art's sake" theory. S.'s works—*Usloviya progressa* (*The Conditions of Progress*), 1863, *Zemlya i organicheskaya zhizn* (*The Earth and Organic Life*), 1863, *Ubytochnost neznaniiya* (*The Disadvantage of Ignorance*), 1864, *Pisma o vospitanii* (*Letters on Education*), 1873-74, and others—are devoted to philosophical problems. S. was arrested several times for his attacks against serfdom and its survivals.

Shevchenko, Taras Grigoryevich (1814-61), Ukrainian poet, artist, thinker, fighter against tsarism and serfdom, founder of the revolutionary democratic trend in the Ukrainian history of social thought. Born in a family of serfs, he was ransomed in 1838. Graduating from the Academy of Arts in 1845, he joined the following year a secret political organisation in Kiev. He was connected with the Petrashevsky (q.v.) group. In 1847, he was arrested, forced to serve in the army, and exiled. At the end of his exile (1857) he was drawn close to Chernyshevsky, Dobrolyubov (qq.v.) and other staff members of the journal *Sovremennik*, who exerted a good influence upon him. His poetical works *The Dream*, *Caucasus*, *The Last Will*, etc., and his activities were directed against the "gang of self-seeking landowners", and the "crowned hangman", meaning the tsar, and against the apologists for serfdom. Exposing the oppression of Russian landowners and the tsar, S. came out against the Ukrainian bourgeois nationalists, stood for the friendship of the Russian and Ukrainian peoples and fought for the development of the Ukrainian culture and language. S.'s world outlook was materialistic, since he held that spiritual power was unthinkable without matter; but mistakenly identifying materialism with its vulgar form, he did not call himself a materialist. Stressing the inevitability of the downfall of serfdom, S. considered the masses to be the decisive force in social development. He severely criticised both religion

and the church. In aesthetics he stood on the side of realism, holding nature to be the source of the beautiful. He held that art must be true to life, in close contact with the people, and be a vehicle of progressive ideas. S.'s *Dnevnik (Diary)* vividly reflects these views. He greatly influenced the development of the Ukrainian revolutionary social thought and culture (I. Franko, M. Kotsyubinsky, Lesya Ukrainka, etc.).

Shintoism (Jap. the way of the gods), a religion which emerged in Japan under the primitive-communal system and underwent considerable changes in the course of its development. The term *Shinto* first came into use in the 18th century to distinguish S. from Buddhism, from which many of its rites and conceptions were borrowed. In 1868, S. was proclaimed the state religion, which it remained formally until 1946; actually it began to lose its significance at the end of the 19th century. The chief element in S. is worship of numerous *kami* (spirits), which were originally personified by animals, plants, things, natural phenomena, and the souls of the ancestors. According to S., contact between the gods and people is effected through the emperor (Mikado), the descendant of Amaterasu, the Sun goddess, and her representative on earth. The Mikado is considered to be the forefather of all the Japanese and is honoured as a god. Following Japan's defeat in the 2nd World War the divine origin of the Mikado began to be denied.

Shulyatikovism, synonym for crude simplification and vulgarisation of Marxism, which reduces the complicated process of the development of philosophy, art, literature, natural science in a class society to the simple expression of the "class interest". As a means of criticism of vulgar sociologists (Fritsche, Pereverzev, and others) the term "Shulyatikovism" appeared in the Soviet literature of the 20s and 30s. The term is derived from the name of V. Shulyatkov (1872-1912), a Russian Social-Democrat, literary critic, whose book, *Opravdaniye kapitalisma v zapadnoevropeiskoi*

filosofii (The Justification of Capitalism in West European Philosophy), 1908, is an example of such vulgarisation. Proceeding from the philosophy of Bogdanov (q.v.), S. tries to show that all philosophical systems are but the theoretical justification of bourgeois interest, and, for this reason, are alien to the proletariat, and that Marxism is in no way connected with them. S. denied the existence of any element of objective truth in the philosophical views of Descartes, Spinoza, the French materialists, Hegel, and other pre-Marxian philosophers, since they give a "picture of the class structure of society". Characteristic of S. are direct deduction of ideological phenomena from the forms of the organisation of production, denial of the relative independence of science, literature, and philosophy, the desire to find a vulgarly understood "class equivalent" for every philosophical category or artistic image.

Sign, a concept of philosophy, logic, linguistics, psychology and other sciences dealing with an analysis of human activity. Most often S. is understood as a sensorily perceptible object, action or event which indicates, denotes or represents another object, event, action, subjective formation, etc. This description covers an essential feature of S., but cannot serve as its definition, because it considers only one of the relations or connections (namely, the relation of designation), which, taken all together, constitute a S. Attempts to define the concept S. encounter considerable difficulties, because S. is a complicated structural formation, the methods for the study of which have not yet been sufficiently elaborated. A feature in the history of the analysis of S. is a desire to solve the problem by studying its separate parts. Attention has been concentrated on examination of the relation of designation (in logic, and in the 19th-20th centuries in logical semantics); the analysis of the relationships within S. systems considered independently of the content they express (in logical syntax); the description of relationships and historical changes in the

meanings of S. and S. systems within the framework of man's practical work and psychical activity (in epistemological concepts and psychology and, lately, in pragmatics as part of semiotic, q.v.). Awareness of the limitations of such approaches to the analysis of S. made feel the need for its synthetic description (for example, within the bounds of semiotic). But the methods of synthesis in the conceptions put forward by C.S. Peirce, q.v., K. Bühler, C. Morris, q.v., were still undeveloped, chiefly because human activity was limited to individual activity, disregarding social productive activity. Dialectical materialism has furnished the methodological principles for the study of S. and S. systems and provided a scientific understanding of the structure and functions of socio-productive activity. Language (q.v.) holds a special place among the S. systems.

Signal Systems, the conditioned-reflex mechanism for reflecting reality. The main postulates of the doctrine of S.S. (formulated by the Russian physiologist Ivan Pavlov) are as follows. In the higher animals, including man, the subcortex is the first region of intricate relationships of the organism and the environment. The subcortex closest to the cerebral hemispheres has its intricate unconditioned reflexes caused by a few unconditioned, i.e., inborn external agents. Hence, limited orientation in the environment. The second region is the cerebral hemispheres, without the frontal lobes. Here a new principle of activity originates by means of conditioned connection: signalling of the few unconditioned agents by the innumerable mass of other agents which are analysed and synthesised and make possible greater orientation in the same environment. This is the only signal system in the animal organism and the first signal system in man. He has another (second) signal system located in the frontal lobes of the brain, signalling by word, by speech. This introduces a new principle of nervous activity—abstraction and generalisation of countless signals of the first system, followed by an analysis

and synthesis of the generalised signals, a principle which makes for unlimited orientation in the external world.

Sigwart, Christoph (1830-1904), German logician, professor of philosophy at Tübingen University (1865-1903), subjective idealist, Neo-Kantian. Known for his *Logic* (1873-78). According to S., logic is based on psychology and is the science of correct thinking. The criterion of truth, in his opinion, is necessity and universal significance, for which there is no basis whatsoever in the objective world. Evidence, simply postulated with a reference to faith, is considered by S. to be the basis of necessary thinking. He elaborated in detail the theory of inference.

Simultaneity, coincidence in time of events separated in space. The classical picture of the world contained the concept of absolute time, single flow of time proceeding uniformly everywhere and consisting of instants, each of which ensues throughout space. The theory of relativity (q.v.) dislodged from the scientific picture of the world the absolute motion ascribed to ether and rejected the concept of absolute S. Identification of the moments of time of two events has meaning when we examine events within the bounds of a definite frame of reference. Events simultaneous in one frame of reference will be non-simultaneous in others.

Single Individual (Ger. *der Einzelne*), one of the central categories in the ethics of existentialism (q.v.). This concept expresses a distorted idea of man considered outside social relations. Existentialists regard "singleness" and "inimitability" as the main features of man. The peculiarity or "individuality" of the S.I. is a source of morality and the criterion of ethical evaluation. Existentialists utilise the category of S.I. to justify individualism (q.v.) and egoism (q.v.).

Skovoroda, Grigory Savvich (1722-94), a Ukrainian enlightener, democrat, philosopher and poet. He was educated at the Kiev-Mogilyansky clerical academy. Renouncing a clerical career, he chose the life of a wandering

preacher and philosopher. His outlook was influenced by the works of Feofan Prokopovich and Lomonosov (q.v.), his theological education having imparted to his views a contradictory character. In solving the fundamental question of philosophy, he evinced vacillation between materialism and idealism, but his standpoint on many questions was materialistic. Following Lomonosov, he came to the conclusion that matter is eternal and infinite, that nature is ruled by law-governed connections and is its own cause (*Druzhesky razgovor o dushevnom mire* [*Friendly Conversation on the Spiritual World*], 1775). Dualistic vacillations led S. to create the theory of "three worlds" embracing all that exists: the "macrocosm", or nature, the "microcosm", or man, and the "world of symbols", the Bible. Each of these he considered as comprising two natures, the outward, or material, and the inner, or spiritual. In an attempt to overcome the dualism (q.v.) of his teaching, S. tried to eliminate the contradiction between the material and spiritual principles by combining the concepts "God" and "nature", considering them as identical, as is typical of pantheism (q.v.). He acknowledged the boundlessness of human knowledge, but associated the study of nature with the necessity for self-analysis and recognition of the "world of symbols". S. sharply criticised the official religion for its dogmatism and scholasticism and propagated the heliocentric teaching of Copernicus which was inimical to the church (*Potop Zmiin* [*The Deluge of Snakes*], 1791, and other works). He ridiculed the vices and parasitism of the clergy. His moral preachings were couched in a religious form and were associated with the search for a "religion of love and virtue". He defended the interests of the people, called for an end to lawlessness and to ignorance among the working people, but his solution of social problems was utopian, inasmuch as he considered the moral principle to be the main factor in setting up a new society. His sociological views reflected the weakness and li-

mitations of the then peasant anti-feudal movement. S.'s works were not published during his life, but were widely circulated in manuscript copies.

Slave-Owning System, the first antagonistic class society, arising on the ruins of the primitive-communal system (q.v.). Slavery existed in some degree and in one form or another in all countries. It reached its highest form of development in ancient Greece and ancient Rome, where slaves became the chief productive force of society. Under the S.S. the slave-owners made up the ruling class. It fell into different social groups: the big landowners, the owners of big workshops, the merchants, the money-lenders. The second main class was composed of the numerous exploited slaves. Besides these two main classes in the S.S. there were the intermediate strata of the population: small proprietors, who lived by their own labour (the handicraftsmen and peasants), and the lumpen-proletariat, composed of ruined handicraftsmen and peasants. Private ownership of the means of production and of the slaves by the slave-owners constituted the basis of the dominant production relations of the S.S. Exploitation of the slaves, based upon extra-economic compulsion, assumed monstrous proportions. To counter such exploitation and oppression the slaves showed a low productivity of labour and destroyed instruments of production. The surplus product created by every slave was insignificant. But the whole mass of surplus product, owing to the large number of slaves exploited and the extreme cheapness of their labour, was relatively great. On this basis some social and technical progress, development of science, art, and philosophy became possible. The state emerged and developed with the rise of the S.S. The whole history of slavery is the history of class struggle. The class struggle reaches its highest point with the decay of the S. S. Slave uprisings are interwoven with the struggle of the ruined small peasants against the big landowners. In Rome the collapse of the S.S.

was precipitated by invasion. The slave-owning form of exploitation was replaced by feudal exploitation. The slave-owning mode of production did not completely disappear with the collapse of the S.S. It continued to exist in one degree or another in the period of feudalism (q.v.) and capitalism (.v.).

Slavophiles, representatives of a conservative political and idealist trend in Russian social thought which strived to justify Russia's need for a special path of development as compared with that of Western Europe. In its objective purport it was a reactionary utopian programme for the transition of the Russian nobility to the bourgeois path of development with maximum preservation of their privileges. This programme was evolved at a time when the necessity for a departure from the old forms of exploitation and an adaptation of the ruling class to the new historic conditions had become obvious even to the most reactionary figures, including the Tsar, Alexander II. The founders of Slavophilism were I. Kireyevsky, and A. Khomyakov; its members included K. and I. Aksakov, Y. Samarin and P. Kireyevsky. The movement got its first literary expression in 1839, its ideas were developed in the forties and fifties and were subsequently adopted by the pan-Slavists and the Russian intellectuals who emigrated from Russia after the October Revolution. Defending their main idea, the S. regarded orthodoxy, community life, which they idealised, the "submission" of the Russian people and the "absence" in its history of any class divisions as "peculiarities" of Russian history. The S. justified this conception sociologically, claiming that the religion of a people determines the character of its thinking and is, therefore, the foundation of its social life. Since the S. considered orthodoxy the true religion, they held that only those peoples who professed it, first and foremost the Russians, could have any claim to progress, while other peoples could do so only to the extent to which they accepted orthodox civilisation. The S. sought a philosophical justifica-

tion of their teachings in a religious and mystic system, in the voluntaristic ontology of Khomyakov and the intuitionist epistemology of Kireyevsky.

Social Being and Social Consciousness, two interconnected and interacting aspects, material and spiritual, of society's life. Marxism understands S.B. as the material life of society, the production of material wealth and the relations (in class society, class relations) people enter in the process of production. S.C. is the views, concepts, ideas, the political, legal, aesthetic, ethical, and other theories, philosophy, morality, religion, and other forms of consciousness. The relationship of S.B. and S.C. is part of the fundamental question of philosophy (q.v.) as applied to society. Prior to Marxism the view prevailed in philosophy that consciousness plays a determining role in the life of society. Actually, however, consciousness is a reflection of the people's S.B. in their spiritual life. The first formulation of this proposition, which lays a solid scientific foundation under social science, was given by Marx and Engels. In *The German Ideology* they said: "Men, developing their material production and their material intercourse [i.e., relations of production.—*Ed.*], alter, along with this, their real existence, their thinking and the products of their thinking. Life is not determined by consciousness, but consciousness by life". (*The German Ideology*, p. 38.) Marxism explained this fact of decisive importance for understanding the life of people and also demonstrated that the relationship of S.B. and S.C. is not simple but complex and fluid and that it grows more complex simultaneously with social life. At the initial stages of history, S.C. was formed as a direct product of the material relations of people; subsequently, with the division of society into classes and the appearance of politics, law, and political struggle, S.B. acted in a determining way on the minds of people through a mass of intermediate links like the state and state system, legal and political relations, etc., which also exerted a great influence on S.C. In these

conditions the direct deduction of S.C. from material relations leads to vulgarisation and simplification. At the same time Marxism demands understanding of, and consideration for, the great role of S.C. and its influence on the development of S.B. itself. The absolute counterposing of these two sides of the people's life holds true only within the framework of the fundamental question of what is primary and what is secondary. Outside of it, such absolute contrasting is meaningless. In certain periods the role of S.C. can and does become decisive, although ultimately it is determined and conditioned by S.B. The diverse forms of S.C., for all their dependence on S.B., possess relative independence. The latter is expressed in the fact that changes in the material life of society never create new products of S.C., because spiritual concepts—scientific, philosophical, artistic, and other ideas—depend on the data accumulated earlier and are also subject to a definite intrinsic logic of development. Moreover, changes in material relations cannot cause instantaneous automatic changes of the S.C. because people's spiritual concepts possess a considerable power of inertia, and only struggle between new and old concepts leads to the victory of those which are called into being by the main requirements of changed material life, by new being. The Marxist doctrine of S.B. and S.C. is of great methodological importance; it helps to formulate problems of social life scientifically and to solve them in the course of practical activity.

Social Consciousness, Forms of, different forms of reflection in the minds of people of the objective world and social being in the course of their practical activity. Social consciousness exists and is displayed in the forms of political ideology, legal conceptions, morality, religion, science, art, and philosophy. The diversity of F.S.C. is determined by the wealth and diversity of the objective world itself—of nature and society. Different forms of consciousness reflect diverse spheres and aspects of reality (for example, political ideas reflect relations between classes,

nations, and states and serve as a basis for political programmes realised in the action of classes and social groups; the sciences study the concrete laws of nature and society, etc.). Each form of consciousness has its own object of reflection and is also marked by a specific form of reflection (for example, scientific concepts, moral rules, artistic images, religious dogmas). The wealth and complexity of the objective world merely creates the possibility for the various F.S.C. to appear. This possibility is realised on the basis of a definite social requirement. Science arises only when the simple accumulation of experience and empirical knowledge becomes insufficient for the development of social production; political and legal views and ideas arise with the appearance of classes and the state to justify and consolidate the relations of domination and subordination, etc. In each socio-economic formation (q.v.) all forms of consciousness are interconnected and in their entirety constitute the spiritual life of the given society. The specific nature of a social requirement giving rise to one F.S.C. or another also determines the historically concrete role which they play in the life and development of society. The communist formation, for example, comes into being and develops on the basis of the knowledge and purposeful application of objective laws. That is why under socialism, the lower phase of communism, religion begins to wither away; at the higher phase religious survivals will be fully eliminated. At the same time essential changes will occur in the spiritual life of society as a whole. With the victory of communism the need for political and legal ideology will disappear and they will wither away. On the other hand, such F.S.C. as morality, science, art and philosophy will flourish. They will not only serve various social needs, but will also mould the spiritual countenance of each individual, become a requisite for his all-round development, for active creative endeavour, the display of the entire wealth of individual capabilities, inclinations and habits, for the full-

blooded life of each man (see Social Being and Social Consciousness).

Social Contract, Theory of, an idealist doctrine of the origin of the state and law as a result of a contract consciously concluded between people. From the viewpoint of this theory, complete anarchy and "war of all against all" or, according to some views, idyllic freedom, precedes society and the state. The general feature of the "natural state" is unrestricted personal freedom which people consciously forgo in favour of the state to ensure their safety, private property, and other personal rights. The first concepts of the origin of state by contract arose in antiquity. (Chinese philosopher of the 5th century B.C. Mo Tzû, sophists, q.v., Socrates, q.v., Epicurus, q.v.) The T.S.C. was most developed in the 17th-18th centuries (see Hobbes, Gassendi, Spinoza, Locke, Rousseau) in view of the struggle of the bourgeoisie against feudalism and the absolute monarchy. It was the ideological justification of the bourgeoisie's claim to political power. The bourgeois limitations of this theory were expressed chiefly in proclaiming the eternity of the "natural" law of private property and justifying the economic inequality of people. This theory was also shared by the enlighteners in Russia (see Radishchev), the United States (Thomas Jefferson), and other countries.

Social-Darwinism, a doctrine which regards struggle for existence and natural selection as the prime mover of social progress. It originated from the application of Darwin's (q.v.) biological theory to sociology by Friedrich Lange, Otto Ammon and Benjamin Kidd. It was current in sociology in the late 19th century. Certain Social-Darwinists (Elmer Pendell, Francis Montagu) claim that natural selection and struggle for existence continue to operate in human society to this day. Others hold that natural selection operated in society in its pure form a mere 100 years ago, but that under the impact of progress in science and technology the struggle for existence subsided and a situation emerged in which not only the fittest could survive but

also those who in earlier conditions were doomed to extinction. The exponents of such theories saw the root of all social evil in the intensified propagation of such inferior people. S.D. is used extensively to justify the allegedly "eternal" and "inviolable" nature of the capitalist system and attacks on the working people's democratic rights, to extol the jungle law reigning in capitalist society, to depict millionaires as heroes and supermen, and to classify workers and working people in general as "second-rate" people.

Social Estates, a form of class division typical of the slave and feudal societies. S.E. were social groups distinguished by their status in society and the legal place they held in the state machinery. Affiliation to S.E. was hereditary. In feudal Russia, only the nobles and gentry belonged to the nobility. They were freed from duties, not subject to corporal punishment, and could be tried by their own court of law, the court of the landed nobility. They alone possessed the right to own manors and serfs. The clergy were also a privileged estate. The townsmen (chiefly petty artisans and tradesmen) and peasants made up the lower S.E., subject to duties. The remnants of the division of society into estates survive even now in many of the capitalist countries, particularly where the outdated feudal relations have not been entirely eliminated. To retain its class domination, the contemporary bourgeoisie is prepared to sustain estate prejudices (typical in this respect are the nazi theories of the corporative state, suggesting the restoration of social estates, and also the reactionary "elite" theories recommending the transfer of power to the select top of society). In Russia, estate divisions were abolished in 1917.

Social Psychology, the totality of feelings, emotions, habits, ideas, illusions, volitional trends and other characteristics common to people because of the common socio-economic conditions in which they live. The historically developed forms of S.P. include S.P. of classes, nations, social or professional groups, etc. Typical of the

psychology of the working class, for example, is its sense of collectivism and class solidarity, whereas the psychology of the bourgeoisie is characterised by individualism and money-making. Under socialism the psychology of people is typified by a sense of collectivism, public duty, a creative attitude to labour, internationalism, a keen sense of dignity and confidence in the future. Although the building of socialism in the U.S.S.R. has brought about the moral, political and ideological unity of society, there are still in social production and private life survivals of the bourgeois psychology of individualism, such as greed, parasitism, religious superstition, etc. One of the reasons responsible for these survivals is that changes in human sentiments and habits take place more slowly than in ideology. Along with the material conditions of social life, the latter is an important factor determining the trend of development of S.P. The construction of communism, obliteration of the distinctions between town and country and between mental and physical labour, will result in the formation of a basically common S.P. of the members of communist society. The term S.P. also applies to that department of science which deals with social psychology. The main task assigned by Marxism-Leninism to S.P. is to analyse the socio-economic nature of the objective factors, the laws governing the formation of social sentiments, moods and incentives of activity, and other mental processes. The mentality of Soviet people was analysed in the past (e.g., by A.S. Makarenko) and is being analysed today in studies of their social behaviour. These studies serve the communist education (q.v.) of working people. S.P. became a special branch of sociology in the late 1890s (Gabriel Tarde, Gustave Le Bon, William McDougall, Edward Ross). Among the capitalist countries, the USA is the one where S.P. is making especially rapid progress. Its main trends are behaviourism (Emery S. Bogardus and S. Stransfeld, the adherents of E.L. Thorndike, John B. Watson and George H. Mead) and psychoanalysis (E. Jones and B.

Trotter, the adherents of Sigmund Freud and Alfred Adler). Despite the differences in views held by the exponents of these schools, they have in common general defects of idealism and metaphysics; they ignore the determinative role of production relations in society and recognise the psychic factors as primary in social development; they identify S.P. with sociology and use unscientific methods of selecting and processing the collected information.

Social Relations, relations between people established in the course of their joint practical and spiritual activity; these are divided into material and ideological. The production of material wealth forms the basis for the existence and development of human society. That is why the relations of production, economic relations, are the most important of all the S.R. The relations of production (q.v.) determine the nature of all the other S.R.—political, legal, etc. Understanding of the dependence of all S.R. on the relations of production made it possible for the first time to explain the course of human history.

Socialism, a social system based on public ownership of the means of production; comes into being as a result of the abolition of the capitalist mode of production and the establishment of the dictatorship of the proletariat (q.v.). S. builds on two forms of ownership: state (public) ownership and co-operative and collective ownership. Public ownership presupposes absence of exploiter classes and of exploitation of man by man, and existence of relations of comradesly co-operation and mutual aid among workers engaged in production. Under S. there is no social oppression and inequality of nationalities, and no antithesis between town and country, between mental and physical labour, although the essential distinctions between town and country, and between mental and physical labour, continue to exist. Socialist society consists of two friendly classes—the working class and the collective-farm peasantry—and a social stratum, the intelligentsia (q.v.). The distinc-

tions between the two classes and also between them and the intelligentsia are being gradually obliterated. A prominent feature of the relations between all these social groups is their socio-political and ideological unity, while the relations between socialist nations are marked by friendship, co-operation and fraternal mutual assistance. By virtue of public ownership, S. develops its entire economy on a planned, proportionate basis, a practice that is impossible under capitalism. The development and improvement of social production is aimed at satisfying the people's material and cultural requirements to an ever fuller degree. Life in a socialist society is grounded on broad democracy, implying the drawing of all working people into active administration of the state. Socialist democracy ensures social rights—the rights to labour, rest and leisure, free education and medical services, to security in old age, equal rights for men and women, and citizens of all races and nationalities—and political liberties—freedom of speech, freedom of the press, freedom of assembly, and the right to elect and be elected. S. differs from the higher phase of communism by the lesser degree of maturity of all the aspects of social life. Under S. the productive forces are not yet developed enough to secure an abundance of products and labour is not yet a prime vital necessity for all members of society. For this reason, material wealth is distributed according to the principle, "From each according to his ability, to each according to his work". The natural outcome of the development of S. is communism. In the Soviet Union, S. has triumphed fully and for all time, and the country has embarked on the full-scale building of communism. At present, S. is being built in a number of countries in Europe, Asia and America. The world socialist system embraces over one-third of the world's population.

Socialism and Communism, the two phases of the communist socio-economic formation, socialism (q.v.) being its first, or lower, phase, and communism its higher phase. They differ in

degree of economic maturity. Already under socialism there is no private ownership of the means of production, and its production relations are based not on domination and subjugation, but on comradesly co-operation and mutual assistance of people free from exploitation. In this respect there is no difference between socialism and communism. Under socialism, public ownership of the means of production exists in two forms: as state (public) property and as collective-farm and co-operative property (q.v.). Under communism, however, there will be one property of the whole people. Under socialism there are still distinctions between the working class and the collective-farm peasantry. Once the building of communism is completed, these distinctions will disappear. The same will be true of the distinctions between the working class and the peasants, on the one hand, and the intelligentsia, on the other. All these distinctions are conditioned in the final count by the level of development of the productive forces. It is this factor that determines the differences in the forms of distribution, which under socialism are governed by the principle: "To each according to the quantity and quality of labour done", and which under communism are governed by the principle: "To each according to his needs". Under communism, due to the growth of the productive forces, direct distribution of wealth will take the place of commodity and money relations still existing under socialism. Changes in the economy are accompanied by changes in the superstructure (see Basis and Superstructure). Political and legal institutions and political and legal ideology will wither away at a particular stage of communist development. All people will observe single, generally recognised rules of communist living, for these will meet their inner requirements and customs. The state will wither away, and the Party as well will have fulfilled its historical role. Communism will see an ever growing rapprochement between nations in all respects up to the point of the complete disappearance of any

distinctions between them. Communism will be a higher form of social organisation, which will function on the basis of greatly developed productive forces, science, technology, culture and communist public self-administration. The Programme of the CPSU says: "Communism is a classless social system with one form of public ownership of the means of production and full social equality of all members of society; under it, the all-round development of people will be accompanied by the growth of the productive forces through continuous progress in science and technology; all the springs of co-operative wealth will flow more abundantly, and the great principle, 'From each according to his ability, to each according to his needs', will be implemented. Communism is a highly organised society of free, socially conscious working people, in which public self-administration will be established, a society in which labour for the good of society will become the prime vital requirement of everyone, a necessity recognised by one and all, and the ability of each person will be employed to the greatest benefit of the people." (*The Road to Communism*, p. 509.) The gradual development of socialism into communism involves a series of profound qualitative changes centering on three main problems: the creation of the material and technical basis of communism (the decisive link in the chain of all social-economic tasks), the promotion of communist social relations and the moulding of the new man. The Programme of the CPSU scientifically outlines the period during which a communist society will in the main be built in the Soviet Union. The creation of the material and technical basis of communism by 1980 will ensure an abundance of material and cultural values for the whole population, and Soviet society will draw closer to the point of introducing the principle of distribution according to the needs of its members. Social relations will develop systematically: class distinction will be the first to vanish, followed after 1980 by the distinctions between mental and

physical labour and subsequently by national distinctions, including language distinctions. Another specific feature of communist construction will be the moulding of the new man, an individual developed comprehensively and harmoniously, combining spiritual wealth, moral purity and perfect physique. Communism implies harmonious relations between the individual and society.

Socialism, Christian, a doctrine which seeks to impart a socialist tinge to the Christian religion, to picture Christianity (q.v.) as the champion of the working people's interests and a means of deliverance from all social evils. C.S. originated in the 1830s and 1840s as a variety of feudal socialism, reflecting the hostile attitude of the outgoing feudal classes to capitalism. The aim of C.S. was to fight against the revolutionary movement and reconcile the antagonistic classes. In our days C.S. looks for a "third line" differing from both capitalism and communism; actually, its ideal "Christian democracy" does not go beyond the bounds of bourgeois social relations. C.S. is closely connected with reformism (q.v.), and it seeks to split the ranks of the working class.

Socialism, Fabian, a reformist trend in Britain which arose as an antipode to scientific socialism. Its name is an allusion to the Roman army leader Fabius Cunctator (Procrastinator). The Fabian Society was organised in Britain in 1884, and in 1900 it entered the Labour Party as a literary-publicist group. F.S. was represented by Beatrice and Sidney Webb, Morgan Phillips, Clement Attlee, Herbert Morrison, and others. Officially, F.S. denies any connection with philosophy, but many of its proponents support religion, adhere in their views of history to the doctrine of the decisive role of ideas in society, and deny the class struggle. F.S., according to Lenin's definition, "is the most consummate expression of opportunism and of Liberal-labour policy". (Vol. 21, p. 260.)

Socialism of the Chair, an ironical name given to a group of German liberal professors and politicians, mem-

bers of the socio-ethical school which in the second half of the 19th century was the first to "prove" theoretically that capitalism would peacefully develop into socialism. Following the teaching of the historical school in political economy, the Socialists of the Chair held that political economy must go beyond the bounds of studying economic phenomena in the narrow sense and merge with the other social sciences. They held that the state could regulate economic relations. S.C. was a peculiar reaction to the spread of the working-class movement and it expressed the desire of the bourgeoisie to retard the growth of the proletariat's class consciousness. In 1872, soon after the suppression of the Paris Commune, the Socialists of the Chair organised a Socio-Political Union which advocated the need for social reforms and state intervention in economic relations. Lorenz Stein, Adolf Wagner, Gustav Schmoller, Lujo Brentano, and Werner Sombart (q.v.) were among the proponents of S.C.

Socialism, Scientific, see Communism, Scientific.

Socialism, Utopian, a teaching on society based on common property, obligatory labour of all members, and equal distribution of products. The term "utopia" (from Gk., literally a non-existent place) as a designation of an ideal society was first used by Thomas More and was the name he gave to an imaginary island on which an ideal society was set up. Subsequently, this term was applied in describing imaginary and mainly impracticable social systems. The utopian socialists, who criticised the existing system based on private property, painted pictures of the ideal future society and set out to prove theoretically the need for public ownership, voiced a number of brilliant ideas and conjectures. That is why U.S. (together with English political economy and German classical philosophy) is one of the ideological sources of scientific socialism. Condemnation of private property and praise of common ownership can be found in the works of some of ancient Greeks and Romans, the medieval "heretics",

in the programmes of some peasant uprisings in the epoch of feudalism, and in the views of peasant ideologists. That was a natural reaction to the inequality and exploitation in antagonistic societies. As capitalism developed, U.S. became more complex as a theory and branched out, forming various schools and trends. The systematic development of U.S. began in the period of capitalism's birth, the Renaissance and Reformation—Houska in Bohemia, Münzer (q.v.) in Germany, More (q.v.) in England, Campanella (q.v.) in Italy, and others. It was further developed in the period of bourgeois revolutions in Europe, being at that time the ideology of the proletariat's predecessors (see Melier, Mabley, Morelly, and Babouvism in France, Lilleburn and Winstanley in England). U.S. reached its apex during the rapid development of capitalism, when the illusions of the ideologists of bourgeois revolutions vanished and the contradictions of capitalist society became increasingly apparent (St. Simon and Fourier, qq.v., in France and Owen, q.v., in England). No utopian socialist, however, succeeded in attaining a materialist understanding of history or discovering the real driving forces of society and its future, socialist transformation. Even St. Simon, who came closest of all to the correct understanding of the role of property and classes in the progressive development of history, maintained that the progress of scientific knowledge, morality, and religion was the basis of social development. Besides this, there was a lack of understanding of the real ways for transforming the existing social relations, renunciation of revolution and naive faith that the existing order could be changed by spreading socialist ideas. According to Marx, only the development of the productive forces, which make a revolution in the mode of production inevitable, and the emergence of an industrial proletariat, sufficiently schooled and organised by the development of capitalist society itself, create the historical possibility of converting socialism from an utopia to science. Marx and Engels translated this possibi-

lity into reality by scientifically proving the inevitability of the transition to communism and discovering the force capable of effecting this transition, the proletariat, and by creating the doctrine of socialist revolution (q.v.) and the dictatorship of the proletariat (q.v.) as the instrument for applying the socialist ideals in life. Marxism critically re-fashioned and assimilated everything valuable in U.S. With the rise of Marxism U.S. increasingly became a factor impeding the working-class and socialist movement. In individual countries, U.S., merging with the revolutionary democratic ideology, played a progressive part (Russian revolutionary democrats, Narodniks in the 1870s, and others) even after the development of Marxism.

Socialist Emulation, a social phenomenon expressing the creative initiative of the working people aimed at furthering socialist production in every way possible. S.E. is based on socialist relations of production. Being entirely different from capitalist competition, which is a means of exploiting the working people, S.E. is a form of conscious and free creativity on the part of the people and an expression of their talents and abilities. Socialism, which abolishes exploitation and transfers political power to the working class, provides great opportunities for large-scale emulation for the first time in history. S.E. has its source in the radical change in the attitude to labour, which occurs for the first time in the history of society after labour is freed and becomes labour for oneself, for society. Lenin wrote that communism begins where ordinary workers display concern for the welfare of the whole of society. As a form of socialist organisation of labour, S.E. is based on friendship, mutual assistance and collectivism. The characteristic features and indispensable conditions of S.E. are as follows: publicity of achievements in production scored by individual enterprises and workers, mutual assistance among the workers, the advancement of those who are lagging behind to the level of the foremost, broad popularisation of advanced

experience, etc. S.E. plays an enormous role in increasing labour productivity, improving the workers' skill and developing new technology. The socialist principle of remuneration for labour done serves to combine public and personal interests in S.E. S.E. stimulates criticism and self-criticism (q.v.), helps improve the organisation of production, dissemination of experience and enlistment of working people in management of production. It aims at inculcating in people the communist attitude to labour. By improving the economic relations of socialism and developing socialist democracy, S.E. promotes the formation of communist social relations. Lenin emphasised the organisation of emulation as an important task of the state in his works: *How To Organise Emulation?*, *The Immediate Tasks of the Soviet Government*, and *A Great Beginning*. S.E. has assumed a variety of forms, including communist subbotniks and the Stakhanov movement. Today, the main form of S.E. is the movement for communist labour under the slogan: "Learn to live and work in a communist way."

Socialist State, the state formed by socialist society, the political part of the superstructure that develops on economic basis of socialism. The S.S. is a new type of state succeeding the bourgeois state as a result of socialist revolution (q.v.). Creation of the socialist superstructure embraces the period of transition from capitalism to socialism. In this period, the state takes the form of the dictatorship of the proletariat (q.v.). It is socialist in its aims and tasks, because it serves as a means of building socialism. As socialist society progresses, the functions of the S.S. change accordingly. With the abolition of the exploiting classes, the function of suppressing their resistance disappears, while the main functions of the S.S.—economic organisation, education and cultural development—are exercised to a greater extent. After the world socialist system (q.v.) was formed, the S.S. acquired a new external function, that of promoting fraternal co-operation with other socialist countries, in addition

to the old functions of fighting for world peace and defending the socialist country. With the complete and final victory of socialism and the entry of Soviet society into the period of full-scale communist construction, the state of proletarian dictatorship turns into a state of the whole people (q.v.), an organ expressing the will of the entire people. The S.S. is an instrument for strengthening socialism and gradually developing socialist society into communist society. The withering away of the state implies the gradual development of the socialist state and the entire political organisation of socialist society into communist public self-administration (q.v.). The construction of a developed communist society and the victory and consolidation of socialism on a world scale are indispensable for the complete withering away of the state.

Society, Organic Theory of, an unscientific theory which likens human society to a biological organism and, on this basis, considers the capitalist system "natural" and immutable. Spencer was the father of this theory. After him this theory was expounded by the German sociologist Schäffle, who compared various social groups in a class society to organs of the human body. This theory is supported by contemporary American sociologists Bogardus and Parsons.

Socio-Economic Formation, a historical type of society based on a definite mode of production (q.v.), and appearing as a stage in the progressive development of mankind from the primitive-communal system (q.v.) through the slave-owning system (q.v.), feudalism (q.v.), and capitalism (q.v.) to the communist formation (see Socialism and Communism). The concept of S.E.F. was first elaborated by Marxism and is the cornerstone of the materialist understanding of history. It makes it possible, first, to differentiate one period of history from another and, instead of arguments about "society in general", to study historical events within the bounds of definite formations; second, to group the systems in different countries on the same level

of production (e.g., in capitalist Britain, France, West Germany, and the United States) and to reveal the features common to these countries and, hence, to utilise in studies the general scientific criterion of repetition, whose application to social science the subjectivists deny; third, in contrast to eclectic theories which regard society as a mechanical totality of social phenomena (the family, the state, the church, etc.) and the historical process resulting from the influence of diverse factors (natural conditions and education, development of trade and birth of a genius, etc.), the concept of S.E.F. makes it possible to examine human society in each period of its development as a single "social organism" incorporating all social phenomena in their organic unity and interaction on the basis of the mode of production. The productive forces (q.v.) make up the material and technical basis of society; the relations of production (q.v.), its economic structure or basis. The ideas which arise on this basis, the ideological relations and various organisations and institutions form the superstructure of society (see Basis and Superstructure); lastly, the language, the family, and the historical communities of people (see Tribe, Nationality, Nation), etc., form specific social phenomena which are related neither to the basis nor to the superstructure but are essentially important for understanding the development of a S.E.F. Each formation has its particular laws of emergence and development. At the same time, general laws operating in all formations bind them into a single process of world history. Capitalist society is the last formation based on the antagonism between classes. It completes the pre-history of mankind. The communist formation which brings peace, labour, freedom, equality, and happiness for all people on earth, for the first time in history provides conditions for the boundless development of mankind based on the accelerated growth of the productive forces. The communist formation begins the true history of mankind.

Sociology, the science of society and

the laws governing its development. The inception of sociological doctrines goes back to remote antiquity. Mo-Tzü, Democritus, Plato, Aristotle, Epicurus, and Lucretius (qq.v.) attempted to apprehend the causes of social changes, the motive forces in the life of people, the reasons for social upheavals, the origin of the state and law, the forms of an ideal social and political system, etc. In feudal times, religious sociological doctrines appeared, based on dogmas of the church and representing its interests. The chief exponents of S. at that time were St. Augustine and Thomas Aquinas (qq.v.). At the time of the decay of feudal society and the emergence of capitalism, sociological teachings appeared that were aimed against the theological view on history and society, as represented by ibn-Khaldun and Machiavelli (q.v.). The earliest attempts to treat history as a law-governed process go back to Vico, Montesquieu, Voltaire, Rousseau, and Herder (qq.v.) in the 17th and 18th centuries; their sociological theories are put forward in the form of a philosophy of history (q.v.). At the time of the ascendant development of capitalism a number of bourgeois historians (Augustin Thierry, François Guizot, François Mignet) advanced some profound ideas about social laws and the struggle of classes. The dialectical conception of Hegel (q.v.), which described history as a law-governed and necessary process, was the summit of sociological thought in the pre-Marxian epoch. Subsequently, Comte (q.v.), who coined the term "sociology", endeavoured to build on an idealistic foundation a "scientific sociology" that would reveal the eternal and immutable laws of human society, similar to the laws of natural science. Prior to the emergence of Marxism, S. was, on the whole, typified, by an idealistic and metaphysical approach to the elucidation of social phenomena. Pre-Marxian theories maintained that man's historical activity was impelled by ideal motives and overlooked the material basis of society. For this reason, they were unable to apprehend its laws, and moreover, took no account of the activity of the

masses. The role of the masses and their struggle against the relations of exploitation were stressed by such revolutionary democrats as Herzen, Chernyshevsky (qq.v.), etc. Marx and Engels were the founders of materialist S., creating the theory of historical materialism (q.v.). They pinpointed the true determinative material basis of society, the relations of production (q.v.), discovered the objective laws of history and society, proved that the development of society is a natural historical process in which socio-economic formations (q.v.) succeed each other, and predicted the inevitable replacement of capitalism by communism. Contesting the truth of historical materialism, bourgeois S. of the late 19th century and early 20th century opposed to it a variety of unscientific sociological schools (psychological, organic, geographical, biological, racist, etc.). These argued the eternity of capitalism and colonialism and propagated racial inequality. Most of the sociological trends in the capitalist countries are idealistic and metaphysical. As a rule, they repudiate objective social laws, historical progress, the very concept of social evolution and the progressive ideas of the past, and champion the outdated capitalist system against the ideas of socialism and communism. They are largely irrational and agnostic, for they maintain that it is impossible to create a general sociological theory, reject scientific prevision and the possibility of planned guidance of society, and cultivate empiricism. Modern S. in the capitalist countries has broken up into a number of specialised Ss. (industrial S., rural S., S. of the family, mental diseases, microsociology, q.v., and the like). As regards methodology, modern bourgeois S. is, as a rule, typified by eclectic pluralism (q.v.), which rejects the unity of society as the determinant of its basis, and upholds the chaotic interaction of numerous factors. The task of Marxist S. today is to follow the method of historical materialism to produce concrete scientific investigations of the pressing problems of the contemporary historical epoch: the

building of communist society, the moulding of new relations between people, a new way of life, new morality, etc.

Sociology, Empirical, one of the trends in modern sociology dealing with the description of particular aspects of social life. It was widely disseminated after the Second World War, especially in the USA (Lundberg, Dodd, Mayo, etc.). The study of individual social phenomena by means of concrete sociological investigations (q.v.) can play a positive role only if it is based on a scientific theory, examining society as a unity developing according to law. The exponents of E.S., however, reject the unity and integrity of society and the objective laws of its development. They refuse to penetrate into the essence of social phenomena and consider society as a mechanical aggregate of separate social phenomena, which they merely describe and list, investigating only the relationships between different factors. Empirical sociology's method is limited to questionnaires, interviews, and statistical material. They maintain that this purely quantitative method of investigation is the only scientific method. The main features of E.S. are lack of a general philosophical basis and a profound differentiation between social studies, which results in the creation of different sociologies independent of each other (urban sociology, rural sociology, family sociology, industrial sociology, sociology of alcoholism, sociology of advertisement, sociology of mass media, etc.).

Sociology, Naturalist, a trend in contemporary bourgeois sociology, whose proponents elevate into an absolute traits of man as a biological being and assert that the development of mankind is determined by the laws of biology. Among the naturalist trends are Social-Darwinism (q.v.), Malthusianism (q.v.), and other unscientific theories of population which ascribe to it the decisive part in the development of society, and also a biological variety of racialism (q.v.), as distinct from psycho-racialism, which treats racial features as an absolute and regards the struggle

of races as the main factor of social development.

Sociology, Romantic, a sociological trend which took shape in the middle of the 19th century in England and Germany. In the beginning R.S. was interwoven with feudal socialism (Carlyle, q.v.), in the contemporary period it merged with fascism (Heidegger, q.v.). The basic idea of R.S. is the cult of the heroic past of the Aryan tribes, an appeal to return to the eternal and imperishable "law of the jungle", to return to the formation of armed bands. R.S. renounces bourgeois democracy. Starting with Gobineau, the exponents of R.S. fight for the dominance of the "superior Aryan race" over all peoples. This idea led eventually to the nazi (Günther, Krieck, Rosenberg) cult of the leader, the hero, the superior race. This formed the ideological basis of Hitler's Reich.

Sociometry, experimental and applied microsociology (q.v.). Applying the usual methods of empirical sociology (questionnaires, interviews, etc.), S. probes the psychological relationships among men in some specific place (factory, office, school, home, and the like).

Socio-Political and Ideological Unity of a Nation, the community of economic, political, ideological and moral interests and principles that emerges as a result of the construction of socialism. Economically, the socio-political and ideological unity of a nation is based on socialist ownership of the means and instruments of production and on socialist relations of production. Politically, it is based on the socialist state, the system of socialist democracy. The settlement of the national question is a necessary requisite and integral part of the nation's socio-political and ideological unity (see Friendship of Peoples). Ideologically, this unity is based on Marxism-Leninism, the ideology of the working class, which becomes the ideology of the whole people. The socio-political and ideological unity of the Soviet people is most vividly displayed in the fact that the state which came into existence as a dictatorship of the proletariat (q.v.)

has now become a state of the whole people (q.v.), while the Communist Party, once the party of the working class, has become the vanguard of the whole people.

Socrates (469-399 B.C.), Greek philosopher, whose doctrine initiated the turn from materialist naturalism to idealism. He lived and taught in Athens and his many pupils included Plato, Antisthenes, Aristippus (qq.v.) and Euclid of Megara. S. wrote nothing and his doctrine is known through the writings of Plato and Aristotle (q.v.). The structure of the world and the physical nature of things are unknowable; we can know only ourselves. This understanding of the object of knowledge was expressed by S. in the formula: "know thyself". The supreme purpose of knowledge is not theoretical but practical—the art of living. Knowledge, according to S., is the thought, the idea of the universal. Ideas are revealed through definitions and are summed up through induction. S. himself provided examples of definitions and generalisations of ethical concepts (for example, valour, justice). Definition of a concept is preceded by a conversation, in the course of which questions bring out contradictions between the interlocutors. Disclosure of contradictions leads to the elimination of sham knowledge, while the state of unrest prompts the mind to search for real truth. S. compared his methods of study with the "art of the midwife"; his method of questioning presupposed a critical attitude to dogmatic assertions and came to be known as Socratic "irony". The ethics of S. is rationalistic: evil actions are only produced by ignorance and no one is ever bad of his own free will.

Solipism (Lat. *solus*, alone; *ipse*, self), a subjective idealist theory, according to which only man and his consciousness exist, while the objective world, including people, exist only in the mind of the individual. In principle, every subjective idealist philosophy inevitably arrives at S. Berkeley and Fichte (qq.v.) and supporters of the immanence school (q.v.)

drew closest to this outlook. The viewpoint of S. deprives human activity and science of all sense. For this reason subjective idealist philosophers are trying to avoid extreme S. for which purpose they posit the existence of a generic, super-individual, divine consciousness. Epistemologically, S. regards sensation (q.v.) as the absolute source of knowledge. Lenin gave a criticism of S. in his *Materialism and Empirio-Criticism*.

Solovyov, Vladimir Sergeyevich (1853-1900), Russian idealist philosopher, theologian, and poet. Graduated from Moscow University (1873). His views were greatly influenced by Christian literature and also the ideas of Buddhism, Neo-Platonism (qq.v.) and other philosophico-religious systems. S. was especially close to the Slavophiles (q.v.). The idea of the "oneness of being" which by its nature is unconditional and absolute is central in his doctrine. Ultimately, the "oneness of being" is defined by S. as the sphere of the divine, while the real world, as its embodiment. Truth ("oneness of being") can be cognised neither rationally nor empirically; it is conceived only by "integral" knowledge based on mystical knowledge: faith in the unconditional existence of the object; mental contemplation (or imagination) which gives a true idea of the object: creation (or realisation of this idea in experiment). As for "integral" knowledge, it is a synthesis of the mystical, rational (philosophical) and empirical (scientific) knowledge. From this S. deduced the unity of theology, philosophy and science and called it the "free theosophy". In society the idea of "oneness of being" reveals itself as the voluntary spiritual union of people ("free theocracy"), or as the church which determines the absolute aims of society—the establishment of a "kingdom of God" on earth where all social contradictions will be resolved. A "free theocracy" can result from a merger of the Western (Catholic) and Eastern (Orthodox) Christian churches within the framework of a monarchy; in this respect a "special role" belongs to the Russian people. According to

S., the main purpose of philosophy is to justify the socio-religious ideal and, therefore, it must serve theology. S. also based ethics on religion. The poetry and aesthetics of S. became one of the ideological well-springs of Russian symbolism (q.v.). The unscientific theory of S. which reflected the interests of the reactionary circles of the bourgeoisie and the nobility exerted a great influence on Russian idealist-religious philosophy at the turn of the century (See Berdyayev, Trubetskoi, and others). Main works: *Kritika Otvechonnnykh Nachal (Critique of Abstract Principles)*, 1880 *Chteniya O Bogochelovechestve (Lectures of Man-God)*, 1877-81; *Istoriya i Budushchnost Teokratii (History and Future of Theocracy)*, 1885-87; *Rossiya i Vselenskaya Tserkov (Russia and the Oecumenical Church)*, 1889; *Opravdaniye Dobra (Justification of Good)*, 1897-99.

Sombart, Werner (1863-1941), German sociologist and economist, professor of Berlin University. Studied capitalism as a social phenomenon and also problems of social mobility and social stratification. At first S. considered himself a Socialist and Marxist, but later turned anti-Marxist. His central idea is the peaceful evolution of capitalism into a society of "social pluralism" where capitalism and socialism will remain together for a long time. The main content of S.'s doctrine is the perpetuation of capitalism, denial of its general crisis and of the historical inevitability of its replacement by socialism. Neo-Kantianism of the Baden school (q.v.) furnished the philosophical basis of his sociological views. Main works: *Sozialismus und Soziale Bewegung im 19 Jahrhundert*, 1896; *Der moderne Kapitalismus*, three volumes, 1902, 1928, and *Die Zukunft des Kapitalismus*, 1932.

Sophistry, a deliberate application, in disputes or in proof, of specious arguments embodying a subtle fallacy. While distinguishing S. from dialectics, Lenin wrote that flexibility of concepts applied subjectively is identical to sophistry. (Vol. 38, p. 110.) The most typical cases of S. are the following: consideration of events out of context,

application of laws peculiar to one set of phenomena to another set, and of one historical period to the events of another period.

Sophists, wandering teachers of rhetoric and philosophy in ancient Greece, who became prominent in the 5th century B.C. They did not form a school, but shared some common views; they rejected religion, gave a rationalist explanation to natural phenomena, and upheld ethical and social relativism. The main group of S. ("older" S.) championed slave-owning democracy. Generally speaking, they had a materialist understanding of nature. The proponents of this group—Protagoras (q.v.), Hippias, Prodicus, Antiphon—were the first encyclopaedists, embodying the enlightened thought of the period. Their attention was focussed on problems of cognition. Some S. arrived at sceptical conclusions regarding being and the knowledge of it (e.g., Gorgias). S. belonging to the aristocratic camp—Critias, Hippodamus—gravitated towards philosophical idealism. In disputes S. resorted to methods which later became known as sophistry (q.v.). This trend was particularly strong among the late S. (4th century B.C.), who, to use Aristotle's words, turned into teachers of "imaginary wisdom".

Sorites, a chain of (categorical) syllogisms, the conclusion of each forming a premiss of the next, one of the premisses being mutely implied. S. may be exemplified as follows:

2 is an even number.

All even numbers are natural numbers.

All natural numbers are rational numbers.

Hence, 2 is a rational number.

From the first two premisses we can obtain the following conclusion: 2 is a natural number. This conclusion plays the part of a minor premiss of the next syllogism (all natural numbers are rational numbers and 2 is a natural number). However, the premiss "2 is a natural number" is mutely implied. S. is often used in a proof for the purpose of brevity.

Soul, a term used sometimes as a

synonym for the psyche (q.v.). Primitive peoples regarded the S. as something material (shadow, blood, breath, etc.). In religion, the S. is viewed as an incorporeal and immortal immaterial force, capable of existing separately and independently of the body in another world. In idealist philosophy, the S. is identified with various elements of consciousness. Plato (q.v.) calls it the eternal idea, Hegel (q.v.) regards it as the lowest, sensual manifestation of the spirit in its connection with matter (sentient and active). In dualistic doctrines the S. is looked upon as something that has an independent existence, that exists alongside the body (Descartes, Spencer, Wundt, and James, qq.v.). Pre-Marxian materialism (Democritus, q.v., metaphysical materialism) regarded the S. as something secondary to, and dependent on, the body, while reducing its activity to elementary mechanical or physico-chemical processes. Materialist philosophers were often prepared to recognise a universal soul (see Hylozoism). A genuinely scientific explanation of the human psyche was provided by dialectical materialism, unscientific notions of the S. being refuted only when mental phenomena came to be studied experimentally and objective methods of investigating them were discovered (see Sechenov and Pavlov).

Soviet Marxist Philosophy, appeared after the October Socialist Revolution in Russia. In its first years, it developed in struggle against the remnants of the old, bourgeois philosophy and the philosophical theories of Menshevism, Russian Machism (Bogdanov, q.v., and others). In 1922, the first Marxist philosophical journal *Pod znamenem marxisma* (*Under the Banner of Marxism*) was founded. Its third issue carried Lenin's article "On the Significance of Militant Materialism", devoted to the tasks of the journal and the development of S.M.P. This article, as well as Lenin's other creative works, has had a decisive influence on all the subsequent work of Soviet philosophers. In the initial years, the basic task was to form a new body of philos-

ophers closely associated with the Communist Party and its entire struggle for the country's socialist reconstruction. The class struggle in the first period of the Soviet state's existence was reflected in all fields of ideology, including philosophy. In the late twenties and early thirties, there developed a criticism of relapses into mechanistic materialism (N. I. Bukharin, A. I. Varyash, V. N. Sarabyanov, and others) and of manifestations of Menshevistic idealism (A. M. Deborin's group), which tried to identify Marxist dialectics with Hegel's, divorced theory from practice, and underestimated the Leninist stage in the development of philosophy. The first Soviet manuals appeared, explaining the essence of dialectical and historical materialism. The journal *Under the Banner of Marxism*, which ceased publication in 1944, and other periodicals were bent on elaborating philosophical problems of building socialism and cultural revolution, reviewing the past history of philosophy in the light of Marxist philosophy, working for an alliance with the naturalists and for their transition to the positions of dialectical materialism. The first publications of *Dialectics of Nature* by Engels (1925) and Lenin's *Philosophical Notebooks* (1929) gave an impulse to research into new questions. But the development of Soviet philosophy, as of other social sciences, was seriously retarded in the period of the cult of Stalin's personality. His work *On Dialectical and Historical Materialism* was unwarrantedly declared the peak of Marxist philosophy. The Party's criticism of the personality cult and the decisions of the 20th Congress of the CPSU laid the foundation for a new stage in the development of Soviet philosophy. A feature of this stage is a considerably wider range of subjects for philosophical research and a deeper approach to urgent questions in modern philosophical science. A large place has been given to the study of Lenin's philosophical legacy. New textbooks and manuals have been written, in which the dogmatic features associated with the cult of Stalin have

been overcome. The chief trend in the development of contemporary Soviet philosophy is determined by the tasks of communist construction outlined in the decisions of the 20th, 22nd and 23rd Congresses of the CPSU and its new Programme. The Party decisions summing up the experience of communist construction in the USSR and the entire world development have a profound philosophical content and reveal the laws governing social development in contemporary conditions. A number of Soviet philosophers, mainly sociologists, are working on questions concerning the laws of communist construction, the dialectics of the transition from socialism to communism, the development of the Soviet state, the merger of the two forms of socialist ownership into communist ownership, the elimination of the essential distinctions between town and country, between physical and mental labour, the development of socialist culture, and others (G.M. Gak, G.I. Gleserman, F.V. Konstantinov, T.A. Stepanyan, V. P. Tugarinov, P. N. Fedoseyev, V. A. Fomina, G. P. Frantsev, D. I. Chesnokov, and others). Although concrete social problems are still not sufficiently studied in philosophical literature, many sociological works have been published in recent years. Some of them are devoted to the raising of the cultural and technical level of the working class, the obliteration of the distinctions between town and country, the elimination of religious survivals, etc. A large place in the studies of Soviet philosophers is taken up by problems of dialectical materialism. Moreover, they generalise the achievements of contemporary natural science, further elaborate materialist dialectics, study the new forms in which its laws are manifested under socialism, questions of dialectical logic and the theory of knowledge, the categories of dialectical materialism, the problem of a materialist system of categories and philosophical questions of the natural sciences (E. V. Ilyenkov, B. M. Kedrov, P. V. Koptin, I. V. Kuznetsov, M. E. Omelyanovsky, M. N. Rutkevich, V. I.

Svidersky, Y. P. Sitkovsky, A. G. Spirkin, B. S. Ukraintsev, V. P. Chertkov, and others). Soviet philosophers are working extensively in the field of Marxist studies of the world history of philosophy; in recent years much has been achieved in the study of Russian materialist philosophy; a group of philosophers are studying contemporary philosophy in the capitalist countries, critically analysing idealistic philosophical conceptions (V. F. Asmus, M. P. Baskin, B. E. Bykhovskiy, A. M. Deborin, M. A. Dymnik, M. T. Iovchuk, I. S. Kon, G. A. Kursanov, A. O. Makovelsky, Y. K. Melvil, M. B. Mitin, K. N. Momjyan, I. S. Narsky, T. I. Oiserman, O. V. Trakhtenberg, B. A. Chagin, I. Y. Shchipanov, and others). Communist construction has posed as one of the most important tasks in the field of philosophy the elaboration of problems in communist morality, Marxist ethics, the struggle against the survivals of capitalism in people's consciousness and behaviour, against the influence of religious views, and so on. A number of philosophers: Y. A. Levada, A. F. Shishkin, and others, devoted their works to these problems. In the last few years Soviet philosophers have been devoting their investigations to problems of aesthetics: the history of aesthetics, the aesthetic categories, the theory of socialist realism, criticism of bourgeois aesthetic theories, and so on (Y. B. Borev, A. G. Yegorov, M. A. Lifshitz, M. F. Ovsyannikov, Z. V. Smirnova, G. M. Fridlender, and others). Whereas formerly philosophers specialising in the field of formal logic devoted their efforts mainly to the study of traditional logic, in recent times they have begun to concern themselves with urgent problems of logic which require dialectical-materialistic generalisation of the achievements in mathematical logic, semantics, and so on (K. S. Bakradze, Y. K. Voishvillo, D. P. Gorsky, A. A. Zinoviev, P. S. Popov, P. V. Tavanets, S. A. Yanovskaya, and others). Works have been published dealing with the philosophical analysis of cybernetics, its essence and connections

with other sciences, questions of psychology in general and social psychology in particular (B. G. Ananyev, A. N. Leontyev, S. L. Rubinstein, B. M. Teplov, and others). Soviet philosophers are faced with great tasks, the principal of which are: a more profound generalisation of the real processes of communist construction, development of the new culture, the formation of the man of communist society, elaboration of the human morality of communism.

Space, see Time and Space.

Space, Multi-Dimensional, an abstraction of space having more than three dimensions, as distinguished from the usual space (as studied in elementary geometry), through every point of which only three straight lines perpendicular to one another can be drawn and, therefore, the position of each of the points can be determined by three numbers. In M.D.S. with n -dimensions, the position of a point in space is defined by n -numbers (while space can have a finite or an infinite number of dimensions). The concept of M.D.S. appeared in mathematics as a result of the development and the consequent generalisation of the concept of space. It is the outcome of a complicated process of abstraction and idealisation and serves as a powerful means of studying reality. In physics, for instance, the abstraction of n -dimensional space found an important application. The three numbers defining the position of a point in space, and the number defining its position in time are considered together, and this gives the four-dimensional space (four-dimensional space-time continuum) of the theory of relativity (q.v.). Infinite dimensional functional spaces are applied in quantum mechanics. However, it should not be deduced from the fact that the concept of M.D.S. is effective in science that the multi-dimensional space is a form of the existence of matter; the latter is three-dimensional and its properties are disclosed in the various systems of geometry.

Species and Genus (in logic), categories expressing the range of concepts

in relation to one another. If the range of concept A constitutes a part of concept B, A is a species of B, and B is the genus of A (similarly, A is spoken of as a special concept in relation to B, and B as a generic concept in relation to A). For example, animals are a species of organisms; organisms are the genus that includes animals. The relation of G. to S. is that of the general to the particular.

Speculative Philosophy 1. A system of philosophical propositions inferred without reference to experience. Relying on the "sheer power of intellect", the speculative philosopher creates this or that set of speculative principles, with which he seeks to embrace all objective reality. However, no speculative system has yet stood the test of time, for in the final analysis reality is incalculably richer than any variety of S.P., which may, indeed, contain some correct inferences, but solely because it passes off properties of reality for its own speculative definitions. Descartes (q.v.) was the first consistently speculative philosopher. The speculative method is extensively employed by the modern scholastics (see Neo-Thomism). 2. The philosophical systems of Fichte, Schelling and, particularly, Hegel, inferred from one principle by means of the dialectical deductive method. According to Hegel, speculative examination is a synonym of dialectical analysis. The achievements of this trend of S.P. stem from the fact that examination of the dialectics of ideas enabled the philosophers to guess some aspects of reality. However, the striving at all costs to explain all aspects of reality by means of speculation made the exponents of S.P. slavishly subordinate to the object, whose fortuitous and individual definitions they were compelled to construct as absolutely necessary and universal. 3. In the broad sense of the word, speculative thinking connotes theoretical thinking.

Speech, man's activity by which he communicates with his fellow men, expressing and conveying his thoughts by means of a language (q.v.). S. is the process of using language. Thanks

to S. the consciousness of the individual constantly reflects the world, being enriched by what is reflected in social consciousness and associated with the achievements of the social productive practice of mankind. In this intercourse, constant exchange of thoughts takes place: on the one hand, the comprehension of another's thoughts and their mastery, and on the other, the formulation and utterance of one's own thoughts. In this connection S. is divided into passive (sensory) speech as perception and comprehension of the S. of others, and active (motor) speech as the utterance of one's own thoughts, feelings, and desires. What is divided between the speaker and the listener is united psychologically by the internal structure of S. into an integral whole: speaking, man hears and comprehends; hearing and understanding, he speaks. Physiologically, this is explained by the unified work of the linguamotor and auditory analysers, by the links between them (see Signal Systems). The main kinds of speech are oral, i.e., spoken and heard, and written. The latter appeared in human history much later than the oral and developed through a number of stages from pictography (the transmission of thought by conventional schematic pictures) to contemporary phonetic writing. A special kind of speech is internal S., the particular feature of which is inaudible articulation of sounds. S. is the object of psychological investigation, which studies the process of mastering language, the formation of S. in the process of man's individual development, the conditions of the influence of S., of its perception, comprehension and pronunciation, etc.

Spencer, Herbert (1820-1903), English sociologist and psychologist, one of the founders of positivism (q.v.). His philosophical views were strongly influenced by Hume, Kant, and Mill (qq.v.). The notion of the "unknowable" was highly prominent in his system. A scientific concept, S. held, was conflicting and, therefore, incomprehensible. The contention that science is based on the limited experience

of the individual, that is, on a false foundation, was another proof S. advanced for his notion that science is unable to penetrate to the essence of things. Recognition of the "unknowable" is one of the corner-stones of religion, which gave S. cause to maintain that science and religion were contiguous. Subjective idealism and agnosticism (q.v.) combined in the teaching of S. with elements of objective idealism (recognition of "absolute reality" as a source of human sensations and impressions) and a spontaneously materialist interpretation of the problems of specialised sciences. The spontaneously materialist approach was prominent in S.'s teaching on evolution. S. spread the idea of evolution from living beings to all things and phenomena. However, he conceived evolution in a mechanistic way, as redistribution in the world of matter and motion, and thereby blotted out the distinctions between different spheres of the material world. S.'s conception of evolution lay at the root of his sociological views, of the so-called organic theory of society (q.v.), which attempted, quite unscientifically, to analyse social life in biological terms. S. was strongly opposed to socialism. His most notable work is *System of Synthetic Philosophy* (1862-96).

Spengler, Oswald (1880-1936), German idealist philosopher, ideologist of the Prussian junkers, one of the theoretical forerunners of German fascism. His main work, *Der Untergang des Abendlandes* (Eng. trans. *Decline of the West*), 1918-22, in 2 vols., embodying his philosophy of history, was published soon after the defeat of Germany in the 1st World War, and was a success with the ideologists of imperialism. S. extols the "old Prussian spirit", the monarchy, the gentry, and militarism. For him war is "the eternal form of the highest human existence". Denying the notion of historical progress, S. opposes fatalism (q.v.) to the materialistic understanding of history. He is a follower of historical relativism, according to which history falls into a number of independent, unique "cultures",

peculiar superorganisms possessing individual fate and going through the periods of origin, efflorescence, and death. According to S., the task of "the philosophy of history" is to understand the "morphological structure" of each "culture", at the basis of which lies the "soul of culture". To him, Western culture beginning from the 19th century, i.e., the establishment of capitalism, has entered the period of decline. Its efflorescence was the epoch of feudalism. In our time the British historian Toynbee (q.v.) is propagating a "philosophy of history" close to that of S.

Spinoza, Baruch or Benedict (1632-77), Dutch materialist philosopher; excommunicated for his free-thinking by the Jewish community of Amsterdam. His main works are *Tractatus theologico-politicus* and *Ethica*. S. was the founder of the geometric method (q.v.) in philosophy. S.'s doctrine originated in a historical environment which made the Netherlands a foremost capitalist country after its liberation from the yoke of the Spanish feudal monarchy. Like the leading thinkers of his age, Francis Bacon and Descartes (qq.v.), S. considered mastery over nature and the improvement of man to be the main purpose of knowledge. S. supplemented the doctrines of his forerunners with a teaching on freedom: he showed how human freedom was possible within the bounds of necessity. In solving this problem, S. built on his teaching on nature. In defiance of the dualism of Descartes, S. maintained that only nature existed, being the cause of itself and needing nothing else for its being. As "creative nature", it was divine substance. S. differentiated between substance, or unconditioned being, and the world of individual ultimate things, or modes, both corporeal and thinking. The substance was one, while the modes were infinitely many. The infinite intellect could apprehend infinite substance in all its forms or aspects. But finite human reason apprehended the essence of substance as infinite in but two aspects: as "extension" and as "thought". These were attributes of sub-

stance. S.'s teaching on the attributes of substance is, on the whole, materialistic, but metaphysical, because he does not consider motion an attribute of substance. These are the propositions S. drew upon in creating his teaching on man. According to S., man is a creature in whom the mode of extension, the body, is coupled with the mode of thought, the soul. By token of either, man is part of nature. In his teaching about the soul mode, S. reduced the complexities of psychic life to intellect and emotion—joy, grief, and desire. He identified will with intellect. Man's behaviour, S. maintained, was motivated by his inclination for self-preservation and personal advantage. S. repudiated the idealistic notion of freedom of the will and defined will as always dependent on motives. At the same time, he believed freedom possible as a behaviour based on knowledge of necessity. However, according to S., only a sage, and not the mass of people, can be free. This interpretation of freedom is abstract and unhistorical. In his theory of knowledge S. continued his rationalism (q.v.). He elevated intellectual knowledge based on reason above the lower order of knowledge derived from the senses, and belittled the role of experience. S. described direct apprehension of the truth, or the intuition of the mind, as the highest type of intellectual knowledge. In so doing, he followed Descartes in declaring clarity and intelligibility the criteria of truth. S. did a lot to promote the development of atheism (q.v.) and free-thinking, both scientific and religious. The purpose of religion, he held, was not the comprehension of the nature of things, but merely inculcation of high moral principles. This is why neither religion nor the state should encroach on freedom of thought. S.'s teaching on society makes him a successor to Hobbes. Unlike the latter, S. considered not monarchy, but democratic government as the highest form of power and restricted the omnipotence of the state by freedom. S. exercised a strong influence on 17th- and 18th century metaphysical material-

ism, and his religious free-thinking affected the development of atheism. Engels held S's philosophical views in high esteem. "It is to the highest credit of the philosophy of the time", he wrote, "that from Spinoza down to the great French materialists—it insisted on explaining the world from the world itself and left the justification in detail to the natural science of the future." (*Dialectics of Nature*, pp. 25-26.)

Spiral in Development, a figurative description of the outcome of development employed by Engels and Lenin in elucidating the law of the negation of the negation (q.v.). The process of development produces in phenomena an "apparent return to the old" (Lenin) in the course of change; this implies the repetition at a higher level of some features of a lower level. This may be depicted graphically as a S. in which each new turn repeats the preceding one, but at a higher level. The general impression of ascendant and progressive development is thus created. Development in a spiral form is at once opposed to the typically metaphysical idea of development as being motion along a closed circle without any new elements.

Spirit (Lat. *spiritus*—breath), a concept broadly associated with concepts of the ideal, and of consciousness as the highest form of mental activity; in the more restricted sense, synonymous with the concept of thought. In the history of philosophy, a distinction is made between the subjective S. (the subject, individual), the absolutisation of which leads to subjective idealism (q.v.), and the objective S. (social consciousness, objectivisation of human capabilities), admission of the primacy of which leads to objective idealism (q.v.). The ancient philosophers regarded S. as the activity of abstract thought (e.g., for Aristotle, q.v., the highest activity of S. is the perception of perception, delight in theory). It is also regarded, however, as super-rational principle, apprehended directly, intuitively (Plotinus, q.v.). This point of view is associated with religion, according to which S. is God,

a supernatural being, which can be known only through faith. German classical philosophy stressed the active quality of the S., regarding it as the activity of self-consciousness (q.v.). Hegel conceived of S. as the unity of self-consciousness and consciousness achieved in reason, and as the unity of practical and theoretical activity of the S. on the basis of practical activity: S. exists insofar as it is active, although its only activity is cognition. According to Hegel, S. overcomes the natural and achieves selfhood in the process of self-consciousness. Materialist philosophy regards S. as secondary in relation to nature. For the ancient materialists S. was the most reasonable part of the soul, and it pervaded the whole body. The materialists of the 17th and 18th centuries (Hobbes, Locke, La Mettrie, qq.v.) regarded S. merely as a form of sensual knowledge. Dialectical materialism does not reduce the spiritual to the simple sum of sensations and rejects the conception that it is something existing independently of matter. The spiritual is the function of highly organised matter, the result of the material socio-historical practical activity of human beings. The spiritual life of society—social consciousness—is the reflection of social being. At the same time it actively influences social being and the practical activity of mankind. The concept of S. is also used in the metaphorical sense as a synonym of essence, e.g., S. of the age, S. of the times (cf. Soul, Thought, Consciousness, Psyche).

Spiritualism 1. An idealist teaching about the spiritual origin of the world. For some spiritualists the material world is a medium for the manifestation of God and his abilities, while for others it is an illusion of human consciousness. Exponents of S. maintain that the soul exists independent of the body. Consistent spiritualists, who falsify modern knowledge, suggest replacing science by blind faith in spirits and divine providence. 2. Term used by some modern philosophers to denote idealism.

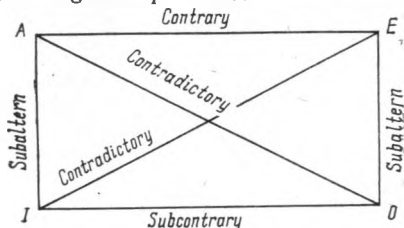
Spontaneity, action without deliber-

ation, used in reference to processes impelled not by outside influences, but intrinsic causes; also, ability to act on intrinsic motives. The philosophical conception of S. was first treated by the antique atomists in relation to the problems of necessity and chance, possibility, reality and probability, and freedom of the will. Epicurus, for example, associated the spontaneous deviation of the atom from a straight line in falling with chance and freedom of the will, and rejected mechanical determinism. Dialectical materialism defines S. as a specific property of matter, a token of its self-movement. From the standpoint of materialistic dialectics, wrote Lenin, "the condition for the knowledge of all processes of the world in their 'self-movement' (q.v.), in their spontaneous development, in their real life, is the knowledge of them as a unity of opposites" (vol. 38, p. 360). Recognition of spontaneous motion and development does not rule out the need for considering external influences on the developing object, and its interrelation with the objective world as a whole. The idealistic conception of S. as independent of the objective world and of the non-determinative "freedom of man's will" is groundless and conflicts with the facts of science (see Will).

Spontaneity and Consciousness, the categories of historical materialism defining the relation between an objective historical regularity and the purposeful activity of men. By spontaneity is meant a process of social development whose objective laws are not cognised by men and are, therefore, beyond their control, operating often with the devastating force of a natural calamity, while the conscious efforts of men do not lead to the materialisation of set goals and even bring about results entirely unexpected by them. Historical activity is said to be conscious when people pursue it in accordance with cognised objective laws of social development and direct it purposefully towards the materialisation of set goals. All pre-socialist socio-economic formations de-

veloped as a rule spontaneously. Transfer of power to the working class headed by the Communist Party and the substitution of public ownership of the means of production for private ownership ushered in a new period in history, a period of conscious historical pursuit. But the difference between the historical activity of men under socialism and in the previous formations is not absolute. Previously, too, men based themselves to some extent in their activity on the objective laws of history and gradually cognised individual manifestations of historical necessity. On the other hand, elements of spontaneity still survive under socialism, because various problems of social science have not yet been exhaustively elaborated or because of a lack of skill in utilising objective laws to the full, or again because of the certain lag of social consciousness behind social being. In the context of historical materialism, the question of S. & C. is treated in close association with the tactics of the communist and working-class movement. It is politically important, because it concerns the Party's leadership of the people and is an object of acute struggle against reformism and revisionism.

Square of Opposition, the term proposed in the 16th century by Julius Pacius, translator and commentator of Aristotle (q.v.). It served for a long time as a mnemonic device for memorising the relations between the four main types of premisses (q.v.) of Aristotelian logic. S. O. is given in the form of a diagram in which these relations are graphically shown. The letters A, E, I, O respectively symbolise universal affirmative, universal negative, particular affirmative and particular negative premisses.



Stages, Theory of, the conception of US sociologist Walt Rostow set out in his book, *The Stages of Economic Growth. A Non-Communist Manifesto* (1960). According to this conception history is divided into five stages: (1) "traditional society", which includes all societies not short of the capitalist; it is marked by a low productivity of labour and the predominance of agriculture; (2) "transitional society", which coincides with the transition to pre-monopoly capitalism; (3) "stage of take-off", marked by industrial revolutions and the beginning of industrialisation; (4) "stage of maturity" (completion of industrialisation and emergence of industrially developed countries); (5) "stage of high mass consumption", claimed to be attained as yet only in the United States. For relations of production, the real basis of historical development, T.S. substitutes an eclectic interaction of a variety of factors—technical, economic, psychological, political, cultural, historical, and the like. Taking the share of capital in the national income as the basis for dividing society into stages, Rostow arbitrarily classifies different socio-economic formations (q.v.) under the head of "traditional society" and thereby ignores the qualitative differences between them. T.S. endeavours to identify phenomena which are qualitatively different in social substance by placing them under the common head of "industrial society" (e.g., the attempts to identify socialist and capitalist industrialisation). Eager to vindicate colonialism and US capitalism, T.S. repudiates the need for socialist revolutions and maintains that the whole world is moving towards an "integrated industrial society" as exemplified by the United States, and thereby attempts to goad the peoples recently liberated from the colonial yoke on to the capitalist path of development. Rostow's conception claims to be a materialist interpretation of society and endeavours to capitalise on its outward resemblance to Marxism (acknowledgement of technical and economic factors, and the like). T.S. is aimed against

the Marxist teaching of socio-economic formations and has been elevated to the rank of an official political doctrine in some capitalist countries. Philosophically, it is based on subjective idealism and voluntarism (q.v.). While eclectically recognising the interaction of a variety of factors, it ultimately accentuates the subjective ones, such as "free choice" of historical path, "free solution", and the like.

Stankevich, Nikolai Vladimirovich (1813-40), Russian idealist thinker; graduated from the linguistic department of Moscow University (1834); founder and leader of a circle frequented by Belinsky from 1833 to 1837 and, at different times, by Bakunin (q.v.), K. S. Aksakov, and others. S. centred his attention on questions of ethics as the key to various social problems. He was opposed to serfdom and attacked the corruption and egoism of the Russian gentry. He appealed for moral improvement and enlightenment, and for the unity of men on the basis of "the principle of love" which he cloaked in a religious garb. Despite the utopian nature of his conception of social progress, his propaganda had a beneficial effect, because it criticised the Russia of his day and called for civic dedication. The philosophical views of S. (judging by his correspondence and his writings, collected in the book *Verse. Tragedy. Prose*, 1890) were originally borrowed from his Russian teachers, M. G. Pavlov, N. I. Nadezhdin, I. I. Davydov, M. P. Pogodin, etc., and the school of Lyubomudry (Lovers of Wisdom). Later (1834), he studied the works of Schelling, Kant, and Hegel, in which he sought answers to questions that troubled him. His views were coloured strongly by idealist dialectics. In the last years of his life, S. arrived at the conclusion that philosophy had to be brought closer to reality, approved of the ideas of the Young Hegelian Cheshkovsky and of Feuerbach (q.v.), who had begun to criticise Hegelian philosophy. The work and personality of S. were highly commended by Belinsky, Herzen, and Dobrolyubov (q.v.).

Stasov, Vladimir Vasilyevich (1824-1906), Russian art theorist, music and art critic. His outlook was affected by Diderot, Lessing, Chernyshevsky, Belinsky, and Dobrolyubov (q.v.). S. was an exponent of the materialist aesthetics of the Russian revolutionary democrats. The chief demands S. made on the arts were: realism, service to the people, ideological orientation. None but the art that meets all these demands, he maintained, can perform its basic purpose—to promote the democratic reconstruction of society. S. opposed the proponents of “art for art’s sake”, idealist aesthetics, formalists, decadents, and the like. He had a very strong influence on the democratic trend in Russian music and painting (the “Big Five” and the “Wanderers”), on the development of Russian art in general. His works include *Dvadsat pyat let russkogo iskusstva* (Twenty-Five Years of Russian Art), 1882-83, *Iskusstvo v 19 vyeke* (Art in the 19th Century), 1901, etc.

State, the political organisation of the class dominant in economy; its purpose is to safeguard the existing order and to suppress the resistance of other classes. It appeared when society broke up into classes as a tool of the exploiting class for the suppression of the exploited population. The emergence of S. consisted in the formation of a special public authority (q.v.) with an army and police, with prisons and various institutions of coercion. In a society based on the private ownership of the means of production, S. is always a tool of the dominant exploiting class, a dictatorship, a special force for the oppression of the exploited masses regardless of the specific form of government. The socialist S. is different in principle. It is also a tool of class dictatorship, viz., dictatorship of the proletariat (q.v.), but it operates in the interests of all working people, that is, in the interests of the vast majority of the people, by suppressing the exploiters. The socialist S. may be of different forms, but its substance is always the same—dictatorship of the proletariat. After the Second World War, Ss. of people’s democracy

sprang up in a number of European and Asian countries. They, too, like the Soviets in the USSR, are a specific form of socialist S. Engels wrote that the proletarian S. is not S. in the full sense of the word. S. in the full sense of the word is a force that alienates itself more and more from the people, opposes the people and is intended to keep the people under the domination of the exploiting class. The proletarian S., on the other hand, essentially expresses the interests of the people. Hence its other distinctive feature, which Lenin described as “withering”. State will not exist externally. In the future it will give place to communist public self-administration (q.v.). The state of the whole people (q.v.) is a phase which brings us nearer to stateless society. State of the whole people develops from state of the working-class dictatorship at a certain stage in the building of communist society.

State and Collective-Farm and Co-operative Forms of Property, two forms of socialist ownership (q.v.). Both forms are based on collective ownership of the means of production. State property is the property of the whole people, while co-operative property is the property of individual collective farms and co-operatives. Land is placed at the disposal of collective farms in perpetuity, and they use it as they see fit. The results of labour and all movable and immovable property belong to the collective farm. Besides commonly-owned property, members of collective farms have at their disposal personal plots of land, domestic animals, etc. At a definite stage, when the collective farms are able to satisfy the requirements of their members out of the common result of their labour, these personal plots will gradually become redundant. The state form of property, or national property, is the leading form, and the co-operative form is secondary. Merging of the two forms proceeds gradually in the stage of full-scale communist construction. The Programme of the CPSU defines the means by which they will merge into a single form of communist prop-

erty. State property is perfected by concentration and centralisation of production, progressive co-operation and specialisation. Co-operative property is raised to the level of national property by the further economic development of the collective farms, growth of their fixed assets, co-operation of collectively-owned property with state property, and the development of production links between collective farms through the building of joint collective-farm power stations, factories processing farm products, etc.

"The State and Revolution" The Marxist theory of the state and the tasks of the proletariat in the revolution, a book by Lenin written in August-September 1917 and published in May 1918. When the socialist revolution was being prepared in Russia questions concerning the attitude of the proletariat to the state were of keen theoretical and practical political significance. In his book, Lenin dealt with the main aspects of the Marxist theory of the state (q.v.), with its development by Marx and Engels on the basis of the experience of the 1848-51 revolution and, particularly, of the Paris Commune of 1871. Lenin substantiated the Marxist conclusion that the main task of the working class in revolution with regard to the state is to break down the bourgeois state machine and to establish dictatorship of the proletariat (q.v.). In describing the two phases of communist society, Lenin analysed the economic reasons for the withering away of the proletarian state and outlined the chief ways of developing socialist statehood: extending democracy, giving the masses a growing share in state administration, etc. Lenin's book contains devastating criticism of anarchism and opportunism, the trends which distorted the Marxist teaching on the state and emasculated its revolutionary content (chiefly by rejecting dictatorship of the proletariat). The book is unfinished. Lenin left unwritten a chapter that was to sum up the experience of the 1905 and 1917 revolutions. Lenin's main ideas on the socialist state (q.v.) were developed further in

the Programme of the CPSU adopted by the 22nd Party Congress.

State and State-Monopoly Capitalism, forms of capitalist economy in which private capitalist enterprises are transformed into state enterprises and economic matters are controlled by the state. In the pre-monopoly stage, state capitalism served to accelerate capitalist reproduction. In the imperialist epoch, it is succeeded by state-monopoly capitalism, in which large monopolies merge with the bourgeois machinery of state, subordinating the latter to the monopolies with the object of extracting the highest possible capitalist profits. State-monopoly capitalism represents the highest degree of socialisation of production under capitalism, for which reason Lenin described it as a "complete *material* preparation for socialism". However, state-monopoly capitalism is not distinct from imperialism and does not imply peaceful growth of capitalism into socialism. It does not alter the nature of capitalism and does not eliminate the contradictions between labour and capital, or anarchy of production and economic crises. Instead of strengthening the capitalist system, state-monopoly capitalism deepens its main contradictions. State-monopoly capitalism which intensifies exploitation of working people and suppresses the labour and national movements, should not be confused with state capitalism obtaining in the developing countries, such as India, Indonesia, etc., which is progressive and promotes economic progress and national independence. Appraisal of state capitalism must take into consideration whose interests it promotes, those of the monopolies or of the people. In a proletarian dictatorship, state capitalism is not the dominant economic form and is fundamentally different in nature, because it is controlled by the working class and is utilised to develop large-scale production. "The transition to communism," Lenin said, "is *also* possible through state capitalism, provided state power is controlled by the working class." (Vol. 33, pp. 403-04.)

State of the Whole People, a state expressing the interests and will of all the people, an instrument for building communism. It arose as a result of the complete and final victory of socialism in the USSR and it is the successor to the state of the dictatorship of the proletariat (q.v.), after the latter had fully discharged its historical tasks and society had entered the period of full-scale building of communism. The main features of the S.W.P. are that it is not an instrument for the suppression of some class, it rests on a single social foundation and is a landmark in the transition to communist public self-administration (q.v.). It remains in being until the complete victory of communism. "Expressing the will of the people, it must organise the building up of the material and technical basis of communism, and the transformation of socialist relations into communist relations, must exercise control over the measure of work and the measure of consumption, promote the people's welfare, protect the rights and freedoms of Soviet citizens, socialist law and order, and socialist property, instil in the people conscious discipline and a communist attitude to labour, guarantee the defence and security of the country, promote fraternal co-operation with the socialist countries, uphold world peace, and maintain normal relations with all countries." (Programme of the CPSU.)

Statement, in modern formal logic, a sentence in a particular language (q.v.) considered in relation to the appraisals of its truth (true, false) or modality (probable, possible, impossible, necessary, etc.). S. which covers other Ss. is said to be compound. Otherwise, it is said to be simple. Every S. expresses an idea. This idea constitutes its content and is said to be the meaning of S. The appraisal of the truth of S. is said to be its truth-value. The material term to which S. refers is said to be its subject. Sometimes S. is referred to as "proposition" or "judgement".

Statistical Physics, a department of physics dealing with the properties of groups of particles (from elementary

particles to galaxies). Even in classical S.P., which deals with particles governed by the laws of classical mechanics, we observe irreducibility of the properties of the whole (a group of particles) to the properties of its parts (see Part and Whole). The conclusions of S.P. revealed the limitations of the metaphysical conception of causality, the so-called Laplacian determinism (see Determinism and Indeterminism). Modern S.P. is associated with the quantum theory and deals with particles governed by quantum laws. However, in certain circumstances modern S.P. slides back to classical S.P. (see Correspondence Principle).

Stirner, Max (pseudonym of Johann Caspar Schmidt, 1806-56), German idealist philosopher, founder of anarchistic individualism; he was close to the Young Hegelians (q.v.). In 1844, he published a book, *Der Einzige und sein Eigentum*, where he developed the system of anarchism. The sole reality, according to him, is "I", the egoist, and the whole world is his possession. The notions of morals, justice, law, society, etc., are thrown overboard and declared to be "illusions", "constraining husk". Each individual is himself the source of morals and justice. According to S., private property must be preserved, as the self-hood of the "ego" is expressed in it. The social ideal of S. is the "union of egoists", wherein everyone sees in the other nothing but the means of achieving his own ends. Regarding history as the product of ideas, S. believed that by overcoming the dominant concepts we can change social relations. He openly opposed communism and the revolutionary struggle of the proletariat. His outwardly "rebellious" slogans are merely the cover for the interests of the petty bourgeois who tries to preserve his economy from bankruptcy. In *The German Ideology* Marx and Engels criticised all aspects of his speculative idealism and showed his loss of touch with the real social relations in Germany in the mid-19th century.

Stoics, exponents of a philosophical school that appeared within the frame-

work of Hellenistic culture in the 4th century B.C. under the impact of cosmopolitan and individualistic ideas and technical developments impelled by the expansion of mathematical knowledge. Zeno and Chrysippus (q.v.) were the most prominent exponents of the school in the 4th and 3rd centuries B.C. The role of the sciences treated by the S. was defined by them as follows: logic is the fence, physics the fertile soil, and ethics its fruit. The chief task of philosophy concerned ethics; knowledge was no more than a means of acquiring wisdom and skill of living. Life, the S. held, had to be lived according to nature. This was the ideal of every wise man. Happiness lay in *apatia* (q.v.), or freedom from emotion, in peace of mind, in imperturbability. Fate pre-ordained everything in life. He who consented was led on by fate; he who resisted was dragged along. The S. were materialists in their conception of nature. All there is in the world, they said, are bodies of varying density. The true has to be distinguished from the truth. Nothing but bodies really exist. The true, on the other hand, is incorporeal and does not exist. The true is no more than a statement. With the S., materialism combined with nominalism (q.v.). The senses apprehend reality as individual things. Science strives to apprehend the general, but this general, as such, does not exist in the world. The S. acknowledged four categories: (1) the substratum (the existing); (2) quality; (3) state (e.g., "to be"); (4) relative state ("to be to the right of something"). In contrast to logic of predicates (see Aristotle), S. created a logic of propositions (q.v.), based not on categorical judgements, but on relative ones. The S. established the varieties of the connection of judgements which modern logic designates as material implication (q.v.). The most prominent S. of the subsequent epochs were the disciples of Chrysippus: Zeno of Tarsus and Diogenes of Seleucia; Boethus of Sidon (d. 119) and Panaetius of Rhodes (2nd century B.C.). S. appeared on Roman soil in the first centuries A.D.;

they applied themselves to the moral and religious ideas of the stoic school; chief among them were Lucius Annaeus Seneca (q.v.), Musonius Rufus, Epicuretus (q.v.) and Emperor Marcus Aurelius (q.v.).

Stoletov, Alexander Grigoryevich (1839-96), Russian physicist, one of the founders of Russian physics and modern electrical engineering. S. took a materialist view of natural phenomena. He was the first Russian physicist to come out against the philosophy of Machism (in his article, "Helmholtz and Modern Physics", 1894), which he qualified as decadent. In his early period he tried to reduce all physical phenomena to the basic principles of mechanics, but under the influence of the new discoveries in the natural sciences he gradually transcended the limitations of a mechanistic materialism. He frequently used the term "mechanical" to denote "materialist" and "scientific", and for him "mechanism" was virtually a banner under which he campaigned for materialism in natural science. His world outlook was shaped under the impact of forward-looking Russian materialists. For his ideas, he was harassed by the tsarist government, which barred him from being elected to the Academy of Sciences.

Stratification, Social, a sociological doctrine on society's structure, which holds that society is stratified into social layers; these are identified on the strength of a wide range of criteria, including economic, political, biological, racial, religious, etc., there being no agreement among its exponents as to which of these is decisive. S.S. also includes the division of society into classes but this is based on arbitrary and inessential criteria (e.g., occupation, housing, residential area, size of income, etc.). According to modern sociologists, S.S. is in a state of flux, for it depends on social mobility (q.v.), that is, the movement of men between various strata and classes. This doctrine is unscientific and false, for it gives a distorted picture of the class structure of modern bourgeois society and ignores the real criterion of class divisions, namely,

the relation of men to means of production.

Stress Conception, a doctrine developed by Canadian physician Hans Selye (b. 1907). Stress is that state of the organism which responds with adaptive reactions to the effect of strong irritants. In philosophical terms, this doctrine has much in common with J. Müller's physiological idealism, for both overrate the role of the organism's internal state in its interaction with environment. Selye virtually reduces the role of environment to that of a "trigger mechanism", which activates the "eternal" adaptive mechanisms. He holds that the great qualitative diversity of external influences tend to produce a standardised reaction. Objectively, the S.C. is aimed against the theory that the central nervous system has the leading part to play in the organism's vital activity (see I. Pavlov). Selye succumbs to autogenesis (q.v.) and the teleological idea in biology. Some modern sociologists (Jasmin, R. Francis, K. Meninger, and others) mechanically apply the S.C. to men and society. Man is defined as a teleological centre and human aims as the drive to attain "egoistic" biological requirements. The origins of egoism and altruism, revenge and gratitude, etc., are viewed in a strictly biological light. Selye's followers have been trying to formulate concepts of social, commercial, ethical, aesthetic, and psychological stress. This tends to build up the concept of a "social Selyeism". The doctrine is unsound because it is based on a one-sided transposition of biological concepts to society.

Structure, the law-governed and stable connection and interrelation of parts and elements of a system or a whole. A precise definition of S. in mathematics and mathematical logic is based on the concept of isomorphism (q.v.). The category of S. is closely bound up with the categories of law, form, necessity, etc. It remains immutable despite the continued alteration of its parts and the whole itself, and changes only when the whole undergoes a qualitative leap. On the other

hand, all the elements of the whole are essentially dependent on its S., and have a qualitatively distinct role to play depending on the mode and system of their concatenation and organisation. Thus, graphite and diamond differ from each other in the different arrangement of their atoms of carbon. Much more importance is now attached to the concept of S. in science, as mathematics, physics, and biology have come up against the fact that their objects of study are integral. In particular, there is a method of studying the structure of an object before the study of its elements and parts. It has transpired that three dialectically connected and dialectically cognisable types of structure can be brought out in any organic whole. The first step in cognition is to determine the mechanical S. of the whole, which shows how it is divided into parts. The discovery of the fact that the "part is equal to the whole" (Hegel) and is the source of the whole points to the very fact of organic integrity. The complete cognition of the whole means a cognition of its organic S. as the realisation of the whole complexity of relationships between the parts of the whole. In this connection, there has been a sharp rise in the importance of studying the epistemological aspects of the S. concept. S. has a specific place in linguistics (the so-called structuralism—the study of language as a system of signs) and in psychology (the concept of the integrity or structural nature of the psyche, which is especially characteristic of *Gestalt* psychology, q.v.).

Struggle for Existence, resistance of organisms to the factors of animate and inanimate nature unfavourable to their life and propagation. As a result of this struggle the species best adapted to their environmental conditions survive and produce the most abundant and viable progeny. The struggle for existence is one of the forms of relationship between organisms within one species and between representatives of different species and is a factor in the evolution of plants and animals. Application of the idea of the struggle

for existence to human society has given rise to the reactionary theory of Social-Darwinism (q.v.).

Struve, Pyotr Bergardovich (1870-1944), Russian bourgeois economist and philosopher, and leader of "legal Marxism" (q.v.). S. criticised Narodism, advocated the development of capitalism in Russia and propounded bourgeois objectivism; he declared his "adherence" to Marxism but revised its basic propositions; he ascribed to Marx an "economic materialism"; he criticised the labour theory of value from the standpoint of vulgar political economy, and propounded Malthusianism (q.v.). From 1905 leader of the Right-wing Cadets. In philosophy (*Diverse Topics*, 1902, *Patriotica*, 1911, et al.) he was a follower of Kant and subsequently a proponent of mystical idealism. From 1917 a whiteguard émigré, an enemy of the Soviet power. His ideas were exploded by Lenin in *The Economic Content of Narodism and the Criticism of It in Mr. Struve's Book* and other works.

Style in art, a historically derived and stable integrity of an imaginative system, the means and methods of artistic expression predicated by the sameness of the aesthetic and social content. This sameness is achieved on the strength of a definite creative method. S. reflects the socio-economic conditions of a society, as well as the peculiarities and traditions of the nation concerned. Take archaic, Hellenistic, Roman, Gothic, Renaissance, Baroque, Rococo, Empire, modern and other Ss. Each S. gains its fullest expression in some definite types of art. A new S. appears in order to express deep-going social changes whenever a fundamentally new correlation emerges between the artistic form and the ideological content. Formalistic aesthetics produces either an exaggeratedly broad conception of S., identifying it with the artistic method (which reduces, say, realism to one of the Ss.), or an exaggeratedly narrow conception, identifying it with the artistic mannerisms of this or that artist. The concept of "S. of the epoch" is also wrong, for it divorces S. from the world outlook and

from the artistic method. There is always a variety of artistic methods in every epoch, and it is within the framework of these methods that various Ss. develop, which, in turn, embrace artists of different artistic mannerisms and approaches. Multiplicity of Ss. and mannerisms is a typical feature of socialist realism.

Subconscious, a characteristic of the active mental processes which, not being at the time the centre of conscious activity, influence the course of conscious processes. Thus, that which man does not directly think about at a given moment, but which he knows in principle and which is associated with the object of his thoughts, may influence the train of thought that accompanies it in the context of its meaning. In exactly the same way the perceptible (although direct and unconscious) influence of the condition, situation, automatic actions (motions) are present as the subconscious perception in all conscious actions. A definite conscious role is played by the context of language, an idea unexpressed but implied by the very structure of the sentence. There is nothing mystical or unknowable in the S. These phenomena are the by-product of conscious activity, and they include the mental processes which have no direct part in the comprehension of the objects on which man's attention is concentrated at the given moment. For the idealist distortions of the understanding of the S. see Unconscious, Freudism.

Subject and Object, philosophical categories. S. was initially (e.g., Aristotle, q.v.) taken to be the repository of certain properties, states and actions, and in that context was identified with the concept of substance (q.v.). This meaning of the term S. is still current. But beginning from the 17th century, S., like its correlative, O., were used chiefly in the epistemological sense. Today, S. is taken to be an active and cognisant man, endowed with consciousness and will; O., as that which is given in cognition, or that towards which S.'s cognitive or other activity is directed. The S. & O.

relationship is a problem that is connected with the fundamental question of philosophy, and has, accordingly, been given a different interpretation by materialists and idealists. Materialists regard O. as existing independently of S. and take it to be the objective world, and in a narrow sense, the object of cognition. But mechanistic and metaphysical materialists were unable to produce a scientific answer to the problem of the O. & S. relationship, because they held this to be based only on the action of O. on S., with S. being regarded as something passive and receptive of external influences. S. was understood to be an individual, whose substance was seen only in his natural origin. S. remained passive not only in the sphere of cognition but also in practical activity, for the old materialists were incapable of understanding the objective law-governed nature of human activity towards the attainment of subjective aims. The idealists take the opposite view of this. They deduce the relationship between S. and O. and the very existence of O. only from the activity of S., trying to explain the S.'s active role in cognition on that basis. Subjective idealists take the view that S. is the unity of the individual's psychic activity; this virtually eliminates O., for it is held to be nothing but the aggregate of the states of S. The objective idealists, notably Hegel, have made some valuable suggestions on the role of practice in the S. & O. relationship, the dependence of this relationship on history and the social nature of S. But because the idealists tended to absolutise the epistemological activity of S. they drew the conclusion that O. was the result and product of the activity of S., who was regarded besides as a purely ideal being or substance. Dialectical materialism holds that O. exists independently of S., but the two are regarded as a unity. S. himself becomes an O. in another aspect and is, therefore, subject to objective regularities. There is, accordingly, no gulf between S. & O. in principle. Their interaction is based on man's socio-historical practice, which alone gives a clue to S.'s epis-

temological activity. This means that man becomes S. only in history and in society, and is for that reason not an abstract individual, but a social being all of whose capacities and potentialities have been shaped by practice. Man, being the active force in the interaction between S. & O., nevertheless depends on O. in his activity, for the latter sets definite limits to the S.'s freedom of action. This produces the need for cognition of the laws governing O. for the purpose of adapting one's activity to them. The S.'s activity is also objectively conditioned by his requirements and the level of production. Depending on this and also on the level of cognition of the objective laws, man sets himself conscious goals, in the attainment of which both O. & S. undergo change. As society develops, subjective factors play a progressively greater part, especially under socialism, where social development is controlled by men, which does not, of course, signify any change in the principles behind the S. & O. relationship.

Subject-Matter of Philosophy, see Philosophy.

Subjective Method in Sociology, an idealist method which demands that society be viewed only as the product of the activity of outstanding individuals. It ignores the objective laws of social development, denies the decisive role of the masses in history and is equivalent to voluntarism (q.v.). Active proponents of it in Russia were the Narodniks (Lavrov, Mikhailovsky qq.v., et al.) who declared that history is made by the "critical thinker". Hence, the negative attitude to the revolutionary initiative of the masses, and the tactics of individual terror against tsarist statesmen. Lenin gave a profound critique of the method in his *What the "Friends of the People" Are and How They Fight the Social-Democrats*. Modern sociologists who accept the method most frequently subscribe to the elite theory, which says that history is directed by the will of a small group of the "elect", chiefly businessmen (H. Magid, J. Schumpeter, et al).

Sublime, a category expressing the aesthetic meaning and significance of heroic deeds and great events and their reproduction in art. Events and phenomena regarded as sublime are aesthetically perceived by man as the opposite of everything base and common place. The S. evokes feelings that lift a man above the trivial and mediocre and spur him on to fight for lofty ideas. The S. is closely connected with the beautiful, for, like the beautiful, it is the embodiment of the progressive aesthetic ideal (q.v.). In contrast to the S., everything base and trivial is always ugly, though it may sometimes be beautifully adorned. Whereas idealist theories attribute the S. to the subject or to ideas of divine infinity and eternity, Marxist aesthetics attributes it to objective reality, at the same time attaching great importance to the conscious cultivation of lofty aesthetic feelings and ideas.

Substance, in pre-Marxist philosophy, the immutable primary principle underlying all existing things, and remaining intact in all transformations, as distinct from the concrete mutable objects and phenomena; that most general and deep-going essence, whose cause and foundation consist in nothing else but in itself. Idealism takes S. to be God, universal reason, idea, etc.; pantheism (Nicholas of Cusa, Bruno, qq.v.), God who is identified with nature and matter. Materialists take S. to be something material. Dualistic theories (see Descartes) accept a dual S.: a material and an ideal one, both being absolutely equivalent, which clashes with the very idea of S. Dialectical materialism rejects the idea of any immutable, uniform, homogeneous S. and holds that matter (q.v.), which is in constant motion and development, is the S., foundation of the world. This concept is more precise and clear (see Unity and Diversity of the World).

Substance and Field, fundamental concepts of physics, denoting the two basic forms of matter at macroscopic level, S. being the aggregate of discrete formations possessing rest mass (atoms, molecules and their combinations),

while F. is a form of matter characterised by continuity and having zero rest mass (electromagnetic field and gravitational field). The discovery of the field as a form of matter was of enormous philosophical importance because it showed the fallacy of the metaphysical identification of matter with S. Lenin's formulation of the dialectical-materialist definition of matter (q.v.) was in many respects based on the philosophical generalisation of the doctrine of the F. At the subatomic level (i.e., the level of elementary particles) the distinction between S. and F. becomes relative. The fields (electromagnetic and gravitational) lose their purely continuous character; they are necessarily compared with discrete formations, the quanta (photons and gravitons), and the elementary particles of which S. is composed (protons, neutrons, electrons, mesons, etc.) emerge as quanta of the nucleon, meson, etc., fields and lose their purely discrete character. It is wrong at the subatomic level to make a distinction between S. and F. even on account of their possessing or not possessing rest mass, since the nucleon, meson, etc., fields do possess rest mass. In modern physics, fields are contrasted to and compared with particles, forming two inseparably connected aspects of the microcosm and expressing the unity of the corpuscular (discrete) and wave (continual) properties of microobjects. Concepts of F. also form the basis for the explanation of the processes of interaction embodied in the principle of immediate action (see Immediate Action and Action at a Distance).

Substratum, the material foundation for the unity of the diverse properties of an individual object or thing; the material foundation of the unity and uniformity of various objects. S. is usually viewed as the foundation of the particular or the individual.

Successive Continuity, the objective and necessary connection between the old and the new in the process of development, one of the main features of the law of the negation of the negation (q.v.). As opposed to metaphysics, which absolutises the simple rep-

roduction of objects, materialist dialectics turns to the investigation of the processes of progressive development in nature, society, and thought. The very genesis of the forms of the motion of matter shows that every higher form of motion, succeeding lower ones, does not annul them but includes them in and subordinates them to itself. A dialectical understanding of negation presupposes not only the liquidation of the old but also the conservation and further development of the progressive and rational in what was achieved in previous stages, without which the movement forward, whether in being or in cognition, would be impossible. A correct understanding of the processes of S.C. is of particular significance in analysing the laws of development of science and art, and in fighting both the uncritical attitude to the achievements of the past and the nihilist negation of cultural heritage.

Sufficient Reason, Principle of, a general principle of logic, according to which a proposition is considered true only if sufficient reason for it can be formulated. S.R. is a proposition (or set of propositions) which is known to be true, and from which the conclusion may be logically derived. The truth of the reason may be demonstrated by experiment, or derived from the truth of other propositions. The principle characterises one of the essential features of logically correct thinking—proof. The principle was first formulated by Leibniz (q.v.), though it was implied in many earlier systems of logic (e.g., in Leucippus and Aristotle, qq.v.). It was the subject of Schopenhauer's (q.v.) doctor's thesis (*Über die vierfache Wurzel*), 1813. In character it is an extremely general principle with a wide field of application.

Sufism, a mystical religious teaching in Islam (q.v.) which arose in the 8th century and spread in the countries of the Arab khalifate. Early S. is characterised by pantheism (q.v.) with some materialist elements. Subsequently, under the influence of Neo-Platonism (q.v.), Indian philosophy, and

Christian ideas, asceticism and extreme mysticism dominated S. S. accepted the existence of God as the only reality, with all things and phenomena being his emanation. Accordingly, the supreme goal of life was communion with the deity through contemplation and ecstasy. Among the prominent exponents of S. were the Persian philosopher al-Suhrawardi (12th century), the Arab thinker al-Ghazzuli (1059-1111), the Central Asian philosopher Sufi Alayar (d. 1720), and others.

Sun Yat-sen (1866-1925), Chinese revolutionary democrat. Received medical education at Hongkong. In 1894 set up China's first revolutionary organisation "Alliance for the Renascence of China". Under the influence of the Russian Revolution of 1905-07 Dr. Sun Yat-sen rallied the revolutionary forces for the overthrow of the ruling dynasty, with a programme based on three political principles: nationalism (China's national independence), democracy (establishment of a republic), and people's welfare (elimination of social inequality). S.'s revolutionary-democratic programme was given a high evaluation by Lenin, who criticised, however, S.'s utopian idea that capitalism in China could be "averted". The victory of the Great October Socialist Revolution had a great impact on S. He drew close to the Communist Party of China, reorganised the Kuomintang and supported demands for a new democratic revolution. In the new conditions, he restated his programme of the three People's Principles and adopted the threefold policy of alliance with the USSR, alliance with the Communist Party of China, and support for the peasants and workers. His economic programme included the demand to "restrict capital", i.e., nationalise big foreign and local capital. S.'s philosophical views were the theoretical basis of his revolutionary democracy. He took a materialist view of the relationship of mind and matter. He regarded the process of cognition in connection with man's practical activity, and held that the results of cognition, ideas and principles were an active force helping to remodel the world. In the

interpretation of social phenomena he remained, on the whole, an idealist. His main philosophical work: *The Doctrine of Sun Wen*.

Superstition, a term denoting false faith (q.v.). In theological and bourgeois writings, S. is usually contrasted with true faith in general and is associated with primitive magic (q.v.). The adherent of any religion tends to regard the dogmas and rituals of all other religions as S. Marxist atheism denies that there is any difference in principle between religious faith and religious S.

Surrealism, a trend in modern art which originated in France in the early 1920s. It is a characteristic expression of the crisis of capitalist society, and its philosophical roots lie in the subjective idealist theories of Freud, which regard art as nothing but the product and function of erotism. According to S., the content of art boils down to "sexual impulses", the instincts of the fear of death and also of life. The contradictions which are tearing capitalist society asunder, the feelings of horror and impotence in face of the real world produced by these contradictions have impelled some surrealist artists to embody them in images which tend to breed disgust towards reality and life itself. Hence, the stress of surrealist art on depicting nightmares, hallucinations, pathological states, hopeless pessimism, etc., as exemplified in the works of such writers as T. S. Eliot, L. Céline, James Joyce, Franz Kafka, Ezra Pound, and the sculptor Henry Moore, and the painters Salvador Dali, A. Kubin, etc.

Survivals of Capitalism (in people's consciousness), remnants of bourgeois ideology and psychology, of the morality of private ownership, manifested in opinions, habits, traditions after the victory of the socialist revolution (q.v.). Parasitism, alcoholism, hooliganism, roguery and cupidity, red tape and religious prejudices are harmful to socialist society. The tenacity of the old prejudices in the consciousness of a certain section of Soviet people is accounted for by human consciousness lagging behind social being and by the ideological influence of the capi-

talist world. The existence of the survivals may be affected by certain economic difficulties, and other factors (e.g., difficulties resulting from the war). The old in men's consciousness manifests itself with particular frequency where educational work is neglected, or where distortions of the socialist principles of community life are tolerated, where there is a breach of socialist democracy and revolutionary law. Communist education of working people, above all labour education, is the basic means of overcoming survivals in man. In the struggle against the S.C. a great role falls to society, to criticism and self-criticism, popularisation of Marxism-Leninism and atheism and also to literature and the arts, which stigmatise the S.C. and create positive characters.

Swedenborg, Emanuel (1688-1772), Swedish natural scientist who subsequently became a mystic and theosophian. S. is known for his works in mathematics, mechanics, astronomy, and mining, was an honorary member of the St. Petersburg Academy of Sciences. His philosophical works are permeated with the spirit of rationalism (q.v.) of Leibniz and Wolff. As a result of nervous shock and hallucinations S. lapsed into mysticism and proclaimed himself a "ghost-seer". S. undertook to interpret the Bible allegorically "on a mission of Christ himself". The theosophian doctrine of S. was influenced by a number of systems of gnosticism (q.v.) and the Jewish cabbala. The mystic doctrine of S. was criticised by Kant in his *Träume eines Geistersehers*. S. had followers in Germany, France, and Russia. Main works: *Arcana Coelestia* (1749-56) and *Heaven and Hell* (1758).

Syllogism, see Syllogistic.

Syllogism, Figures and Moods of, varieties of a syllogism (see Syllogistic) which depend on the position of the middle term in the premisses and their number and type (general assertions, particular assertions, general negations, particular negations; see Judgement). In the first figure the middle term is the subject in the major premiss and the predicate in the minor; in the second figure it is the predicate in

both premisses; in the third it is the subject in both premisses. These figures were introduced by Aristotle. The fourth figure, in which the middle term is the predicate in the major premiss and the subject in the minor, was added by Aristotle's followers. Classical logic has 19 moods; contemporary logic excludes, as not applicable in all cases, four moods which lose their general significance when they deal with empty sets (for example, "all golden mountains are golden"; "all golden mountains are mountains", but from this it does not follow that some mountains are golden—example given by Russell).

Syllogistic, a doctrine of inference (q.v.), historically the first logical system of deduction (q.v.) formulated by Aristotle (q.v.). The main purpose of S. is to ascertain the general conditions in which a definite conclusion follows or does not follow from propositions containing the assertion that the predicate involves or does not involve the subject and serving as premisses of the conclusion. Every syllogism consists of a triad of propositions: two premisses and a conclusion. Propositions which contain a term that does not enter in the conclusion (it is called the middle term) are the premisses (q.v.) of a syllogism. Depending on the position of the middle term in the premisses, all syllogisms are divided into four figures in which, depending on the type of logical constants binding the terms (proper to all, proper to none, proper to some, not proper to some), moods are singled out (see Syllogism, Figures and Moods of). Alongside the assertoric S., the foundations for the modal S. (see Modality) were laid by Aristotle. From the viewpoint of modern formal logic, the assertoric S. is a relatively narrow theory of deduction. The use of means and methods of mathematical logic makes it possible systematically to construct S. as a formal logical system: it is strictly axiomatised and its non-contradiction, completeness and decidability are demonstrated.

Symbolism, a trend in literature, and the arts. It originated in French litera-

ture in the 1880s (P. Verlaine, A. Rimbaud, S. Mallarmé, J. Moréas). Subsequently, the influence of S. extended to G. Rodenbach, M. Maeterlinck, S. George, H. Hofmannstahl, R. Rilke, S. Przybyszewski, and others. In Russia, S. started in the 1890s (N. Minsky, D. Merezhkovsky, K. Balmont and V. Bryusov). Early in the 20th century, A. Blok, A. Bely, Vyacheslav Ivanov, J. Baltrušaitis, and others joined the symbolists. The ideological aesthetic conception of S. is extremely eclectic. It is based on Platonism, on Kant's doctrine of the phenomenon and noumenon, the voluntarist philosophy of Schopenhauer and Nietzsche (qq.v.) and the mysticism of Solovyov (q.v.). The symbolists preached mystic idealism and the anarcho-individualist "freedom" of the artist and the idea of the self-value of art and denied the social mission of art. The real world is a reflection of the ideal, "transcendental" world, about which only the mystic intuition of the poet can bring us something by conveying this "something" in an artistic symbol (in this symbolists see the mission of art). But the symbol, too, is indefinite because it portrays something indefinite. The idea of reproducing nuances of the soul (connected with the "eternal"), everything unstable and unclear, brings S. close to impressionism (q.v.) in literature. Although some symbolists speak of the kinship of art with the people, S. is a decadent trend.

Syntactics, a branch of semiotic (q.v.).

Synthetic and Analytic, concepts in logical semantics (q.v.). All propositions in a system fall into two types: those whose truth can be established only on the basis of the rules governing the given system without recourse to facts, and those whose truth or falsity cannot be ascertained by the rules alone but requires recourse to facts. The former are analytic, the latter synthetic. A strict distinction between S. & A. has a meaning only for a given formalised language (q.v.). In the history of philosophy, the problem of the S. & A. is closely associated with the distinction between empirical (fac-

tual) knowledge and theoretical knowledge (of laws). Leibniz expressed this distinction by the division of all truths into necessary truths (theoretical knowledge) and accidental truths (factual knowledge). Kant defined as analytic, in opposition to synthetic, those judgments whose predicate is contained in, and identical with, the subject. They are independent of experience. Continuing this tradition, modern formal logicians distinguish between logical truth (analytic statements) and factual truth (synthetic statements). Analytic statements do not communicate any information about reality (they are tautological); they constitute the content of the formal sciences (mathematics and logic); synthetic statements are based on experience and constitute the content of the empirical sciences. The former are a priori statements, the latter a posteriori. From the standpoint of dialectical materialism, all statements of any science are based in the last resort on experience. The division of statements into A. and S. is conditioned by their place in a definite logical system of knowledge.

System, a set of interconnected elements constituting a unified whole. Analysis of a S., of system-objects, is one of the characteristic features of modern sciences. A system-object cannot be divided into individual elements and the relations between them; it cannot be studied merely by revealing some relation or other which is present in it; the specific feature of such an object is the presence of interdependent connections, and the study of their interdependence is an important task both of specially scientific analysis and of theoretical-cognitive (logico-methodological) analysis. Relatively long ago philosophers realised the necessity of analysing system-objects. Efforts have been made ever since antiquity to establish the laws for constructing a system of knowledge; in some branches of science, for instance, in mechanics in the 17th-18th

centuries, a number of concrete system-objects were studied. But the characteristic tendency up to the middle of the 19th century was still to try and divide the object studied into its components, with the result that the specific features of the system were lost sight of. The development of scientific knowledge revealed the inadequacy of such a method of study and the necessity for finding an adequate method for studying system-objects. A strict formulation of the task of studying system-objects was given by dialectical materialism. Marx and Lenin analysed an extremely complex developing object, the S. of economic relations in capitalist society, and expounded the basic methodological principles for such studies. Further elaboration of these principles is one of the chief tasks for the methodological study of S., and its successful accomplishment will be of inestimable assistance to many modern sciences dealing with the analysis of S. (physics, chemistry, biology, linguistics, psychology, sociology, and others).

Systems, General Theory of, a concept of the study of objects which represent a system (q.v.), put forward by L. Bertalanffy, an Austrian biologist now working in Canada. The main idea of this theory is recognition of the isomorphism (q.v.) of the laws governing the functioning of objects of different types representing a system. It attempts to construct a mathematical apparatus describing these laws. Bertalanffy has rendered an important service by studying the discovered systems which constantly exchange substance and energy with the environment. As a branch of natural science, G.T.S. is of definite importance for the development of science. But Bertalanffy clearly exaggerates its methodological content. This theory is above all descriptive and completely abstracts itself from an analysis of the structure of knowledge capable of reflecting objects in a system.

T

Tachism, a trend in art which originated in France following the 2nd World War. One of the latest variants of abstract art (q.v.), T. is based on the principles of subjectivist and idealist aesthetics. It separates the artist's creativity from reality, from the people's vital interests and spiritual requirements, and makes art a means of expressing all sorts of subjectivist conceptions. Hence, the striving of T. to dehumanise the content of artistic works. One of the founders of this trend, Jean Dubuffet (b. 1901), claimed that "the colour of dirt is no less beautiful than the colour of the sky". And in actual fact tachists try to express their inner self by reproducing on canvas chaotic conglomerations of shapeless, motley stains. To this end they employ such "highly expressive" means as tar, coal, sand, broken glass, etc. All this shows that T. has nothing in common with real art.

Tai Chen, or Tai Tung-yuan (1723-77), Chinese materialist philosopher, studied natural sciences, particularly mathematics and astronomy. According to T.C., nature is eternal and exists independently of human consciousness. Of the interconnection between the ideal *li* (q.v.) and the material *ch'i* (q.v.), the two fundamental concepts of the Neo-Confucian philosophy of nature, T.C. said that *ch'i* was primary and *li* secondary. The world, he said, is in a state of continuous inception and development. He described motion as the interaction of opposite forces—the positive *yang* and the negative *yin* (q.v.). The action of these forces is eternal, indestructible and indivisible from nature. All phenomena and things are subject to natural necessity.

T.C. believed sensations to be the basis of cognition, denied the existence of "innate knowledge" and advocated experimental verification of general conclusions. He maintained that the liberation of the people depended on the development of education and the moral self-improvement of the individual.

T'ai Shih, or "The Great Ultimate", one of the basic concepts of the ontological and natural philosophical systems in the history of Chinese philosophy. It is first mentioned in the *Book of Changes*, where this concept denotes the initial stage, the prime cause of origin and development of all phenomena and things. The term T. is of primary importance in Neo-Confucianist philosophy. For instance, in his work *Explanation of the Diagram of the Great Ultimate*, Chou Tun-i (1017-73) proves the process of world development. Initially, nature was in the state of chaos, or the "unlimited Great Ultimate". The self-motion of the Great Ultimate gives rise, through the connecting links *yin* and *yang* (q.v.) and the five agents, or "elements" of Water, Fire, Wood, Metal and Earth, to the multiformity of reality and its development. The greatest of the Neo-Confucians, Chu Hsi (1130-1200) gave an idealistic interpretation of T'ai Shih and identified it with *li*, the absolute law.

Tan Ssu-tung (1865-98), Chinese philosopher, ideologist of the bourgeois reformation movement towards the end of the 19th century. He expounded his philosophical views in his book *Jên-hsüeh (A Study of Benevolence)*, which played a big role in developing the bourgeois-revolutionary movement in China. T. sought to justify

the demands of the reformers' movement theoretically. His teaching was but a combination of the ideas of Chinese traditional philosophy with certain natural scientific conceptions held in Western Europe. The main concept of his teaching—*Jen*—means both an ethical standard and a metaphysical principle. *Jen* is the unifying factor in the interaction of all phenomena and things in the "ether". T.S. professed the dependence of ethics and morality on social regulations. Philosophically, he was not consistent, his scientific conceptions being interwoven with religion, materialism with idealism, and dialectics with metaphysics.

Tantrism, a philosophico-religious teaching in ancient India, initially associated with the cult of female deities and magic rites performed to obtain greater fertility of the land. Historically, T. changed its form several times under the impact of the religions which later developed; it was Buddhist, Shivaist, Shaktist and Vishnuist. In the Middle Ages, T. opposed the teaching of Vedānta (q.v.) on the *maya advaita* and admitted the reality of the world and its evolution out of the spiritual primary principle. Tantrists held that the structures of the microcosm and the macrocosm were identical and tried to find a key to the knowledge of nature in man's knowledge. Their teaching on the human body (*deha vada*) contains much information that enables us to judge of the development of chemistry and medicine in ancient and medieval India. It is indicative that the tantrists' psycho-physical exercises (*sadhana*) have no connection with ascetic renunciation of the world. Moreover, the traditional religious aim, *mukti* (Skr. spiritual liberation), is combined with *bhakti* (enjoyment). An important feature of T. is its appeal to all Indians, irrespective of their caste, sex and age. This is due to the fact that T. maintains a number of essential features of primitive-communal ideology. T. greatly influenced Indian philosophy, in particular the ideas of the early Sāṅkhya (q.v.). Among those influenced by T. in recent times were Rama-

krishna, Vivekananda, Tagore, and Aurobindo Ghose (qq.v.)

Tao, one of the key categories in Chinese classical philosophy. Originally, T. denoted "the way", and was later used in philosophy to denote the "path" of nature, the laws governing nature. T. also connoted the purpose of life and the "ethical standard" (*tao tē*). T. also means logic, reason and argument (*tao li*). The concept changed in step with the development of Chinese philosophy. Such materialist philosophers as Lao Tzū, Hsün Tzū, Wang Chung (qq.v.), etc., interpret T. as the natural way of things and the law that governs things. The idealists interpret it as the "ideal principle", the "true non-being" (Wang Pi, etc.), the "divine way" (Tung Chung-shu and others). T. is thus one of the basic questions over which materialists and idealists part ways.

Taoism, the doctrine of *tao* or "the way" (of things), originated in China in the 6th or 5th century B.C. Lao Tzū (q.v.), who is considered its founder, set out its basic ideas in a book *Tao Tē Ching (The Canon of Reason and Virtue)*. It maintains that all things originate and change due to their own "way", or *tao*. All things are mutable and turn into their opposite in the process of mutation. Man should adhere to the naturalness of things, without striving or crying. T. opposed domination and oppression, and urged a return to the primitive community of the ancients. Yang Chu (q.v.), Hsün Tsiang, Yin Wen and Chuang Tzū, were prominent exponents of T. in the 4th and 3rd centuries B.C. Yang Chu contended that by observing the natural laws of life (*tao*) man would "preserve his nature intact", while Hsün Tsiang and Yin Wen believed that adherence to *tao* would yield every man wisdom and knowledge of the truth. They averred that man's soul consists of delicate material particles, "*ching chi*", which come and go depending on the "purity" or "pollution" of our "thought organ" (*hsin*). Chuang Tzū blended his somewhat puerile materialistic world outlook with such idealistic propositions as non-existence

of objective truth, life being an illusion, and true being springing from the eternal and independently existing *tao*. Chuang Tzu's views were the ideological embryo of T. as a religion, which originated at the dawn of the new era (T. as a philosophy is to be distinguished from T. as a religion). Subsequently, the rational philosophical ideas of T. were advanced in the works of Chinese materialists, such as Wang Chung (q.v.), and others.

Tarski, Alfred (1902-), logician and mathematician, an eminent representative of the Lvov-Warsaw school (q.v.).

Taste, Aesthetic, man's ability acquired through sharing in the life of society to understand and appreciate the beautiful (q.v.) and the ugly (q.v.). Good aesthetic taste implies the ability to enjoy something truly beautiful, and also a sense of the necessity to create the beautiful in one's work, everyday life, behaviour, and art.

Tautology 1. In traditional logic, the most glaring logical mistake committed in defining a concept. In this meaning T. is a logically untenable definition in which the definitive is a mere repetition in other words of what is contained in the part to be defined. 2. In mathematical logic, the same thing as the identically true statements (q.v.).

Technocracy, a modern sociological trend which came into being in the USA on the strength of the ideas of the economist Thorstein Veblen. It gained popularity in the thirties (H. Scott, G. Loeb, and others). Technocratic societies have sprung up in the USA and some European countries. Adherents of T. claim that anarchy and instability of contemporary capitalism are the result of the administration of state affairs by politicians. They hold that capitalism may be cured provided that economic life and state administration are taken over by technicians and businessmen. Their demagogic criticism of capitalist economy and politics camouflages their striving to justify the direct subordination of the state machinery to industrial monopolies. Closely associated with T.

is managerism, which is now widespread in the USA.

Technology, the totality of machines, mechanisms, systems and means of control, collection, storing, processing and transmitting energy and information, created for the purposes of production, research, war, etc. The requirements of T. underlie the development of natural science. As Engels said, once society develops a technological requirement, it advances science more vigorously and quickly than a dozen universities. Practical results of science find their expression in T. On the other hand, T. supplies science with experimental equipment. The development of T., of the productive forces in general, determines the socio-economic structure of society. Labour is organised and distributed according to what instruments society possesses. The progress of mechanical T. gave birth to the working class, paved the way for its organisation and the building of a socialist mode of production. In its turn, social structure greatly influences the rate and nature of the development of T. Thus, the development of T. under capitalism engenders chronic unemployment, crises of overproduction and converts the worker into an appendage of the machine; in capitalist society the progress of modern automatic T. leads to a lowering of the standard of the worker's education, to his intellectual degeneration. The decay of imperialism is reflected in the accelerated development of those industries which bring in greater profit, even if the results of this growth are prejudicial to man (military T.). Only socialism provides unlimited possibilities for developing T., since its sole purpose is to ensure man's domination over nature. Under socialism, T., based on automation, electronic computers and new technological processes, transforms science into a direct productive force and facilitates the conversion of labour into a play of man's physical and spiritual powers.

Teleology, the theory of the purposefulness (q.v.) of all natural phenomena. According to T., not only man but also all natural phenomena are

guided by final purposes and have souls of a special kind. While man sets himself a task in a conscious manner, a purpose in nature is implemented unconsciously. T. is indissolubly connected with hylozoism, panpsychism, pantheism (qq.v.), etc. T. holds that the principle of life and thought is rooted in the very basis of matter, which consists not of dead atoms, but of live monads (q.v.), possessing a vague capacity of imagination. T. tries to explain the universal interconnection of all natural phenomena and their law-governed character. The first consistent system of T. was elaborated by Aristotle (q.v.). To him, every thing has its own predestination, bears in itself an active purposeful principle, soul, entelechy (q.v.), and all purposes in nature are subordinate to one supreme goal. The main idea of Aristotle's T. was preserved in the teachings of Thomas Aquinas, Leibniz, Hegel, Heidegger (qq.v.), and others. The concept that the purpose of nature lies beyond the world and represents the supreme basis and ultimate goal of the world process served as a physico-teleological proof of the existence of God. Kant (q.v.) proved the logical insolvency of this concept, which was carried to the extreme in the theory of pre-established harmony (q.v.). The teleological view of living nature was widespread in the biological theories of the 17th-19th centuries. Darwin's theory of evolution (q.v.) gave a rational interpretation of the relative purpose of living creatures and thereby undermined the domination of T. in biology. After Darwin, teleological conceptions in biology were preached by neo-vitalism, Neo-Lamarckism, etc. Contemporary cybernetics shows that purposefulness is the process of optimum adaptation of objects to the surroundings. While rejecting idealistic teleological speculations, dialectical materialism provides the basis for a rational explanation of purposefulness in living nature.

Telésio, Bernardino (1508-88), Italian natural philosopher of the Renaissance, materialist. He wrote *De Natura rerum juxta propria Principia* (1565).

He urged philosophers to study nature by means of experiments and emphasised the importance of the sense-organs, which he held to be the main source of human knowledge. He opposed the speculative syllogistic method specific to scholasticism. T. was a predecessor of Francis Bacon (q.v.). In his interpretation of nature T. proceeded from the fact that matter, filling up all the space (thus excluding void), is as eternal as God. Like all other natural philosophers of his time, T. adhered to hylozoistic ideas (see Hylozoism). T.'s system of cosmological conceptions implies that heat and cold as the antithetical and animated elements aspiring to self-conservation are in combat for matter, heat being concentrated on the Sun and cold on the Earth.

Temperament, the sum total of the individual qualities of a person characterising the dynamics of his or her psychic activity. T. is manifested in the strength of man's feelings, their depth or superficiality, the speed with which they are displayed, their stability or variability. T. is similarly manifested in the peculiarities of the individual's movements. The basis of T. is man's higher nervous activity. A strong, balanced and mobile type corresponds to the sanguine T., distinctive features of which are quickly arising but easily changeable emotions, and vivacious movements. A strong, balanced, but immobile type corresponds to the phlegmatic T., which is characterised by the stability of feelings, by calm movements. A strong, unbalanced type corresponds to the choleric T., whose distinctive features are suddenly changing emotions, emotional excitability, impetuous movements. A weak type corresponds to the melancholic T. with deep and lasting feelings, to which little outward expression is given. It should be noted that T. depends not only on the inborn qualities of the nervous system, but also on the conditions of man's life and work. T. is not invariable throughout an individual's life. No type of T. is necessarily a hindrance to the development of all

the socially essential qualities of the person. However, every T. requires special ways and means of forming these qualities. T. is one of the prerequisites of originality of character in man.

Term 1. A word having only one meaning, fixing a definite concept of science, technology, the arts, etc. T. is an element of the scientific language whose introduction was determined by the necessity for exact and unambiguous designation of the data of science, especially those data which have no corresponding names in the everyday language. As distinct from words used in everyday language T. is devoid of emotional connotation. 2. In logic, T. is an essential element of a proposition (subject or predicate) or a syllogism (the predicate of a conclusion is called the major term, the subject of the conclusion is the minor term, and the concept contained in the premisses of a syllogism but not in its conclusion is called the middle term).

Thales of Miletus (c. 624-547 B.C.), the first historically known ancient Greek philosopher. In ancient tradition he was considered one of the "seven wise men". According to legend, T.M. mastered the mathematical and astronomical knowledge of Egypt and Babylon. He is credited with predicting the solar eclipse in 585-584 B.C. T.M. was the founder of the spontaneous-materialistic Miletian school. He sought a single first principle in the diversity of things (element, q.v.) and considered it as a corporeal substance perceptible by the senses. He held water to be the primary element of all that exists.

Theism, a religious philosophy which acknowledges the existence of a personal God as a supernatural being endowed with reason and will and mysteriously influencing all the material and spiritual processes, including the lives of people. According to T., all that occurs in the world is the implementation of divine providence, on which, it holds, the laws of nature depend. T. is the ideological basis of clericalism, theology, and fideism

(qq.v.). T. is essentially hostile to science and the scientific world outlook (see Atheism).

Theodicy (Gk. *theos*—God; *dike*—justice), a term used to designate philosophical-religious treatises which strive to justify the glaring and irreconcilable contradiction between belief in an almighty, good, creative God and the existence of evil and injustice in the world. In the 17th and 18th centuries T. became an independent branch of philosophical literature. Leibniz's essay on evil, *Théodicée* (1710), which was widely famous at the time, was subjected to scathing criticism by Voltaire in his satirical philosophical novel *Candide* (1759). By its social content T. is an attempt at philosophical-religious justification of the evil and injustice reigning in a society based on antagonistic classes and exploitation. This is the main topic of many theological works, including Catholic ones, which sophistically treat evil not as a reality but as a privation ("privatio"), a lack of something.

Theogony 1. A system of religious myths concerning the origin of the gods, the genealogy of the gods. The first known poetical collection of ancient Greek myths in European literature was *Theogony* by Hesiod (8th century B.C.). 2. *Theogonie* is the title of a work published by Feuerbach in 1857. It critically views the evolution in the conceptions of God in antique, Judaic and Christian mythology and in theology.

Theology, or the science of God, the system of dogmas in a given religion. Christian T. is based on the Bible, the decrees of the first oecumenical councils and the "Holy Fathers", the Holy Scriptures and the sacred traditions, and is divided into basic theology (fundamentalism and apologetics, q.v.), dogma, morals, and worship, etc. The prominent features of T. are extreme dogmatism, authoritarianism, and scholasticism. Closely related to T. is religious philosophy, which tries to prove that T. is compatible with science. T. has been severely criticised by progressive thinkers of all times.

Theorem, in modern formal logic and mathematics, any proposition in a strictly built (e.g., axiomatically) theory, which is proved (or deduced) by applying the permissible rules of deduction. The concepts "axiom" (q.v.) and "T." are relative: the same propositions of a given theory may be regarded in some cases as axioms, and proved in others as Tt. Absolute division of the propositions of a theory into axioms and Tt. is only possible within the framework of a concrete system.

Theory, a system of generalised knowledge and explanation of different aspects of reality. The term T. has different connotations: as opposed to practice or a hypothesis (unverified, suppositional knowledge) T. differs from practice, since it spiritually or mentally reflects and reproduces reality. At the same time it is inseparably linked with practice, which places pressing problems before knowledge and requires it to solve them. For this reason practice is part and parcel of every T. Each T. is complex in structure. For example, two parts may be distinguished in physical theories: formal calculations (mathematical equations, logical symbols, rules, etc.) and a "substantive" interpretation (categories, laws, principles). The structure and treatment of this "substantive" part of T. are connected with the scientist's philosophy and with definite methodological principles of approach to reality. Both natural-scientific and social Tt. are determined by the historical conditions in which they originate, by the historically given level of production, technology and experiment, and the dominant social order, which may favour or, contrariwise, hamper the creation of scientific Tt. Tt. may and actually do play a big role in transforming society by revolutionary means. Thus, while appearing as a generalisation of the cognitive activity and results of practice, T. is conducive to transforming nature and social life. The criterion of the truth value of T. is practice (see Criterion of Truth).

Theory and Practice, philosophical categories denoting the spiritual and

materialist aspects of the single socio-historical process of cognition and transformation of nature and society. T. is the people's experience generalised in their consciousness, the sum total of their knowledge of the objective world; a relatively independent system of knowledge interrelated by the inherent logic of concepts reproducing the objective logic of things. As distinct from empiricism and positivism (pragmatism, in particular), Marxist philosophy regards P. not as the sensuous subjective experience of the individual and not as an action performed by subjective motives alone, but as the activity of people to sustain the existence and development of society, as the objective process of material production, which constitutes the basis of people's lives, and also as the revolutionary and transforming activity of classes and all the other forms of social activity which bring about changes in the world. Scientific experiment is also a form of practice. T. & P. form one indissoluble unity; they do not exist without each other and constantly influence each other. P. is the basis of this interaction. It is practical socio-productive activity that generates and determines at each stage both consciousness and the theoretical assimilation of reality. People act in a conscious way, trying to find the purport of reality. This does not mean that they are guided in their actions by a strictly consistent scientific T. But their activity is always directed by a definite totality of knowledge. At the dawn of human history one undivided "everyday consciousness" was the only form of existence of such knowledge. Understanding of the purport of the habits of work, empirical generalisation of the results of actions and observations, tradition and belief, the true or fantastical reflection of social being—this T. was not a logical and harmonious system of concepts, nor a scientific reproduction of the objective laws of reality. The relation of T. to P., however, was so complete that this T. was directly "woven" into the "language of real life", into the practical

activity of people. With the division of labour into mental and physical, T. & P. separate and are ascribed to different social spheres. Although they continued to be dependent on each other and to interact upon each other, they turn into relatively independent forms of social activity. As Marx and Engels put it, “from this moment consciousness is able to emancipate itself from the world and begin the building of ‘pure’ theory, theology, philosophy, morality, etc.”. (Marx, Engels, *Werke*, Bd. 3, S. 31.) The appearance of “pure” T. meant a great revolutionary leap in the history of mankind. The development of theoretical investigations, the abstract logical form of “pure” T. enabled people to penetrate deeply into the essence of natural phenomena and to create a constantly changing scientific picture of the world. On the other hand, scholars themselves failed to see in full the obvious connection between T. and P. In conjunction with the individualistic world outlook inherent in societies where private ownership dominated, there arose various illusions; beginning with the view of cognition as an act of individual passive contemplation of the surroundings by a “theorist” and ending with the idealistic systems which regard theoretical consciousness (ideas) as the creator of reality. “From this moment consciousness is actually *able* to imagine that it is something different from the recognition of the existing practice.” (Ibid.) The capitalist mode of production, which socialises labour, develops productive forces on an unprecedented scale, creates objective prerequisites for bridging the gap between T. and P. T. acquires an immeasurably greater role in the process of production. The practical movement of the masses aimed at abolishing private ownership unites with the advanced, Marxist theory, which discloses society’s objective laws and directs the entire activity of the working-class party towards the achievement of communism, a scientifically realised goal. With the emancipation of labour, the abolition of class antagonisms, and the obliteration of distinctions be-

tween mental and physical labour, the gap and the antithesis between T. and P. is eliminated. After the victory of socialism, and particularly in the period of full-scale construction of communism, Marxist-Leninist T. and science in general come into closer contacts with P. The powerful productive forces brought to life by free labour to benefit the whole of society require direct participation of T. in production. Moreover, science, as the highest form of theoretical activity and an essential aspect of the habits of mechanised and automated work, becomes itself a productive force. Only the emergence of mankind’s true history visibly discloses the essence of the single socio-historical and practico-theoretical process of cognition and transformation of nature and society.

Theory of Knowledge, see Epistemology, Cognition, and Reflection, Theory of.

Theosophy, a mystic teaching acknowledging that God may be known by a direct link with the other world. Relying on Buddhism (q.v.), Brahmanism and other oriental philosophies, T. claims that the human soul alternates its presence and absence on earth several times until it finally expiates sin and merges with God. Theosophic societies have arisen in the USA, Britain and other capitalist countries since the end of the 19th century.

“Thermal Death” of the Universe, the ultimate condition of the world which is alleged to emerge as a result of the irreversible conversion of all forms of movement into its heat form, of the diffusion of heat in space and the transition of the world into the state of balance with a maximum value of entropy (q.v.). This conclusion is drawn on the basis of making an absolute of the second law of thermodynamics and extending its application to the entire Universe. The idea of T.D. holds no water, since (1) the Universe is infinite in space and represents an unbounded totality of an endless number of qualitatively different systems; (2) the number of pos-

sible conditions of matter in the Universe is infinite and cannot be reached over any lapse of time; the concept of the most probable condition identified with the maximum value of entropy is inapplicable to the world as a whole; (3) the second law of thermodynamics does not determine the trends of all possible changes in matter; there are other laws in the world which condition the concentration of diffused matter and energy and their inclusion in new cycles of development. The formation of stars and galaxies is but one of the manifestations of this process. The irreversible changing of matter in the Universe does not imply that the world is hurtling to an ultimate condition, but means an endless emergence of qualitatively new conditions, possibilities, and trends of development.

Thermodynamics, the branch of theoretical physics studying the laws of heat motion, the conversion of heat into other types of energy. As distinct from statistical physics (q.v.) T. is a classical example of a descriptive theory of physical phenomena, which involves no suppositions concerning the structure of matter. For the most part T. is based on two principles that originated experimentally and play the role of axioms in the deductive system. The first principle is the application of the law of the conservation of energy to the phenomena which have bearing on the changes of inner energy. It assumes the form of the law of the equivalence of heat and work. Sometimes the first principle is formulated in terms of the impossibility of effecting a perpetual motion of the first kind. Under the second principle of T. heat cannot of itself pass from a cooler body to a hotter body without changes in any other bodies. The second principle of T. is a limited law, which has no bearing on systems consisting of a small number of particles. Attempts to extend its application beyond its sphere, particularly to the world as a whole, lead to the emergence of contradictions and to false philosophical conclusions (see “Thermal Death” of the Universe).

“**Theses on Feuerbach**”, eleven theses found in Marx’s notebook, written in the spring of 1845. After more precise formulation they were first published by Engels in 1888 as an appendix to Marx’s work *Ludwig Feuerbach and the End of German Classical Philosophy*. As Engels put it, *Theses on Feuerbach* are “invaluable as the first document in which is deposited the brilliant germ of the new world outlook”. (Marx, Engels, *Selected Works*, Vol. II, p. 359.) According to their content, *Theses* are close to *The German Ideology*. In his *Theses* Marx concisely formulates the cardinal principles of a new philosophy. Their central idea is the analysis and elaboration of a scientific understanding of practice. This task required a materialistic understanding of history, the basic propositions of which Marx expounds. These are: that social life is mainly practical, that man is the product of his own labour, that he is essentially social by nature, that ideological phenomena (for instance, religion) depend on the conditions of society’s existence and development. From this viewpoint Marx criticised the historical idealism of Feuerbach and the utopian socialists. Proceeding from the unity of theory and practice, Marx raised the problems of epistemology in a new light, criticised the entire “preceding” materialism, noting that its main shortcoming was its contemplative approach. He also criticised idealism for its distortion of the “active aspects”, i.e., the activity of the subject in the process of its interaction with the object (see Subject and Object). Marx’s theses substantiated the essence, tasks and role of the philosophy of dialectical materialism in the practical transformation of society.

Thing, any part of the material world possessing relatively independent and stable existence. Its characteristic feature is the integral unity of the properties by means of which it is connected and interacts with other things.

“**Thing-in-Itself**” and **Phenomenon (Thing-for-Us)**, philosophical terms, the former meaning things as they exist by themselves, independently of us

and our knowledge, the latter denoting things as they reveal themselves to man in the process of cognition. These terms acquired particular significance in the 18th century, when it was stated that it was impossible to know "things-in-themselves". First stated by Locke (q.v.), this proposition was developed in detail by Kant (q.v.), who claimed that we are concerned only with the phenomenon, which is completely removed from the "thing-in-itself". For Kant, the "thing-in-itself" also means essences which are supernatural, unknowable, inaccessible to experience: God, freedom, etc. Dialectical materialism, which proceeds from the premise that it is possible to acquire exhaustive knowledge of things, regards cognition as the process of turning the "thing-in-itself" into the phenomenon on the basis of practical experience (see *Cognition, Theory and Practice*).

Thomism, the leading trend in Catholic philosophy started by Thomas Aquinas (q.v.). T. was most widely accepted in the various schools of the Dominican Order. In the Middle Ages T. was opposed by the adherents of Duns Scotus (q.v.) who grouped around the Franciscan Order. The most prominent continuator of T. in the epoch of the Renaissance (q.v.) was the Italian Dominican Thomas del Vio (Cajetan of Tiene). The earlier bourgeois revolutions, the Reformation, and the resultant loss by the Catholic Church of its former supremacy were responsible for a certain renovation of T., by the Spanish Jesuit Francisco Suarez. The mid-19th century saw the last revival of T. (see *Neo-Thomism*), the prominent representatives of this trend being Stöckl, Baeumer (Germany), de Wulf, Mercier (France), Newman (Britain), Liberatore (Italy), and others. The main tendency of contemporary T. is to falsify modern natural science theoretically and to adapt Thomas Aquinas' system to the philosophies of Kant and Hegel (qq. v.) and to modern idealistic theories (see Husserl, Heidegger, Nikolai Hartmann, and others).

Thoreau, Henry David (1817-62), American idealist philosopher and writ-

er, graduated from Harvard University in 1837. He was a member of the circle of transcendentalists (q.v.), headed by Emerson (q.v.). T.'s views took shape under the influence of European romanticism, especially Carlyle and Rousseau (qq.v.). He criticised capitalism and its culture from petty-bourgeois positions. "The luxury of one class is counterbalanced by the indigence of another. On the one side is the palace, on the other are the almshouse and 'silent poor'," wrote T. in his main work *Walden or Life in the Woods* (1854). T.'s pantheistic world outlook has a flavour of mysticism: the laws of nature coincide with universal reason (including the moral order). The purpose of knowledge is truth, which people reach through understanding the divine reality that surrounds them, i.e., nature. He actively opposed slavery in the USA.

Thought 1. The highest product of the brain as specially organised matter; the active process through which the objective universe is reflected in concepts, judgements, theories, etc. T. arises in the process of the social and productive activities of men, ensures a mediate reflection of reality and reveals the natural connections within it. The material physiological mechanisms of T. were investigated by I. Pavlov (q.v.) and resulted in his theory of the second signalling system (q.v.). Nevertheless T., being inseparably linked with the brain, cannot be fully explained by the activity of the physiological system. The inception of T. is associated primarily with social development, rather than biological evolution. From the standpoint of its mode of inception, its method of functioning, and its results T. is a social product. The explanation of this is found in the fact that T. is inseparably linked only with such activities as labour and speech, which are peculiar only to human society. Hence, man's T. occurs in closest association with speech and its results are expressed in language (q.v.). T. comprises such processes as abstraction, analysis, and synthesis (qq.v.), the formulation of definite tasks and the discov-

ery of their solutions, the advancement of hypotheses (q.v.), concepts, etc. The process of T. invariably produces some idea. The fact that T. is capable of generalised reflection of reality finds expression in man's ability to form general concepts (q.v.). The formation of scientific concepts is frequently associated with the formulation of corresponding laws (q.v.). The fact that T. is capable of mediate reflection of reality finds expression in man's ability to arrive at logical conclusions and proof (q.v.). This ability greatly increases the range of cognition. It enables man to proceed from an analysis of facts which may be directly perceived to cognition of that which cannot be perceived through the sense-organs. Concepts and systems of concepts (scientific theories) record (generalise) the experience of mankind, represent the sum total of man's knowledge, and serve as a point of departure for further cognition of reality. T. is the object of study of various disciplines (physiology of higher nervous activity, logic, cybernetics, psychology, epistemology, etc.) by various methods. Prominent among experimental studies in the field of T. has lately been modelling (q.v.) in the shape of various cybernetic devices. T. does not exist in the life of each individual as a purely intellectual process, but is inseparably linked with other psychological processes, i.e., it has no existence isolated from man's consciousness (q.v.) as a whole. Idealism has always striven to dissociate T. from matter (the human brain, language, society's practical activities), and when it did recognise such an association, it strove to present the T. of single individuals as something derived from certain spiritual principles superior to matter and the consciousness of individuals (e.g., Hegel, q.v.). Denial of T. as something really existing is taught by neo-positivism (q.v.). Reducing mankind's entire range of experience to facts directly observed, as does behaviourism (q.v.), neo-positivism declares T. to be a fiction, just like matter (unlike language, which is invariably regarded as a fact perceived

through the sense-organs). Neo-positivism ignores the fact that language is a means of expression, a form of the existence of thought. Language analysis is used in the study of those properties of the brain known as thought 2. In psychology, T. is the process of interaction of the cognising individual with the object of cognition, the pre-eminent mode of the individual's orientation in reality. T. as such is always creative; it arises in situations where the solution of problems requires the acquisition of new knowledge and methods of altering the environment to meet the needs. The products of T. are psychological models (psychics, q.v.) of reality seen epistemologically as the images of objects. T. is the essential prerequisite of any other activity, inasmuch as the latter is its summarised and digested result. T. undergoes a complex evolution, producing derived forms of intellectual activity, such as the processes of perception, imagination, acquiring various habits, etc. As these latter gain in strength, T. utilises them in solving new and more complicated problems. In an elementary form T. is characteristic of animals as well. At the stage of man the appearance of labour led to the shaping of the speech form of T. characteristic of the human being and representing a theoretical form of activity as singled out of practice. As a result of the development of the second signal system T. in its highest form is transferred to the inner plane of activity. Psychic models rather than real things may be its objects. Models of reality constructed with the aid of speech may be the subjective results of such T. These model not only the relationships between subject and object but also the relationships among various objects. From an epistemological standpoint these models constitute concepts, judgements, conclusions reflecting the laws governing the movement of objects, their specific aspects and properties, which are frequently outside the range of direct perception, basic associations and interrelationships. The objective products of the speech form

of T. participate in practical activity and are fixed in the corresponding transformations of real things. They constitute socio-historical experience, which is acquired by the younger generation through the process of learning. T. may be productive, creative (psychology of creative activity, q.v.) or reproductive (memory, habit, qq.v.). Both these forms of T. are closely interrelated: productive T. may be transformed into reproductive, and reproductive T. may become one of the prerequisites of creative T.

Time and Space, basic forms of existence of matter. Philosophers are mainly concerned with whether T. & S. are real or simply pure abstractions which exist only in men's consciousness. The idealist philosophers deny the objectivity of T. & S. and make them dependent on the individual consciousness (Berkeley, Hume, Mach, qq.v.). They regard them as a priori forms of sensory contemplation (Kant, q.v.) or as categories of the absolute spirit (Hegel, q.v.). Materialism recognises the objectivity of T. & S. and denies the existence of any reality outside them. T. & S. are inseparable from matter, this being a manifestation of their universality. S. is three-dimensional and T. has only one dimension; S. expresses the distribution of simultaneously existing objects, while T. expresses the sequence of existence of phenomena as they replace one another. T. is irreversible, i.e., every material process develops only in one direction—from the past to the future. The development of science has exploded the metaphysical idea that T. & S. exist independently of material processes and separately from each other. Dialectical materialism proceeds not from the simple connection of T. & S. with matter in motion, but from the fact that motion is the essence of T. & S., and that, consequently, matter, motion, time, and space are inseparable. This idea has been confirmed in modern physics. The natural science of the 18th and 19th centuries, while recognising the objective nature of T. & S., followed Newton (q.v.) in regarding them as divorced from each

other, as something self-dependent, existing completely independently of matter and motion. Following the atomistic views of the ancient natural philosophers (see Democritus and Epicurus), natural scientists right up to the 20th century identified space with a vacuum, which they considered absolute, always and everywhere the same and motionless, with T. flowing on always at the same pace. Modern physics has discarded the old conceptions of T. & S. as empty receptacles and proved their profound relation with matter in motion. The main conclusion in Einstein's theory of relativity (q.v.) is precisely the establishment of the fact that T. & S. do not exist by themselves, in isolation from matter, but are part of a universal interrelation in which they lose their independence and emerge as relative aspects of the integral and indivisible space-time. Science has proved that the flow of time and the extent of bodies depend on the speed at which these bodies move, and that the structure or geometrical properties of the four-dimensional continuum (space-time) change according to the accumulation of masses of substance and the field of gravitation caused by them. The ideas of Lobachevsky (q.v.), Riemann, Gauss, and Bolyai contributed much to the present-day theory of T. & S. The discovery of non-Euclidean geometry refuted Kant's teaching on T. & S. as forms of sensory perception outside the range of experience. The researches of Butlerov (q.v.), Fyodorov, and their followers revealed the dependence of spatial properties on the physical nature of material bodies, and the dependence of the physico-chemical properties of matter on the spatial distribution of atoms. The fluctuations in people's views on T. & S. are used by the philosophical and physical idealists (q.v.) as an excuse for denying their objective reality. According to dialectical materialism, human cognition is producing a more profound and correct conception of the objectively real T. & S.

Timiryazev, Kliment Arkadyevich (1843-1920), Russian scientist, follower

of Darwin (q.v.), founder of plant physiology in Russia. T.'s world outlook was shaped under the impact of the ideas of the Russian revolutionary democrats. At an early stage he realised that further progress of biology would depend on success in the cognition of the deep-going processes of vital activity in the organisms (physiology, biochemistry and biophysics). His experimental work in plant photosynthesis played a considerable role in substantiating the unity of living and inanimate matter. T. did not confine his research within the narrow framework of experimental methods; he made broad philosophical generalisations and fruitfully applied the historic method, which in many respects coincides with the dialectical materialist method. T. strove to place biology at the service of the people. He associated his research with the practice of land cultivation, popularised the achievements of biology. Of great importance was the struggle T. waged against the idealistic theories in biology (see Vitalism). He was the first among the prominent Russian natural scientists to accept the Great October Socialist Revolution. The collection of his articles published in 1920 under the title *Nauka i demokratiya* (*Science and Democracy*) was highly appraised by Lenin.

Toland, John (1670-1722), English materialist philosopher, advocate of free-thinking. He greatly influenced Voltaire, Diderot, Holbach, Helvétius, and others. Having begun with deistic criticism of religion, T. adopted atheism: he denied the immortality of the soul, retribution in another life, the creation of the world and miracles, and tried to prove the secular origin of the "sacred" books and to explain that religion originated from conditions on earth. His book *Christianity not Mysterious* (1696) infuriated the clergy and was burnt; T., however, managed to escape. His great merit was his theory of the unity of matter and motion. Motion, he held, is an essential and indispensable property of matter. He criticised Spinoza (q.v.), who did not regard motion as the basic

property of matter, and also Newton and Descartes (qq.v.), who believed that God is the source of motion. According to T., matter is eternal and indestructible, and the Universe is infinite. However, he adhered to mechanistic materialism, denied contingency, regarded thought as a purely physiological movement of the cerebrum, and held that the movement of matter does not undergo qualitative changes.

Tolstoi, Lev Nikolayevich (1828-1910), great Russian writer and thinker. His works of art and his teaching reflected for the most part the epoch between 1861 and 1904, that is, the epoch of the accelerated growth of capitalism and the ruin of the patriarchal peasantry. As Lenin said, T. embodied in his works in amazingly bold relief "the specific historical features of the entire first Russian revolution, its strength and its weakness", one of its principal distinguishing features being "a *peasant* bourgeois revolution". (Vol. 16, p. 324.) T. gave an appraisal of the reality in his day from the standpoint of the Russian peasantry. Hence the "crying" contradictions in his viewpoints: on the one hand, we see ruthless criticism of capitalism and the official church, and exposure of the anti-popular essence of the exploiting state and, on the other hand, the preaching of submissiveness, the doctrine of non-resistance to evil, a refined form of religion. T.'s philosophico-religious views were influenced by Christianity, Confucianism (q.v.), and Buddhism (q.v.), and also Rousseau and Schopenhauer (qq.v.). The basic concept of T.'s teaching is the concept of faith (q.v.), which he understood mainly rationally: faith is the knowledge of what man is and the meaning of his life. The meaning and the value of human life consist in uniting people on the basis of love and in uniting them with God on the basis of realising their divinity. In this the great thinker saw the ideal of a "true" Christian religion. According to T., the state, church, and civilisation as a whole prevent the implementation of this ideal. He exposed the vices

of bourgeois civilisation, denied its culture in general, and called upon people to take to plain living, to undertake a simple, peasant work. Man is only free when he serves God (the good, or unconditional, "universal and invisible principle"). In other spheres he is not free; the historical process is guided by God and is influenced by the activity of the masses, the individual having no importance in actual fact. Thus T. came to fatalism (q.v.). In his works on aesthetics (for instance, "What Is Art?", written in 1897-98), T. strongly opposed decadence and the official art of the gentry. In defining art as human activity by means of which people convey to one another their feelings, T. regards it as an essential condition of human life. It must unite people, help them realise their ideals; it must be also understandable by them. However, T. saw the supreme goal of mankind in the establishment of "God's kingdom on earth" and for this reason came to the unscientific conclusion that a religious idea must be the guiding idea in the arts. T. enjoyed great authority not as a preacher of reactionary and utopian ideals, but as a brilliant realistic writer, as the author of *War and Peace*, *Anna Karenina*, *Resurrection*, and other highly remarkable works, as a humanist who upheld the protest of the masses against social inequality and oppression. His main philosophico-religious works are: *Issledovaniye dogmaticheskogo bogosloviya* (*Investigation of Dogmatic Theology*), 1880; *Isповед* (*Confession*), 1880-82; *V chom moya vera?* (*What Do I Believe In?*), 1883; *Tsarstvo bozhiye vnutri nas* (*God's Kingdom Inside Us*), 1891, and *Put zhizni* (*Path of Life*), 1910.

Totemism, one of the early forms of religion in primitive-communal society. As a term it was used for the first time by John Long at the end of the 18th century. The main feature of T. is belief in the common origin, blood relationship and association of a group of people with a definite kind of animal, plant, object or phenomena. The emergence of T. was conditioned by the primitive economy (hunting, fruit-

gathering, etc.) and the lack of knowledge of the other ties in society besides consanguinity. The primitive conception of the totem is the animal-ancestor, its portrayal or symbol, and also a group of people. The totem, the powerful protector of people, supplies them with food. T. is widespread among the aboriginal tribes of Australia, North and South America, Melanesia, Polynesia, and Africa. The survivals of T. are preserved in developed religions (God is the father of believers; pure and impure animals; the eucharist means the partaking of God's body), and in folklore (tales of marital and blood relationships between people and animals).

Toynbee, Arnold Joseph (1889-), English historian and sociologist. His philosophy of history replaces the concept of social progress by the "theory of cycles". He holds that world history proceeds in great cycles of ups and downs and is a sum total of various "civilisations", which pass through the same phases: birth, growth, downfall, disintegration, and destruction. In treating the problem of the motivating forces of history, T. combines belief in "divine revelation" as the meaning of history, and "a hope of communion with Him" with the cult of individuals, "creative individuals" or "creative minorities". T. differs from Spengler (q.v.) in trying to prove that it is possible to save "Western civilisation" by means of clericalism (q.v.).

Traduction, a sort of indirect inference in which the premisses and conclusions are propositions of equal degree of generality. The analogy (q.v.) and also the conclusions drawn in analogue simulation (q.v.) are examples of traductive inference. Depending on the nature of the premisses and the conclusion T. may be one of three types: (1) inference from the singular to the singular; (2) inference from the particular to the particular; (3) inference from the general to the general.

Tragic, The, a category of aesthetics expressing the contradictions of social development, the individual and society, the struggle between the beautiful

and the ugly. The T. reflects the contradictions which are unresolvable at a given time, the contradictions between historically necessary requirements and the practical impossibility of implementing them. Tragic contradictions lead to painful emotions, sufferings, and even to the death of the hero. Marxist aesthetics sees the main cause of tragic developments in the collision of social forces resulting from the laws of social development. Marx and Engels made a distinction between the tragic nature of the progressive forces, opposing the obsolescent order and unable to triumph in the given conditions, and the tragic nature of the historically obsolete class, which nevertheless has not yet exhausted its potentialities. A tragic situation sets in also when certain representatives of the old social order realise the doom of their class, but cannot sever their ties with it and adopt the positions of a new class which has the future on its side. In life and art, the T. evokes in people's hearts both grief and an aesthetic delight (see Catharsis), since the T. purifies man's feelings and consciousness, fosters in him hatred for vile motives and steels his will and courage. The era of the socialist revolution and the building of a new society has given rise to new types of tragic contradiction and conflict, whose heroes display revolutionary optimism and purposefulness, understand that communist society is inevitable, believe in the forces of the people and are ready to face the most difficult trials and even death for the triumph of communism. The tragedy is a specific form of expression in art (for instance, *Hamlet* by Shakespeare, *Boris Godunov* by Pushkin, and the *Optimistic Tragedy* by Vsevolod Vishnevsky).

Transcendent, a term denoting that which is beyond consciousness and cognition as opposed to the immanent (q.v.). This term is of vast importance in the philosophy of Kant (q.v.), who held that man's knowledge is unable to penetrate into the T. world, the world of the "things-in-themselves" (q.v.). On the other hand, man's behav-

iour is dictated by the T. standards (free will, immortal soul, God).

Transcendental, in scholasticism (q.v.), the *transcendentalia* are notions which apply to any being and mean the supercategorical. The T. definitions of being are broader in scope than the traditional categories of scholastic philosophy: form and matter, act and potentiality, etc.; they express the universal, supersensuous properties of being which are cognised through intuition, before any experience. According to scholasticism, the three principal transcendentals (there are six of them in all) denote: unity, the relation of being to itself, or the identity of being; truth, the comparison of being with the infinite spirit, or the apprehension of being in divine reason; blessing, the comparison of being with the infinite will, or purposefulness of being determined by the divine will. Transcendentals were mentioned for the first time by Alexander of Hales (a 12th-13th century Franciscan scholastic and realist), Albert the Great (q.v.) and Thomas Aquinas (q.v.). The term T. was introduced later, in the 16th century. The development and recognition of the theory of transcendentals as the nucleus of scholastic metaphysics date back to a later period (16th-17th centuries). In recent times the theory has been criticised from the standpoint of nominalism (q.v.). Spinoza and Hobbes (qq.v.) called it "naive" and "senseless", and Kant (q.v.) "sterile" and "tautological". According to Kant, the only transcendental is knowledge which deals both with objects and the method of their a priori cognition. The knowable being, or the transcendent (q.v.) world of "things-in-themselves", as Kant postulated, lies beyond the limits of experimental knowledge and for this reason is not reflected in the transcendental (logical) definitions. The modern scholastics hold that the theory of T. is independent of experience and the concrete sciences, and seek to prove the "eternal value" of metaphysics and the philosophical justification of the theological truths. By its objective content the theory of the transcendental definitions is but

an attempt to create a purely contemplative, complete theory of being. Marxist philosophy does not use the term T.

Transcendental Apperception, a term introduced by Kant, denoting a priori (q.v.), that is non-empirical, initial, pure, and invariable consciousness, which, he claimed, determines the unity of the world of phenomena, from which it receives its forms and laws. According to Kant, the unity of T.A. is the condition for the interrelation of human conceptions, their preservation and reproduction; the identity "ego", i.e., the fact that the thesis "I think" is included in any conception, forms the basis of this unity. Basing himself on this idealistic postulate of Kantianism, Fichte (q.v.) created his own system of subjective idealism.

Transcendental Idealism, a term denoting a special kind of philosophical idealism whose representatives were Kant (q.v.) and his followers. In scholastic philosophy it was used to designate concepts which rise above all the thinkable categories (see Transcendental). According to Kant, all idealism that preceded him developed the theory of being in a "dogmatic" way, that is, failed to investigate beforehand the conditions and the very possibility of unconditionally universal and unconditionally necessary truths. Kant held that theoretical philosophy ("metaphysics") should explain how these truths are possible in science and whether they are possible in philosophy. In his opinion, explanations of this kind are supplied by transcendental idealism (also known as "critical"), which tries to prove that the a priori forms of consciousness are the condition for such truths and studies the possibility of applying these forms both within the framework of experience and beyond it. In accordance with this approach, a number of theories enunciated in Kant's *Critique of Pure Reason* has been called transcendental (e.g., transcendental aesthetics, transcendental logic).

Transcendentalists, a group of the US idealist philosophers and writers who set up the so-called Transcendental

Club in Boston in 1836. In 1840-44, T. published their official organ *The Dial*. This group included Emerson (q.v.), George Ripley (1802-80), Margaret Fuller (1810-50), Thoreau (q.v.), and others. Although the members of this group called themselves T. (thus revealing their connection with the philosophy of Kant, q.v., and Schelling, q.v.), their world outlook was influenced mainly by the ideas of Plato (q.v.), the Lake poets in England (Samuel Coleridge and William Wordsworth), and also of Carlyle (q.v.) and Rousseau (q.v.). The club members were chiefly petty-bourgeois intellectuals. They criticised capitalism from the standpoint of romanticism and a petty-bourgeois ideology for its brutality and called upon people to perfect themselves morally and draw nearer to nature. Many of the T. opposed slavery in the USA. In 1841, George Ripley set up a colony based on the teaching of Fourier (q.v.), known as Brook Farm; it existed till 1847.

Transcensus, the passage from the subjective to the objective, from the sphere of consciousness to the sphere of the objective world effected in the course of human practice, but prohibited or restricted by the subjective idealists and agnostics. According to Kant, T. can be achieved only by faith, and not by knowledge. Hume denied T. in general. As Lenin noted, the very idea of T. taken to mean that there is a boundary in principle between the appearance and the "thing-in-itself", is a nonsensical idea of the agnostics.

Transformism, a conception of changes occurring in plant and animal organisms. T., however, does not recognise continuity and progressive development in the organic world. The term T. is sometimes used as a synonym to the theory of evolution (q.v.).

Transition from Quantity to Quality, one of the basic laws of dialectics, explaining how and in what condition motion and development take place. This universal objective law of development states that the accumulation of imperceptible, gradual quantitative changes leads of necessity at a definite moment for each process to radical

changes of quality, to a leap-like transition from the old to a new quality (see Quality and Quantity, Measure, Leap). This law holds true in all processes of development in nature, society, and thought. Quantitative and qualitative changes are interconnected and interdependent: there is not only transition from quantity to quality, but also an opposite process—change of quantitative indications as a result of a change in the quality of objects and phenomena. Thus, the transition from capitalism to socialism involved a considerable change in quantitative indications: acceleration of economic and cultural development, growth of national income and workers' wages, etc. Quantitative and qualitative changes are relative. A change may be qualitative in respect to some (less general) properties, and only quantitative in respect to other (more general) properties. Thus, the transition from the pre-monopolistic to the monopolistic stage of capitalism is not an absolute change of quality: the quality of capitalism changed only in the sense that certain new essential features and properties have appeared, but its essence remains unchanged. Any process of development is at the same time both continuous and discontinuous. Discontinuity appears in the form of a qualitative leap, and continuity in the form of a quantitative change (see Evolution and Revolution). Such a conception of development is diametrically opposed to the metaphysical view, which one-sidedly sets off evolution against leaps originating from no one knows where. Marxism has proved the unscientific character of the views of the revisionists and those sociologists who reduce the development of society to slow evolution and minor reforms, deny leaps and revolutions, and of the anarchists and Left-wing adventurers who disregard the long and painstaking work of accumulating strength and preparing the masses for decisive revolutionary actions. The dialectical materialist understanding of the law of transition from quantity to quality is in direct opposition to that of idealism. Hegel, who was the first to formulate this law,

mystified it like other laws of dialectics. In his teaching the categories of quantity and quality and their mutual passages initially appeared in an abstract form—in the absolute idea—and only later in nature. Marxist philosophy considers this law not as a prerequisite for constructing the world, but as a result of the study of nature, as the reflection of what happens in reality. Being a most important law of the objective world, it is also a vastly important principle for knowing the world and consciously transforming it in practice. In changed conditions of social development the laws of dialectics are revealed in a specific form. Thus, under socialism the passage from quantity to quality (leaps) does not take the form of political revolutions; social changes here take place gradually through the dying away of the old and the emergence of elements of the new. This is the basic law of the growth of socialism into communism.

Transmutation of Chemical Elements, the transformation of one kind of atoms into another (for example, uranium atoms into lead atoms, etc.). The idea of the possibility of the mutual transmutations of elements was expressed by ancient Chinese and Indian philosophers, by Plato, Aristotle (q.v.), and others. Such ideas were, in essence, the outcome of conjectures concerning the profound internal unity of matter, its variability, although often cloaked in an idealistic form. The belief in the philosopher's stone (q.v.) was based on these ideas. When the chemical elements came to be connected with certain kinds of atoms (Dalton, q.v.), which were considered to be indivisible and immutable, independent of one another, the idea of the transformation of elements was put aside for a long time. Metaphysical views of the eternal, immutable, and simplest elements of matter—"the bricks of the Universe"—came to predominate. Mendeleev's periodical system of elements played an important role in paving the way for the idea of the T.C.E. However, this idea received a firm scientific foundation and practical application

only with the discovery of radioactivity, the complex structure of the atom (q.v.) and the atomic nucleus (q.v.), and nuclear reactions. T.C.E. confirms the tenet of dialectical materialism on the development of matter, the unity and mutability of its various forms, and shows the insolubility of the metaphysical views on the existence of eternal and immutable primary elements in nature.

Trendelenburg, Friedrich Adolf (1802-72), German metaphysician, professor of Berlin University, opponent of Hegel. The rational kernel of his criticism of Hegel (q.v.) was his striving to show that Hegel tacitly used the concept of the external world in deducing his categories, and only because of this can these categories be considered as having imaginary independence, insofar as they are isolated from the material world. But having revealed the illusiveness of the dialectical transitions in a purely idealistic understanding, T. proved to be anti-dialectic in principle. In actual fact he was an eclectic, an adherent of teleology (q.v.). T. was a prominent connoisseur of Aristotle and translator of his works. His main work: *Logische Untersuchungen* (1840).

Triad, trinity, three-phase development. The concept T. was introduced by the Neo-Platonists (q.v.), in particular Proclus (q.v.). It was widely used by German classical philosophers, including Hegel (q.v.). According to Hegel, every process of development passes through three phases: thesis, antithesis, and synthesis. Every next phase denies the previous one, turning into its opposite, while synthesis not only denies antithesis but also combines in a new way certain features of both previous phases of development. In its turn synthesis begins a new T., and so on. T. reflects one of the peculiarities of development, in which the original starting point is reached again, but on a higher plane owing to the experience accumulated. Hegel made an absolute of T. and, contrary to his own statements, transformed it into an artificial scheme imposed on reality, a formal method of building a

philosophical system, a scheme of the three-phased development of the concept. Marxist philosophy applies the rational content of T. to characterise the process of development (see Negation of the Negation, Law of).

Tribe, a form of human community peculiar to the primitive-communal system. The foundation of T. is formed by the gentile relations, resulting in the tribes' territorial, linguistic, and cultural disunity. Only the individual's attachment to a T. made him co-owner of the common property, gave him a definite share of the produce, and the right to participate in social life. The replacement of gentile relations by commodity-exchange relations led to the disintegration of the tribes and united them in nationalities.

Tropes, principles with the aid of which the ancient sceptics (see Scepticism) formulated the impossibility of attaining objective knowledge of what exists. It was Aenesidemus (q.v.) who gave the greatest number of T. in the most consistent form. The first four T. deny the possibility of attaining knowledge of things on the strength of the fluidity, indefiniteness, and contradictoriness of man's sensuous perception. Four other T. proceed from the state of the object. The ninth T. generalises all the other eight T., since it deals with the relativity of perception in connection with the infinite variety of relations between the perceiver and the perceived. The tenth T., unconnected with the previous nine T., deals with the impossibility of acquiring objective knowledge owing to the variety of people's opinions, moods, actions, intentions, etc. (for instance, some people have their own laws, other people have different laws; some people hold that the soul is immortal, others that it is mortal). The falseness of all T. is seen from the following: in order to affirm the relativity of cognition of objects, one must have an idea of the autonomous and independent existence of those objects; that is, if a sceptic does not know what is the independent object, he can neither prove the relativity of cognition of them nor even know of their existence.

Trubetskoi, Sergei Nikolayevich (1862-1905), Russian idealist philosopher, graduate of Moscow University, professor of that university. In 1900-05 was editor of the journal *Problemy Filosofii i Psikhologii*. In 1905, he was elected Rector of Moscow University. T.'s world outlook was formed under the influence of German classical philosophy and the views of Vladimir Solovyov (q.v.). According to T., a true world outlook can be built only on the basis of the absolute, which is to be understood as "a universally united concrete being". This ideal being reveals itself both as an autonomous existing entity and as "volitive" subject, engendering all the multiplicity of empirical things. Space, time, necessity are other forms of the other being of this absolute. T. called his views "concrete idealism". Cognition of being proceeds in empirical (scientific) and speculative philosophical forms. Faith is also a source of knowledge. T.'s "concrete idealism" is closely related with the recognition of God as "infinite love" and the idea of unification of people in the fold of the church. A member of the Zemstvo liberal movement of Russia, T. advocated the system of representative organs of power, the autonomy of universities. At the same time he was a staunch supporter of monarchy, an opponent of socialism and revolutionary methods of struggle. His main works are: *O prirode chelovecheskogo soznaniya (The Nature of Human Consciousness)*, 1890; *Osnovaniya idealizma (Principles of Idealism)*, 1896; *Ucheniye o logose v ego istorii (The Theory of Logos and Its History)*, 1900. He was also the author of a number of works on the history of ancient philosophy.

"True Socialism", a variety of petty-bourgeois socialism which arose in Germany in the mid-1840s (K. Grün, M. Hess, H. Kriege, O. Lüning, and H. Püttmann). The philosophical views of the "true Socialists" were an eclectic combination of the ideas of French and English utopian socialists and Young Hegelians with Feuerbach's ethics. "True Socialists" considered socialism as a supra-class theory, declar-

ing it to be the realisation of some kind of general human essence. They denied the class struggle, preached reconciliation of social contradictions, non-participation in politics and in the struggle for bourgeois democratic freedoms, and urged the proletariat not to take part in political revolutions. Marx and Engels resolutely fought against the ideology of "T.S." and its influence on the working-class movement. In their works *The German Ideology*, *A Circular Against Kriege*, *German Socialism in Poetry and Prose* and *Manifesto of the Communist Party* they criticised "T.S.", demonstrating the reactionary role it played during the period when the revolution was maturing in Germany. Under the influence of Marx and Engels a number of "true Socialists" (Weydemeyer, Dronke, and others) broke with their old views. During the 1848 revolution many "true Socialists" discarded their pseudo-socialist phraseology and joined the ranks of petty-bourgeois democrats. Some ideas of "T.S." are now utilised to falsify Marxism in a spirit of idealist ethics.

Truth, the true, correct reflection of reality in thought, which is ultimately verified by the criterion of practice. The characteristic of truth is applied to thoughts and not to things themselves or the means of their linguistic expression. Marxism was the first to provide a materialist basis for the understanding of T. and to indicate new dialectical aspects of its study (see Truth, Objective; Truth, Absolute and Relative; Truth, Concrete; Criterion of Truth).

Truth, Absolute and Relative, categories of dialectical materialism that define the development of knowledge and the relation that is revealed between (1) that which is known and that which will become known as science develops; (2) that part of our knowledge which may be changed, made more precise or refuted as science develops, and that which is irrefutable. The theory of A. & R.T. provides the answer to the question "Can human ideas which give expression to objective truth, express it all at one time, as a whole, unconditionally, absolutely, or

only approximately, relatively?" (Lenin, Vol. 14, pp. 122-23). A.T. is understood (1) as complete, exhaustive knowledge of reality and (2) as knowledge which will not be refuted in the future. At every stage of development our knowledge is conditioned by the level achieved in science, technology and production. As knowledge and practice (experience) develop, man's conception of nature is deepened, perfected and made more exact. Scientific truths, therefore, are relative in the sense that they do not give complete, exhaustive knowledge of the subjects being studied and contain elements that will be changed and made more exact and profound as knowledge develops or will be replaced by others. At the same time every R.T. is a step forward in the cognition of A.T. and will contain, if it is truly scientific, elements or grains of A.T. There is no impassable barrier between A.T. and R.T. A.T. is composed of the totality of R.Tt. The history of science and social experience confirm that knowledge develops in this dialectic way. As scientific knowledge develops the properties of objects and relations between them become known more fully and profoundly and we draw nearer to A.T., which is confirmed by the application of theory in practice. On the other hand, theories that have been elaborated are constantly being developed and made more exact; some hypotheses are refuted (e.g., the hypothesis of the existence of the ether), others are confirmed and become proved truths (e.g., the hypothesis of the existence of the atom); some conceptions are excluded from science (e.g., thermogen and phlogiston), others are made more exact and summarised (cf. the concepts of simultaneity, q.v., and inertia in classical mechanics and in the theory of relativity), etc. The theory of A. & R.T. is given concrete form in science in the principle of correspondence (q.v.). This principle is opposed to metaphysics, which declares every truth to be eternal and immutable ("absolute"), and to the various idealist conceptions of relativism which maintain that all truth is only relative

and that the development of science is only evidence of a series of errors that replace each other in sequence so that there cannot be any objective truth. Actually, to use Lenin's words, "Every ideology is historically conditional, but it is unconditionally true that to every scientific ideology (as distinct, for instance, from religious ideology) there corresponds an objective truth, absolute nature". (Vol. 14, p. 136.)

Truth in Formalised Languages, a basic concept of logical semantics which specifies the Aristotelian concept of truth as applied to propositions in formalised languages (q.v.). Attempts to define the concepts of a "true proposition" in a spoken language inevitably leads to antinomies of the type of "liar" (see Antinomies, Semantic). The first strict and non-contradictory definition of the concept "true proposition" was obtained by Tarski in 1931 for a language of calculus classes with the help of the concept of decidability in a specially constructed metalanguage in the following form: statement X is true if and only if it is decidable by all subjects (by all classes in a language of calculus classes) and is false if there are no objects which decide it. Tarski showed that a formally exact definition of the concept of a true proposition in a particular language L can be given only in some metalanguage ML; ML must be logically richer than L, that is, it must contain language L as a part of itself and, moreover, ML must have expressions of higher logical types (see Types, Theory of) than language L. This condition is definitely not decided if L is a natural language without any restrictions. A substantial result of these studies was the establishment of the non-coincidence of classes of true and demonstrable propositions of a language of calculus classes (and other logically richer classes): every demonstrable proposition is true, but not every true proposition is demonstrable. The existence of true non-demonstrable propositions in a formalised language is proof of its incompleteness and non-contradiction (see Logical Synthax; Axiomatic Theory,

Completeness and Non-Contradiction of). There are also other methods of defining the concept of truth in formalised languages (McKinsey, Carnap, Martin).

Truth, Objective, content of human knowledge which does not depend on the will and desire of the subject. Truth is not constructed by the will or desire of people, but is determined by the content of the object reflected and this is what determines its objectivity. The doctrine of O. T. is directed against all possible subjective idealist conceptions of truth, according to which truth is constructed by man and is a result of conventions between people. Such understanding of truth is unscientific and reactionary, inasmuch as it allows all kinds of superstitions, religious beliefs, etc., to be regarded as truth because they are shared by most people. Contemporary idealist philosophy opposes the objectivity of truth. This leads to a subjective approach to scientific knowledge, thereby undermining and discrediting science. Pragmatism (q.v.), for example, holds that a proposition is true if its acceptance ensures success in life; neo-positivism declares mathematical and logical truths to be conventions (see Conventionalism).

Truth, Relative, see Truth, Absolute and Relative.

Turgot, Anne Robert Jacques (1727-81), French economist, sociologist, statesman. He shared the materialist views of Holbach, Diderot and Helvétius (qq.v.). In his philosophico-historical studies he advocated the idea that society's progress is closely related with the development of the forms of economic life. He recognised the importance of economic growth, the progress of science and technology in the interests of social development. He joined the economic school of the physiocrats, who in contrast to mercantilists held that the "*produit net*", i.e., surplus value, is created in the sphere of production, not in the sphere of circulation. T. advanced some ideas about the class division of society and the essence of wages. He approached the scientific definition of the

class. His main work was *Réflexions sur la formation et la distribution des richesses* (1776).

Turing, Alan (1912-54), English logician and mathematician. In 1937, he suggested a definition of an abstract computer ("the Turing Machine"), with the aid of which it would be possible in principle to perform any calculation or logical process according to an exactly formulated instruction. "The Turing Machine" was one of the first exact conceptions of the algorithm (q.v.), anticipating a number of features common to the universal numerical computers that came into existence later. T. was the first to emphasise the importance of creating teaching machines, i.e., machines which could accumulate the necessary experience and improve their behaviour in the process of interaction with the environment.

Twofold Truth, the term denoting the mutual independence of the truths of philosophy and theology. The theory appeared in the Middle Ages, when science strove to shake off the trammels of religion. The notion of T.T. was set out most clearly in Arab philosophy. Ibn-Roshd (q.v.) believed that philosophy contained truths unacceptable to theology, and vice versa. The idea of T.T. was propounded by exponents of Averroism (q.v.) and nominalism (q.v.), such as Duns Scotus, William of Occam (qq.v.), and by Pietro Pomponazzi (q.v.) at the time of the Renaissance, etc. At present the T.T. doctrine is employed by theologians and reactionary philosophers to defend religion and to combat the scientific materialist world outlook.

Types, Theory of (the Hierarchy of Types), a method of building formal (mathematical) logic, by which a distinction is made between objects of various levels (types); it aims at excluding paradoxes (q.v.) or antinomies (q.v.) from logic and the theory of numbers. Ernst Schröder was the first to develop T.T. and to apply it to the logic of classes (1890). In 1908-10, B. Russell built a detailed system of T.T. and applied it to the calculus of predicates. It is based on distinction ac-

ording to types between: individuals (type 1), properties (type 2), the properties of properties (type 3), etc. He also introduced the division of types into orders. T.T. is but one of the methods of removing antinomies from constructions in the theory of plurality and formal logic.

Typification in the Arts, an artistic method of penetrating into the essence of things and phenomena; a method of reproducing human life, thoughts and feelings in the form of vivid artistic images. T. is a complex process which represents the mutually penetrating unity of two antithetical aspects of creative work: artistic generalisation and individualisation (q.v.) of objective content. In conformity with his ideological design and the peculiari-

ties of his poetical nature the artist processes this content, imparts to it a lively and original emotional form which gives man high aesthetical enjoyment. In order to create a typical image, the artist must truthfully portray the typical phenomena of life and reveal the essence of processes and contradictions underlying social development. To this end he studies life, selects and picks out the most characteristic features—the conduct, habits, tastes, outward features which are common to a certain group of people. With the aid of creative imagination he embodies his generalisations in original characters acting in peculiar circumstances. Artistic types are capable of great ideological and emotional influence.

U

Ugly, The, an aesthetic category denoting phenomena inimical to the beautiful (q.v.), and man's negative attitude to these phenomena. In society ugliness, as opposed to beauty, is the result of social conditions that are inimical to the free manifestation and flowering of man's vital energy, its restricted and grotesquely one-sided development and the consequent collapse of the aesthetic ideal. In true art the portrayal of what is aesthetically ugly is one way of asserting the ideal of beauty.

Umov, Nikolai Alexeyevich (1846-1915), Russian physicist, professor of Moscow University; in 1911, resigned from the university with other progressive scientists in protest against the actions of the tsarist government. U. studied problems of theoretical and experimental physics, first introduced the concept of the energy flow (the Umov-Pointing Vector). He was a mechanistic materialist, and Descartes (q.v.) was his ideal in philosophy. Although the break-up of the concepts of classical physics struck a strong blow at a number of Cartesian principles, U. remained loyal to materialism and opposed relativism (q.v.) and physical idealism (q.v.). A splendid organiser, populariser of science, and teacher, U. played a big part in founding the Russian materialist school of physicists.

The Uncertainty Principle, a proposition of quantum mechanics formulated by W. Heisenberg (q.v.) in 1927, according to which it is impossible to specify or determine simultaneously both the position and velocity of a particle as accurately as is wished. The U.P. is expressed in terms

of the quantitative correlations between the so-called uncertainties of conjugate variables: position and momentum, and also time and energy. The less uncertain a particle's position is, the more uncertain is its momentum, and vice versa. A similar correlation obtains between the measurement of the momentum of time and that of a particle's energy. The U.P. is an objective characteristic of the phenomena of the microcosm associated with their wave-corpulent nature; uncertainties are inherent in the real state of the microobject and do not limit cognition. Heisenberg and Bohr (qq.v.) deduced the U.P. from the action of the instrument determining a particle's position upon its momentum (e.g., the action of an aperture in the diaphragm, through which an electron passes, on the electron's momentum) and from the action of the instrument determining the particle's momentum on its position in space. This is also true of the action of time-measuring instruments on the energy of a particle and of energy-measuring instruments on the possibility of an accurate determination of time. The U.P. prompted certain philosophers to draw positivist conclusions up to the point of negating the causality of states of an elementary particle and the objectivity of the microcosm, its independence of cognition (so-called instrumental idealism; see Instrumental). Materialist criticism of such idealistic distortions of quantum mechanics was instrumental in ascertaining its actual meaning.

Unconscious 1. Qualifying an action, unconscious means performed automatically, by reflex, before the

reason for it has reached the consciousness, e.g., defensive reaction, etc., or when consciousness is naturally or artificially switched off (sleep, hypnosis, intoxication, sleep-walking, etc.).

2. In idealist theories, a term for a special region of psychic activity in which are concentrated eternal and immutable desires, motives and aspirations determined by the instincts and incomprehensible to consciousness. The idealist doctrine of the U. was most fully developed in Freudism (q.v.), which divided the psyche into three layers—the unconscious, the subconscious, and the conscious. The U. is the deep foundation of the psyche and determines the whole conscious life of the individual and even of whole nations. Unconscious desires for pleasure and death (instinct of aggression) form the core of all emotions and emotional experiences. The subconscious is a special frontier zone between the conscious and the unconscious. This zone is invaded by unconscious desires and here they are strictly censored by consciousness. Consciousness is a superficial manifestation of the psyche at the point of contact with the real world and it is largely dependent on mystical, unconscious forces. The U. figures in the theories of Herbart, Schopenhauer (qq.v.), and other idealists as the mystical, unknowable basis of conscious action.

Unity and Conflict of Opposites, Law of, a universal law of reality and its understanding by the human intellect, expressing the essence, the "core" of materialist dialectics. Every object contains opposites. By opposites dialectical materialism means elements, "aspects", etc., that (1) are in indissoluble unity, (2) are mutually exclusive, not only in different respects, but in one and the same respect, i.e., (3) interpenetrate each other. Their unity is relative, their conflict is absolute. The conflict of opposites means that the contradiction within the essence of an object is being perpetually resolved and just as perpetually reproduced, thus bringing about the transformation of the old into the new. The law of the U. and C. of O.

thus explains the objective inner "origin" of all motion without calling in any external forces and allows us to understand motion as self-motion. It reveals the true, concrete unity of diversity as a concrete and not dead identity and enables us to conceive the concrete wholeness and development of an object "in the logic of concepts". That is why this law forms the "core" of dialectics. It pinpoints the antithesis between dialectical and metaphysical thinking, which interprets the "origin" of motion merely as something different from, and external to, motion itself, and unity as "alien" to diversity. Metaphysics leads one to substitute for motion and the concrete unity of diversity a mere description of the external results of motion and the aspects of an object compared purely externally. The history of dialectics is the history of the controversy surrounding these problems and the attempts to resolve them. The founder of the dialectics of contradictions was Heraclitus (q.v.). The Eleatics (Zeno, q.v.) converted contradiction into something purely subjective and reduced it to a means of denying motion and diversity ("negative dialectics", *aporia*, q.v.). Plato (q.v.) attempted to achieve a synthesis. In the Renaissance the idea of the "coincidence of contraries" was developed by Nicholas of Cusa (q.v.) and Bruno (q.v.). Kant (q.v.) "eliminated" antinomies only by separating the subject from the object. Attempts to overcome this split led to the idea of dialectical contradiction (see Fichte, Schelling and Hegel). Hegel did all that was possible towards solving the problem of contradiction within the framework of idealism. In modern idealist philosophy the characteristic tendencies are, on the one hand, to irrationalise contradiction as something insoluble, and, on the other hand, to attempt to dismiss this category altogether and replace it by terminological distinctions (various positivist conceptions). Marxism has interpreted and defined the law of the U. and C. of O. "as a law of cognition (and a law of the objective

world)" (Lenin). Materialist interpretation, based on the principle that dialectics, logic, and the theory of knowledge coincide, prevents the law being reduced to a "sum of examples". The objective universality of the law forms the foundation of its methodological functions in the process of cognition. This law also determines the structure of scientific theory inasmuch as it reveals the dialectical division of unity. A classical example of this structure is found in Marx's *Capital*, in which the solution of contradictions carries the investigation forward in accordance with the logic of the subject itself and provides a rational means of evolving new concepts. Dialectical contradiction in the process of cognition is not merely a matter of setting thesis and antithesis against each other; its purpose is to arrive at their solution. To understand dialectical contradiction means to understand how it is resolved and the solution has nothing in common with removing formal logic's confused contradictions in reasoning. The dialectical contradiction within a theory can be adequately formulated only in the process of ascending from the abstract to the concrete (see *The Abstract and the Concrete*). The full exposition of a theory cannot, therefore, be confined within the framework of a single "system devoid of contradictions". The process of development proceeds through the clash of external, relatively independent opposites. Dialectics regards external opposites not as primordially distinct essences but as the result of the division of unity, and ultimately as derivatives of internal opposites. The Marxist doctrine of social development rests on the application of this law, on investigation of the contradictions in society; it forms the basis of the thesis of the class struggle as the motive force in the development of class society and draws upon this thesis for all its revolutionary conclusions. Socialism is the natural result of the development and solution by means of social revolution of the contradictions of capitalism. There are various kinds of con-

tradictions and various ways of resolving them. Socialism also develops by means of contradictions, but these contradictions are of a specific nature (see *Antagonistic and Non-Antagonistic Contradictions*). The category of dialectical contradiction is important from the point of view of method in modern natural science, which is more and more often confronted with the contradictory nature of objects.

Unity and Diversity of the World

The unity of the world lies in its materiality, in the fact that all things and all phenomena are various forms or attributes of matter in motion. There is nothing in the whole world that is not a concrete form of matter, or the manifestation of its qualities and interrelations. The unity of the world is expressed in the universal connection of phenomena (q.v.) and objects, in the fact that all forms of matter possess such universal attributes as motion, space, time, the ability to develop, etc., in the existence of universal dialectical laws of being, operating at all levels in the structural organisation of matter. But the unity of the world should not be understood as uniformity of structure, as the simple endless repetition of what already exists and the subordination of everything to identical specific laws. In nature there is an infinite number of qualitatively different levels in the structural organisation of matter, at each of which matter possesses different properties and structure and is subject to different specific laws of motion. We now know several of these levels, which correspond to different scales: atomic nuclei and elementary particles, atoms and molecules, macroscopic bodies, cosmic systems of various orders. The quantitative and qualitative diversity of natural phenomena presents no insuperable barrier to acquiring authentic knowledge of them. Proceeding from the unity of natural phenomena and the universal qualities and laws of material motion, the human mind discovers in every finite phenomenon elements of the infinite, and in the transient, aspects of the eternal.

Universal, see **Individual**, **Particular**, **Universal**.

Universal Connection of Phenomena, the most general law governing the existence of the world; the result of the universal interaction (q.v.) of all things and phenomena. It expresses the inherent underlying structural identity of all elements and properties in every integral system and the infinite multiformity of connections and relations between all systems or phenomena. The universal interaction of bodies determines the existence of specific material objects and all their specific properties and features. U.C.P. is infinite in its manifestations. It includes all the relations existing between particular properties of bodies and between particular natural phenomena expressed in specific laws and also the relations between the universal properties of matter and the trends of development governed by the universal dialectical laws of being. Every law (q.v.) is, therefore, a specific expression of the U.C.P. Without U.C.P. the world would be a chaotic agglomeration of phenomena rather than the integral, law-governed process of motion that it is. The connections between objects and phenomena may be mediate or immediate, permanent or temporary, essential or unessential, necessary or accidental, functional or non-functional (see **Functional Dependence**), etc. U.C.P. is closely related to causality (q.v.). However, cause and effect as such are conceivable solely in isolation from the universal connection between the one or more phenomena concerned and other phenomena. If considered in their connection with the whole, cause and effect pass one into the other and become universal connection and interaction. Reverse connection (q.v.) is a particular case of interaction in all self-regulating systems. Connections between phenomena are not to be reduced to the merely physical interaction of bodies. There also exist incalculably more complex biological and social relations, governed by their own specific laws. The development of matter and the conversion to more

highly organised forms produces more complex types of interaction between bodies, creating qualitatively new motion. This also applies to the development of human society, where progress in the mode of production and the development of civilisation result in more complex relations between individuals and between states, producing a growing multiformity of political, economic, ideological and other relations. The concept of U.C.P. has great cognitive significance. Cognition of the objective world is possible only through the investigation of the causal and other connections between phenomena, and through the identification of the more essential connections, relations, etc. Cognition proceeds through motion of thought from reflection of the less profound and less general connections to the determination of more profound and more general connections and relations between phenomena and processes. The structure and classification of the sciences is a reflection of U.C.P. This explains why the connections and relations between sciences become continuously closer, keeping pace with the progress of scientific cognition. "Marginal" sciences appear, which connect formerly remote fields of knowledge (e.g., biochemistry, astrophysics, etc.).

Universal Significance, a determinant of the truth-value of human knowledge in subjective idealist philosophy. The propositions concerning U.S., "socially organised experience" merely disguise the conclusion of solipsism (q.v.) which follows from the subjective idealist premises. The propositions concerning U.S. as the criterion of truth are insolvent. (Lenin, Vol. 14, pp. 122-26.) Not everything of universal significance is true. For example, notwithstanding the recognition of religious dogmas by believers they are false. On the other hand, everything true sooner or later becomes universally significant. U.S. is merely one of the consequences of the truth of knowledge and not a criterion of truth.

Universals, the name given to general ideas in medieval philosophy. The dispute about U. centred on whether they are objective, real or merely names of things; whether, on the one hand, they exist "before things", ideally, as held by extreme realism (q.v.) and Erigena (q.v.) or "in things" as held by moderate realism and Thomas Aquinas (q.v.); or, on the other hand, whether they exist only in the mind "after things", in the form of mental constructions, as professed by conceptualism (q.v.) or are even mere words as held by extreme nominalism (q.v.), Roscellin (q.v.), and William of Ockham (q.v.).

Universe, all surrounding nature, infinite in time and space, embracing the endless multiplicity of qualitatively different forms of matter. Modern means of investigation (with a range of up to 3,000 million light years) show that matter is irregularly distributed in the U. They disclose the existence of different integral systems—planets, stars, galaxies (q.v.) and clusters of galaxies. No specific law governing the existence or structural organisation of matter is applicable to the whole U. because matter is qualitatively infinite and its laws are heterogeneous in respect of space-time relations (see Astronomy; Cosmology).

Upanishads, ancient Indian religious and philosophical commentaries on the Vedas (q.v.), compiled over many centuries. The oldest U. date back to the 10th-6th centuries B.C. The U. invest the vedic gods and rites with new philosophical content. They are interpreted as the allegorical portrayal of man and the Universe. Belief in the reincarnation of the soul receives a moral foundation. U. raises the question of what is supreme reality, the

knowledge of which gives knowledge of everything. The answer is idealistic: that from which everything existing is born, in which it lives after birth, and to which it returns after death is *brahma*, the creative principle of the Universe; *brahma* is identical with the spiritual essence of man, *atman*. To rid himself of the cycle of new births on earth, man, according to the U., must dedicate himself to contemplation of the unity of his soul with *brahma*. The U. also provide an idea of the materialist doctrines they opposed. Those doctrines held that one of the material elements—water, fire, air, light, space or time—was the primary foundation of the world and denied the existence of the soul after man's death. Commentaries on the U. written by Bādarāyana and later Saṅkara (8th century) became the foundation of the Vedānta (q.v.).

Utilitarianism, a bourgeois ethical theory which considers the usefulness of an action as the criterion of its morality. It was founded by Bentham (q.v.), who formulated its basic principle as the "greatest happiness of the greatest number" by satisfaction of their individual interests. The morality of an action can be mathematically calculated as the balance of the pleasure and suffering resulting from it. John Stuart Mill (q.v.) introduced into U. the principle of qualitative assessment of pleasures and the demand that mental pleasures be preferred to physical ones. U. also underlies the understanding of the functions of state and law. The application of the principle of utility to the theory of knowledge gave rise to pragmatism (q.v.). In contemporary bourgeois ethics, U. is replaced by an "analysis of ethical statements". (See Emotivism; Logical Positivism in Ethics).

V

Vairasse, Denis, author of the novel *Histoire des sevarambes* (1677-79), the first work in French literature propagating the ideas of utopian socialism (q.v.). The main character in the novel is Sevrals, legislator of the Sevarambes, who considers that pride, greed, and sloth are the cause of social evils and abolishes all privileges of birth. He also abolishes private property and decrees that the land and all its riches belong to the people, labour being compulsory for all except the old and the sick. The description of society before Sevrals' reforms makes V. a forerunner of the theorists of natural law and the utopian socialists of the 18th century. The reformed land of Sevarambie is divided on the production principle into urban and rural osmasies, in which children are given an education combining general and vocational subjects. The Sevarambes elect their monarch, whose power is restricted by elected bodies, and the Sun is worshipped as the supreme ruler and divinity. The novel became widely known and gave rise to many imitations.

Vaiśeshika (Skr.—*viśesa*, particularity), a system of ancient Indian philosophy, first expounded by Kaṇāda (*Vaiśeshika-Sūtra*, 3rd century B.C.). Considerably developed in the work of Praśastapada (4th century A.D.) known as the *Padārtha-Dharma-Saṅgraha*. V. displays strong materialist tendencies. Everything that exists is divided into seven categories: substance, quality, action, universality, particularity, inherence, and non-existence. The first three exist in reality. The next three are logical categories, products of mental activity, an important role

in cognition being played by the category of "particularity", which expresses the real variety of substances. The world consists of substances possessing quality and action. Of these there are nine: earth, water, light, air, ether, time, space, soul, and mind. All material objects are formed of atoms of the first four substances. Atoms are eternal, indivisible, and invisible. They have no extent, but in combination with other atoms they make up all bodies that are extensive. The combination of atoms is guided by the world soul. Owing to the perpetual motion of the atoms the world, which exists in time, space, and ether, is periodically created and destroyed. Atoms may be divided according to quality into four types, depending on their origin, and may give rise to four types of sensation: touch, taste, sight, and smell. The epistemology of V. is similar to that of Nyāya (q.v.) and distinguishes four types of true and four types of false knowledge. The truth is arrived at through perception, deduction, memory, and intuition.

Value, Singular, a strictly definite, single meaning which ensures accuracy of a conclusion or prediction. The concept of S.V. is widely applied in different spheres of contemporary scientific knowledge. In mathematics, for example, it characterises a function which accepts only one meaning for each meaning of an argument; it expresses a condition of definiteness and consistency of a conclusion in formal logic; in physics, one of the types of connection between cause and consequence (so-called Laplacian determinism). S.V. is achieved by introducing a number of additional

conditions which preclude other possible meanings (plural values). To understand S.V. and plural values one must study them in connection with such categories of materialist dialectics as necessity and chance (q.v.), possibility and reality (q.v.), and others.

Values, properties of material objects and phenomena of social consciousness which characterise their importance to society, to a class, and man. Material things represent different kinds of V. because they are the objects of different human interests (material, economic, spiritual). For example, a glass, being a drinking vessel, represents a material V., i.e., a use-value or good (q.v.). A product of human labour, the glass as a commodity possesses economic value. If a glass is an object of art it also has aesthetic V., beauty. But in all these relations the glass appears not merely as a material object but also as a social phenomenon—an object of use, a commodity, a work of art—and is an object of human interest. Similarly, phenomena of social consciousness, ideas are V. In them people express their interest in an ideological form. For example, the idea of communism embodies the interests, aspirations and desires of the masses, the will of the working people, and the practical aim of the Communist Parties. As the aim and object of aspirations, as a dream guiding the actions of the people, the idea of communism is a social ideal, or spiritual V. In addition to material, economic and aesthetic V., there are also moral, legal, political, cultural, and historical V. Actions of people and social phenomena may represent moral good or evil (ethical V.) and be an object of approval or condemnation. To direct and regulate the behaviour of people, society creates a system of moral concepts—ideals, principles, and assessments. These are also moral V. Valuable ideas reflect some reality, are knowledge of some things, and, moreover, direct the activity of people, i.e., are of a practical nature. That is why in class society they bear a clear-cut class character.

The struggle of the communist and the bourgeois ideologies is at the same time a struggle of opposite systems of V. The nature of V. is studied by axiology (q.v.).

Variable and Constant, terms used in mathematics and logic. In mathematics, a V. is a quantity which may have different values and a C. is a quantity which maintains the same value. Descartes was the first to use these terms systematically. In mathematical logic Vv. are used in formulating the laws of logic, axioms, and rules of inference of logical calculi, thus stressing their general nature. Vv. in logic denote in this case arbitrary constant objects (statements, objects, predicates); such Vv. are called substantive. In logical calculi, Vv. may be regarded as objects defined in a special way; such Vv. are called formal. Symbols of logical operations, quantifiers (q.v.), and others are logical Cc.

Vavilov, Sergei Ivanovich (1891-1951), physicist, President of the Academy of Sciences of the USSR (1945-51). His main works were devoted to physical optics, particularly the investigation of the nature of photoluminescence. He attached great importance to the philosophy and history of science and gave a dialectical-materialist interpretation of a number of revolutionary discoveries in modern physics, such as the corpuscular-wave dualism (q.v.). He also introduced the idea of a field as a particular form of matter, and named mathematical hypothesis (q.v.) as the principal research method in modern physics. He wrote interesting and profound studies of Lucretius, Galileo, Newton, Lomonosov, Faraday, Lebedev (qq.v.), and others.

Vedānta (Skr. the end of the Veda, q.v., or Uttara-Mimāṃsā; Skr. recent research), one of the orthodox systems of Indian philosophy, an objective-idealist philosophico-religious doctrine based on the teaching of the Upanishads (q.v.). To this day V. holds an important place in the philosophy of Hinduism (q.v.). Its first basic propositions were expounded by Bāḍārāyana in the Vedānta Sūtras (3rd

and 4th centuries A.D.). Further development took the form of commentaries on this work and on the Upanishads. There are two trends in the V. One is the *ādvaita* (absolute non-duality), founded by Sankara in the 8th century. According to this trend, the world contains no other reality except God, which is indefinable, has neither condition nor quality. The conception that the Universe contains a variety of objects and phenomena results from lack of knowledge (*avidyā*); in fact, everything except God is a pure illusion (*māya*). In *ādvaita* the path to knowledge is through intuition and revelation, whereas deduction and sensation play only a secondary role. The aim of individual effort is to comprehend the divine unity underlying the apparent diversity of things. The second trend in the V. is the *Viśiṣṭādvaita* (differential non-duality), founded by Rāmānuja (11th to 12th centuries). According to Rāmānuja's teaching, there are three realities: matter, soul, and God. They are mutually dependent on one another: the individual soul rules the material body and God rules them both. Without God, soul and matter can exist only as abstract concepts. The aim of individual effort is to liberate oneself from material existence and this is achieved through spiritual activity, knowledge, and love of God, the latter being of particular importance. *Ādvaita* was closely connected with the worship of the God Shiva, and *Viśiṣṭādvaita* with the God Vishnu.

Vedas (Skr. knowledge), the four principal sacred books of ancient India; the Rg Veda, Atharva Veda, Sāma Veda, and Yajur Veda, produced between the 10th and 5th centuries B.C. The term "Veda" includes also the Brāhmanas (books expounding and interpreting the ritual of the Vedas), the Aranyakas (the "forest treatises"), explaining the mystical meaning of the vedic ritual and symbolism, and the Upanishads (q.v.), treatises in which the worship and mythology of the V. are provided with a philosophical argument and where first place is

given to discussion of God, man, and nature. The term "V." is also used in the sense of "sacred book" or "supreme wisdom". Besides ancient religious concepts, the V. contain purely speculative sections dealing with the causes and aims of existence of the world and human behaviour.

Vekhism, an ideology of the Russian bourgeoisie. As the democratic and proletarian movement developed in Russia, the Russian bourgeoisie evolved as a political force, quickly manifesting what Lenin called its "congenital counter-revolutionism". (Vol. 15, p. 27.) In 1902, the former "legal Marxists" (see "Legal Marxism"), Struve, Berdyayev, and Bulgakov (qq.v.) collaborated with avowed mystics in producing the *Problemy idealizma* (*Problems of Idealism*), a collection of articles aimed against materialism. Subsequent collections and the setting up of philosophico-religious societies culminated in the publication of the programmatic collection *Vekhi* (*Landmarks*) in 1909. This "encyclopaedia of liberal apostasy", as Lenin called it, covered three subjects: (1) the struggle against the ideological principles of the whole world outlook of Russian and international democracy; (2) repudiation of the liberation movement; (3) an open proclamation of "flunkey sentiments" and a correspondingly "flunkey" policy in relation to tsarism. (See Vol. 16, p. 124.) *Vekhi* attempted to set off the Russian philosophico-religious tradition represented by Yurkevich, Solovyov, and Dostoyevsky (qq.v.) against materialism and atheism. Their alternative to the class struggle was defence of the personality in its search for "inward", "spiritual" liberation. On the outbreak of the 1st World War the supporters of V. became the most rabid of chauvinists, and the October Revolution found them in the camp of the monarchist counter-revolution. As émigrés, the former *Vekhi* supporters opposed the tendency among certain émigré intellectuals ("smenovekhovtsy") to abandon the counter-revolution. Characteristic features of V. were the use of

subtle forms of religion in the struggle against Marxism, the defence of extreme individualism in ethics, anti-intellectualism and subjectivism in philosophy, and its reactionary political connections.

Vellansky (Kavunnik), Danilo Mikhailovich (1774-1847), Russian doctor and idealist philosopher, follower of Schelling (q.v.). In his *Prolyuziya k meditsine (Prolusion to Medicine)*, 1805, *Biologicheskoye issledovaniye prirody (The Biological Investigation of Nature)*, 1812, *Opytnaya nablyudatel'naya i umozritel'naya fizika (Experimental, Observed, and Speculative Physics)*, 1831, *Osnovnoye nachertaniye obshchei i chastnoi fiziologii (The Fundamental Outlines of General and Particular Physiology)*, 1836, and other works, V. evolved an idealist natural philosophy, thus pioneering in Russia the concepts of idealist dialectics (universal connection between phenomena, development in the form of the triad, conflict between polarities as the source of development, etc.).

Verification, Principle of, the basic principle held by logical positivists, according to which the truth of every statement about the world must ultimately be ascertained by comparing it with the evidence of the senses. The principle, as formulated in the Vienna Circle (q.v.), is based on the thesis that knowledge cannot in the final analysis extend beyond the limits of sensory experience, a distinction being made between the direct verification of assertions specifically describing the data of experience, and indirect verification, by logical reduction of a proposition to directly verifiable statements. The obvious philosophical weakness of the principle, which leads to solipsism and deprives of cognitive significance all scientific statements not tested by "direct experience", compelled the logical positivists to accept a watered-down version of this principle that demanded partial and indirect experimental verification of scientific statements; in this form it merely expresses somewhat inadequately the usual methodological requirement of science that theoretical

propositions should correspond to the empirical facts.

Vernadsky, Vladimir Ivanovich (1863-1945), Soviet scientist whose field of research took in geology, biology, and the study of the atom. Member of the USSR Academy of Sciences. A professor at Moscow University 1898-1911, he was among the 124 professors and teachers of the university who resigned in protest against repressive measures taken by the tsarist authorities. After this he continued his work in the Academy of Sciences, where he contributed to the emergence of geochemistry as a science and founded the new branch known as biogeochemistry. He developed the theory of the noosphere (q.v.) and was one of the founders of genetic mineralogy and radiogeology; he also worked in the field of crystallography, soil science, meteorite study, and the history and methodology of natural science. His standpoint was materialist and he was spontaneously guided by some of the ideas of dialectics. He emphasised the importance of philosophy in scientific research and stressed the need for systematic elaboration of the logic and methodology of natural science. He wrote a number of substantial works on the history and theory of science, e.g., *O nauchnom mirovozzrenii (On the Scientific World Outlook)*, 1902-03.

Vico, Giovanni Battista (1668-1744), Italian philosopher and sociologist, professor at the University of Naples. He advanced the theory of the historical cycle (q.v.). Though he recognised the existence of a divine principle from which the laws of history originated, V. nevertheless pointed out that society must develop according to certain inner laws. According to V.'s theory, every nation passes through three stages in its development, the divine, the heroic, and the human, which are analogous to the periods in the life of man—childhood, youth, and maturity. The state, which arises only in the heroic period, represents the domination of the aristocracy. This is replaced in the human period by a democratic society, in which

freedom and "natural justice" are triumphant. This, the peak of human development, is followed by decline. Society returns to its primary state, then upward movement is resumed and a new cycle begins. V. extended his principles of historical development to language, law, and art. His main work was *Principii d'una scienza nuova* (1725).

Vienna Circle, a group forming the ideological and organisational centre of logical positivism (q.v.). Developed from a study group organised in 1922 by Schlick (q.v.) at the department of the philosophy of inductive sciences, Vienna University. Its members included Carnap (q.v.), from 1926, F. Waismann, H. Feigl, O. Neurath, H. Hahn, V. Kraft, F. Kaufmann, and K. Gödel. Associated with the group were P. Frank (Czechoslovakia), q.v., E. Kaila (Finland), A. Blumberg (US), J. Jørgensen (Denmark), A. Ayer (Britain), q.v., and others. The V.C. inherited the ideas of Machism (q.v.). It also accepted many of the ideas of Wittgenstein (q.v.), particularly the concept of logical analysis of knowledge, the doctrine of the analytical character of logic and mathematics, and the criticism of traditional philosophy as meaningless. Having achieved something in the nature of a synthesis between a Machist type of positivism and the concepts of logical analysis of knowledge, the V.C. formulated the basic propositions of logical positivism in its fullest and clearest form. In 1929, Carnap, Neurath, and Hahn published a manifesto entitled *Wissenschaftliche Weltanschauung: Der Wiener Kreis*. The V.C. thus acquired a definite organised form and established international ties with other neo-positivist groups (it already had ties with the Reichenbach-Dubislav group in Berlin (see Neo-Positivism). In 1930, the V.C. in collaboration with Reichenbach (q.v.) began publishing the magazine *Erkenntnis*, and in the thirties its members worked energetically on the ideas of logical positivism. Towards the end of the thirties, owing to the departure from Vienna of a number

of its members, the tragic death of Schlick and Hitler's invasion of Austria, the V.C. ceased to exist. It has been succeeded by the logical empiricism (q.v.) of Carnap, Feigl, and others.

Vitalism, an idealist trend in biology, which attributes all the processes of life activity to the special immaterial factors said to be present in living organisms (entelechy, q.v.; élan vital, vital force, etc.). The roots of V. go back to the teaching of Plato (q.v.) on the soul, which is supposed to spiritualise the animal and vegetable worlds, and to the teaching of Aristotle (q.v.) on entelechy. As a conception V. took shape in the 17th and 18th centuries. It was advocated by G. Stahl, J. J. Uexkull, and H. Driesch (q.v.), and is at present represented by L. Bertalanffy, A. Wenzl, and others. Citing the qualitative individuality of animate nature, V. separates the processes of life from material physico-chemical and biochemical laws. Exaggerated stress on the antithesis between animate and inanimate nature leads V. to deny the possibility of the emergence of the animate from the inanimate. When the problem is posed in this way there is nothing for it but to ascribe the origin of life to divine causes or to assume its existence as eternal. V. makes capital out of the as yet little investigated problems of biology, the chief objects of its attention being the problems of the essence of life, the wholeness and purpose of structure and function, embryogenesis, regeneration, etc. For example, the process of the embryonic development is regarded by V. as the urge of the embryo to realise a predetermined aim. The history of the development of science is the history of the refutation of V., a profound criticism of which is to be found in the works of Engels, Lenin, Haeckel, Timiryazev, Mechnikov, Pavlov, and others.

Vivekananda (real name—Narendra Nath Dutta, 1863-1902), Indian idealist philosopher, pupil of Ramakrishna (q.v.). Studied philosophy at Calcutta University (1880-84). In 1893, toured the USA, Britain and Japan

preaching the ideas of Vedānta (q.v.). Founded the Ramakrishna Mission in 1897. V. attempted to bring the ideas of the Ādvaita Vedānta closer to the scientific principles of his day. Like Ramakrishna, he advocated a "single religion" based on the Vedānta. His public activities, however, went beyond the narrow limits of religious reform. He became a prominent figure in socio-political life, advocated struggle for national independence and condemned the Indian liberals' policy of appealing to the British authorities. He was thus the direct predecessor of the ideological leaders of the Indian national liberation movement in the early years of this century. He defined four stages of social progress according to which *varna* (caste)—the Brahmins, the Kshatriya, the Vaisya or the Sudra—was in power. He described the bourgeois society of his day as the "kingdom of the Vaisyas", and the socialist society of the future as the "kingdom of the Sudras". Though he condemned imperialist oppression, racialism, and militarism, his socialism was utopian and petty bourgeois.

Voltaire, François Marie Arouet de (1694-1778), French writer, philosopher, and historian, one of the leaders of the French Enlightenment. The son of a notary, V. was educated in a Jesuit college. He was twice arrested (1717 and 1725) for his anti-feudal satires. Most of his life was spent outside France. V. co-operated with Diderot in the compilation of the Encyclopaedia. He was a deist (see Deism), and his view of the world was contradictory. Though a supporter of Newtonian mechanics and physics, he recognised the existence of God as the prime mover. The motion of nature proceeds according to eternal laws, but God is inseparable from nature; God is not a special substance but rather the principle of action inherent in nature itself. V. was actually inclined to identify God (the "*éternel géomètre*") with nature. He criticised dualism (q.v.) and rejected the idea of the soul as a special kind of substance. Consciousness, according to V., is a property of matter inherent only

in living bodies, although to prove this correct proposition he produced the theological argument that God endowed matter with the ability to think. In contrast to the theological metaphysics of the 17th century, V. insisted on scientific investigation of nature. Rejecting the Cartesian teaching on the soul and innate ideas, V. regarded observation and experience as the source of knowledge and preached the materialism of Locke. The task of learning was to study objective causality. At the same time V. recognised the existence of "ultimate causes" and maintained that experience pointed to the probable existence of a "supreme reason" and "architect" of the Universe. His socio-political views were distinctly anti-feudal. V. fought against feudalism, advocated equality before the law, and demanded property taxation, freedom of speech, etc. But he rejected criticism of private ownership on the grounds that society must inevitably be divided into rich and poor. The most reasonable form of state, according to V., was a constitutional monarchy ruled by an enlightened monarch. Towards the end of his life he tended to the view that the best form of state was a republic. In his historical works he criticised the biblical and Christian view of the development of society and drew in broad outline a picture of the history of mankind. The "philosophy of history" (the term was his invention), is based on the idea of the progressive development of society independent of the will of God. But he interpreted historical change idealistically, as due to changes in ideas. His struggle against clericalism and religious fanaticism was of great significance in his work, the chief target of his satire being Christianity and the Catholic Church, which he regarded as the arch enemy of progress. Nevertheless V. did not accept atheism, and though he denied the possibility of any incarnation of God (Christ, Mahommed, Buddha, etc.), he considered that the idea of a vengeful god should be maintained among the people. This was one of the class limitations of his outlook.

Main works: *Lettres philosophiques* (1733), *Traité de Métaphysique* (1734), *Eléments de la philosophie de Newton* (1738), *Histoire Universelle* (1769), etc.

Voluntarism, an idealist (mainly subjective-idealist) trend in philosophy and psychology which regards will as the initial basis of the Universe, counterposes it to the objective laws of nature and society, and denies the dependence of the human will on the environment. The term was introduced by the German sociologist Tönnies and the German philosopher Paulsen. It took shape as a philosophical theory in the 19th century in the works of Schopenhauer (q.v.), although elements of it are to be found in Kant and Fichte (qq.v.). E. Hartmann and Nietzsche (qq.v.) were greatly influenced by the doctrine, which is one of the sources and a characteristic feature of the ideology of fascism. In Russia voluntarism was typical of the Narodniks (see Lavrov, Mikhailovskiy, etc.), who counterposed the actions of "lone heroes" to the objective laws of history. Between the 19th and 20th centuries V. gained a foothold in psychology (see Wundt). Marxism-Leninism rejects V. and points out the relative nature of free will, regarding human will as derived from the objective laws of the development of nature and society (see Objective and Subjective Factors in History).

Vorovsky, Vatslav Vatslavovich (1871-1923), Marxist publicist, revolutionary, and Soviet diplomat. Joined the Bolsheviks in 1903. Much of his work was devoted to spreading and popularising Marxist ideas among the workers and to fighting against their distortion and vulgarisation. His biographical works on Marx, *Pismo iz Berlina (Letter from Berlin)*, 1908; *Karl Marx*, 1917, etc., expound the philosophical, economic and political views of the founders of Marxism. In "*Kommunistichesky Manifest*" i yego sudba v Rossii (*The "Communist Manifesto" and Its Fate in Russia*), 1907, and *K istorii marxizma v Rossii (On the History of Marxism in Russia)*, 1908, he describes the spread of Marx-

ist teaching in Russia and examines in detail the translations of the *Manifesto* into Russian; he himself translated the *Communist Manifesto*, Marx's speech in court on February 7, 1849, and his *Critique of the Hegelian Philosophy of Right*. A number of his articles deal with the problem of spontaneity and consciousness in the working-class movement, the attitude of the Party to the trade unions, the agrarian problem and the history of the revolutionary movement in Russia, and the critical analysis of neo-Kantian, Machist, and religious mystical ideology ("Letter to the Editors of *Zhizn*", 1901; "The Rebels and the Reckless", 1906; "Was Herzen a Socialist?", 1920, etc.). V. was one of the first Marxist literary critics. He stressed the social meaning of works of art, the organising role of revolutionary ideals in art, and the class origin of social pessimism and decadence (*O burzhuaznosti modernistov [On the Bourgeois Nature of the Modernists]*, 1908; *Bazarov and Sanin*, 1909; *Maxim Gorky*, 1910; *Leonid Andreyev*, 1910, etc.)

Vulgar Evolutionism, a theory inferring that development is simply an increase or decrease of the original properties of a phenomenon; denies leap-like development and conversion of quantitative into qualitative changes, transformation of one quality into another; it is the antipode of dialectics. V.E. is the philosophical foundation of reformism and opportunism, and is today the methodological basis for the bourgeois theories of the "transformation" of capitalism into socialism. In biology, V.E. is represented by the so-called theory of preformationism (q.v.).

Vulgar Sociologism, an oversimplified interpretation of social phenomena; distorts historical materialism by exaggerating such factors of social development as machines, forms of production management, economics, politics, ideology. In a narrow sense it is an oversimplified conception of the class purport of ideology. In philosophy, as represented by Bogdanov (q.v.) and V. Shulyatikov, and in

aesthetics and literary criticism, as represented by V. Shulyatkov, V. Pe-reverzev and W. Fritzsche, V.S. denied the relative independence of ideology and inferred all ideological forms directly from the mode of production. It produced a crude interpretation of the connection between the creative work of writers and the classes, the class struggle. The contention that language was a class and superstructural phenomenon (by N. Marr and his followers) was a variety of V.S. in linguistics. Lenin described V.S. as an example of extreme vulgarisation, a caricature of materialism in history.

Vvedensky, Alexander Ivanovich (1856-1925), Russian philosopher and psychologist, Neo-Kantian. Professor at St. Petersburg University (1888), President of the St. Petersburg Philosophical Society (1899). Carrying

Kant's ideas a stage further, he deepened the dualism of faith and knowledge, soul and body, etc. In his work *O predelakh i priznakakh odushevleniya* (*On the Limits and Characters of Animation*), 1892, he asserted that the spiritual life of others has no objective distinguishing characters and cannot, therefore, be known ("V.'s psychophysical law"). In *Psikhologiya bez vsyakoï metafiziki* (*Psychology Without Metaphysics*), 1914, he attempted to justify a psychology that confined itself merely to describing mental phenomena. His logic is consistently idealist (*Logika kak chast teorii poznaniya* [*Logic as Part of the Theory of Knowledge*], 1909). He was an opponent of atheism (*Sudba very v boga v borbe s ateizmom* [*The Fate of Faith in God and the Struggle Against Atheism*], 1922).

W

Wang Chung (27-104), Chinese materialist philosopher. In his main work *Animadversions* (Lun Hêng) he resolutely opposed mysticism and idealism and the doctrine of "heaven" as the supreme guiding force that controls the origin and development of things and phenomena. According to Wang's teaching, everything in the world has its source in the basic material elements, the *ch'i* (q.v.). Man is part of nature and comes into being as a result of the concentration of the *ch'i*. Dispersal of the *ch'i* leads to death and destruction. Wang declared that the process of cognition began with man's sensory perception, and rejected the idea of "innate" knowledge. He opposed the theory that the life of society depends on spontaneous natural phenomena. History, he said, develops in cycles; periods of greatness are followed by decline, and then the process repeats itself.

War, armed struggle as a means of effecting the policy of a class. The scientific explanation of W. was provided by Marxism. Marx and Engels disproved the theory that W. is eternal and inevitable and showed that wars come about because of the domination of private ownership and the policy of the exploiting classes. In Marxism-Leninism a distinction is made between two kinds of Ww.: unjust and just. Ww. that continue the policy of the exploiting classes, consolidate their rule, and add to their wealth are unjust. Ww. that have the aim of liberating the people from class and national oppression are just. In the age of imperialism, world Ww. occurred owing to the formation of a world capitalist system of economy and the urge

felt by the bourgeoisie to seize markets and colonies. W. has always been hated by the mass of the people, but it is only since the setting up of the world's first socialist country that the forces of W. have been opposed by an organized force of peace. As the sole reasonable alternative to W. Lenin evolved the principle of peaceful co-existence (q.v.). Although after the Great October Socialist Revolution imperialism ceased to be a social system exercising undivided control over the destinies of the world, world W. remained inevitable because imperialism was economically and militarily stronger than the USSR. But when socialism became a world system, W. ceased to be inevitable. The problem of W. and peace is the fundamental issue of modern times; in the age of missiles and thermonuclear weapons it is a question of life or death for millions of people. The proletariat, and indeed all progressive mankind, condemn W. in general, making exception only for just Ww. of liberation and defence, which nations that become the victims of aggression are compelled to wage. Marxists disagree with the position of those who wish, or justify the wish, to resolve all contradictions between socialism and capitalism, all conflicts arising between nations by means of W. The growing superiority of the forces of socialism over the forces of imperialism, of the forces of peace over the forces of W., provides a guarantee that W. will disappear from the life of society with the result that all controversial issues will be settled peacefully. The historic mission of communism is to abolish W. and bring about eternal peace on Earth.

Wave-Corpuscular Dualism, a specific property of microscopic objects, treated in quantum mechanics (q.v.) and implying the possession by these objects of properties belonging to both particles and waves. An exact physical formula of W.C.D. is contained in the equations of de Broglie (q.v.). W.C.D. symbolises the close inner relationship between the macrocosm and the microcosm (qq.v.) and the peculiarities of their unity. The positivist interpretation of W.C.D. denies any inner unity of the wave and particle properties of microscopic objects and declares them to be mutually exclusive and merely mutually complementary (see Complementarity Principle). A consistently materialistic interpretation of W.C.D., as developed by Langevin and Vavilov (qq.v.) and other scientists, views the micro-particle as being neither corpuscle nor wave, but something else, their synthesis, though tangible evidence of this has been so far lacking. Such evidence is beginning to be furnished by the new theories of elementary particles.

Weber, Max (1864-1920), German sociologist. Associated with Neo-Kantianism and positivism (qq.v.). According to W., the essence of any socio-economic phenomenon is determined not so much by its objective aspects as by the viewpoint of the investigator, the cultural significance attached to any given process. Proceeding from the assumption that the social sciences study only individual aspects of various phenomena, W. tried to substitute for scientific abstraction the arbitrary notion of an "ideal type". This "ideal type", he claimed, had no basis in reality, but was merely a device for systematising and comprehending individual facts, a concept against which the investigator could measure reality. The weight of W.'s ideas was directed against Marxist teaching on socio-economic formations. His theory of "ideal types" and also his conception of the "plurality" of historical factors had considerable influence on contemporary bourgeois sociology. Works: *Der Nationalstaat und*

die Volkswirtschaftspolitik (1895), *Die protestantische Ethik und der Geist des Kapitalismus* (1905), *Wirtschaft und Gesellschaft* (1921), etc.

Weitling, Wilhelm (1808-71), first German utopian communist. A tailor by profession, he was active in organising and spreading his ideas among the workers. He took part in the work of the secret Bund der Gerechten, for which in 1838 he wrote its manifesto *Die Menschheit wie sie ist und wie sein sollte*. Having emigrated to the United States, he founded a commune there, which eventually collapsed. His main work was *Garantien der Harmonie und Freiheit* (1842), which Marx called the German workers' unexampled and brilliant début in literature. W.'s aim was to organise a communist society, which would ensure harmony between the abilities and desires of every individual and society as a whole. He described in detail the structure of such a society, foreseeing the difficulties of the transition period, for which he considered the best form of government would be dictatorship. The sciences would play a leading part in the future society and these would all be guided by philosophy. W. divided the sciences into three types: (1) philosophical medicine, embracing all manifestations of man's physical and spiritual life; (2) philosophical physics; (3) philosophical mechanics. W. made no secret of his dislike of abstract philosophy and particularly Hegel's philosophy. He considered that communist society would be established through revolution and the formation of a revolutionary government. He also recognised the possibility of a peaceful transfer of power. While criticising religion, he used the Gospel to propagate the ideas of communism. He was imprisoned from 1843 to 1844 for writing and publishing his *Das Evangelium des armen Sünders*.

Welfare State, a social myth widespread in modern capitalist society and intensively disseminated by the theoreticians of reformism (q.v.). In substance, it avers that having become "people's capitalism", the capitalism

of the mid-20th century has created the W.S., a supra-class power capable of overcoming anarchy of production and economic crises, doing away with unemployment and ensuring the welfare of all working people. Ideologists and politicians of Social-Democracy point to the somewhat improved position of working people in the developed capitalist countries after the 2nd World War and to the social reforms enacted by bourgeois and reformist governments under pressure from the international working-class movement, and claim that the W.S. is socialism or, in any case, a "threshold to socialism". The facts repudiate the W.S. myth. Unemployment and poverty hound hundreds of thousands and even millions of people in such highly developed countries as the United States. Social security measures are, as a rule, enacted there at the expense of the working people themselves. Democratic reforms are half-hearted and are often reduced to nought by the dominant political regime. In substance, the so-called W.S. is a system of state-monopoly measures designed to strengthen capitalism and weaken the determination of the working class to work for socialism.

Westerners, proponents of a trend of Russian social thought in the 1840s. They called for the elimination of feudal backwardness and Russia's development along the "Western", i.e., bourgeois road. In the mid-1840s the Moscow group of W. included A. Herzen, T. Granovsky, N. Ogaryov (q.v.), V. Botkin, K. Kavelin (q.v.), N. Ketcher, and Y. Korsh. V. Belinsky (q.v.), was closely associated with it. I. Turgenev, P. Annenkov, and I. Panayev also subscribed to the views of the W. The W. condemned the autocratic feudal system, and advocated the Europeanisation of Russia which had an objectively bourgeois content, but there were also differences among the W. At first the polemic (on aesthetical, philosophical and then socio-political questions) was overshadowed by joint action: the disputes did not go beyond the groups of Westerners. But towards the end of the

1840s two main trends crystallised: Belinsky, Herzen and Ogaryov came forward as materialists, revolutionary democrats and socialists; Kavelin, Botkin, Korsh, and others defended religion and idealism and reflected the line of bourgeois-landowner liberalism in political questions. Some present-day falsifiers of the history of Russian social thought (H. Kohn, S. R. Tompkins, A. Schelting, and others), purposely distorting the content of the term W., use it to misrepresent the history of Russia. They claim that the Cadets (Constitutional-Democrats) and Mensheviks continued the traditions of Belinsky and Herzen and call them W., while declaring the Bolsheviks to be the ideological heirs of the Slavophiles (q.v.).

Wetter, Gustav (1911-) Austrian Catholic philosopher, Neo-Thomist, Jesuit, one-time professor at the Papal Oriental Institute in Rome. His works distort the history and theory of dialectical materialism and various contemporary theories in the natural sciences. Arguing against the Marxist division of philosophy into materialist and idealist, W. tries to maintain a "neutral" line which he calls "Neo-Thomist realism" (see Neo-Thomism), and which is in fact a theological form of objective idealism.

Whitehead, Alfred North (1861-1947), logician, mathematician, and philosopher, professor of London and Harvard universities. Jointly with Bertrand Russell, W. wrote a fundamental book on mathematical logic (q.v.), *Principia Mathematica*, (3 vols., 1910-13). Attempts to overcome the crisis in physics by recognising the changeability of nature, led W. to understand nature as a "process". Defining nature as "experience", W. arrived at neo-realism (q.v.) which combines elements of materialism and idealism. Later on W. went over to objective idealism (q.v.). According to W., the world process is the "experience of God" in which universals, passing from the ideal world ("primordial nature of God") to the physical ("consequent nature of God"), qualitatively determine "events". In sociology, W.

combined recognition of ideas as the directing force of history with raising to an absolute the role of outstanding personalities ("men of science") who ultimately govern the world. His main work *Process and Reality* (1929).

Wiener, Norbert (1894-1964), American mathematician, Doctor of Philosophy, founder of cybernetics (q.v.). His early works are mainly concerned with mathematics. He was also interested in theoretical physics and achieved important results in mathematical analysis and probability theory. The study of the functioning of electronic control and computing machines and his research (in collaboration with the Mexican physiologist Dr. A. Rosenblueth) into the physiology of the nervous system led W. to formulate the ideas and principles of cybernetics (*Cybernetics or Control and Communication in the Animal and the Machine*, 1948). His general philosophical views are eclectic; he himself regards them as belonging to existentialism (q.v.).

Will, a person's conscious determination to carry out a given action or actions. Idealism regards W. as a property independent of external influences and circumstances and not connected with objective necessity, and men's actions and behaviour as manifestations of the idealistically comprehended "free" will. In fact, it is the objective world that is the source of man's purposive acts of will. Seen through the prism of the subject's internal conditions (needs, interests, desires, knowledge, etc.), the objective world enables him to set himself various aims, take decisions and act in one manner or another. The W. that chooses merely on the basis of subjective desires (see Voluntarism, Existentialism) is not free; that W. is free which chooses correctly, in accordance with objective necessity. As Engels put it, "Freedom of the will ... means nothing but the capacity to make decisions with knowledge of the subject." (*Anti-Dühring*, p. 158.) The volitional character of an action shows itself most clearly when a person has to overcome certain external or in-

ternal obstacles to achieve his aim. The first stage of a volitional action lies in the posing and apprehension of the aim; this is followed by the decision to act and the choice of the most expedient means of acting. An action can be described as an act of will only if it is the execution of a decision. Will-power is not a gift of nature. Skill and ability in choosing an aim, taking correct decisions and carrying them out, completing what has been begun, are the fruit of knowledge, experience, education, and self-education.

Winckelmann, Johann Joachim (1717-68), German advocate of enlightenment, historian and theorist of art. His main work, *Geschichte der Kunst des Altertums* (1764), was the first attempt at scientific research into the history of art. The development of art, according to W., is determined both by natural factors (climate) and by social factors (influence of the "state system and administration and the pattern of thought which they call into being"). The "noble simplicity and sublime majesty" of ancient Greek art, born of freedom, formed his aesthetic ideal, which he called upon others to follow. His aesthetic views had a great influence on the subsequent development of aesthetics and art.

Windelband, Wilhelm (1848-1915), German idealist philosopher, founder of the so-called Baden school (q.v.), of Neo-Kantianism. Historian of philosophy, logic, ethics, and the theory of values. Treating the history of philosophy from the standpoint of Kantianism, he attempted to justify the difference of method between the natural and socio-historical sciences. According to W., the natural sciences are "nomothetic", i.e., they seek to establish general laws, while the historical sciences are "ideographic", i.e., deal with the particular, the individual. Based on a mistaken counterposition of the general to the particular, this distinction was aimed against the Marxist teaching on the objective laws of historical development. Main works: *Geschichte der alten Philosophie*, (1888), *Geschichte der neueren Philo-*

ophie (two vols., 1878-80), *Präludien* (1884), and *Geschichte und Naturwissenschaft* (1894).

Winstanley, Gerrard (b.1609-?), English 17th century utopian, ideologist of the extreme Left trend in the English bourgeois revolution; one of the first to champion the interests of the expropriated masses; a ruined small tradesman and member of dissident sects. In 1648, W. adopted the positions of rationalism. He held that the theory of natural law was a negation of private property and treated in a materialist way questions of ethics and morality. His main work, *The Law of Freedom in a Platform, or True Magistracy Restored* (1651) is permeated with the ideas of egalitarian communism which W. wanted to be applied by peaceful means. He advocated the socialisation of land and all natural resources as the main foundation of collective property of the people. In his opinion, the ideal system should be based on the small peasant and artisan economy. The household is the main cell of society. The purpose of production is to ensure abundance of material wealth. W.'s ideal system combined features of the mode of production existing in England at that time with the communist principle of distribution through direct exchange of products. The political ideal was a consistently democratic republic. W.'s utopian ideas were intertwined with reflections of the class struggle of his time.

Wittgenstein, Ludwig (1889-1951), Austrian philosopher and logician, one of the founders of analytical philosophy (q.v.). In his *Tractatus logico-philosophicus* (1921) he proposed the idea of a "logically perfect", or "ideal", language, the prototype of which he saw in the language of mathematical logic. This idea is an unjustified attempt to conceive all knowledge of the world as a sum of elementary assertions connected by the logical operations of conjunction and disjunction (qq.v.), etc. W. substantiates the logico-epistemological conception ontologically, in the form of the doctrine of logical atomism (q.v.). Everything that does

not come within the pattern of the "ideal" language—traditional philosophy, ethics, etc.—is declared void of scientific meaning; philosophy is considered possible only as "criticism of language". Refusing to accept the idea of an objective reality existing independently of "language", of consciousness, W. arrives at solipsism (q.v.). The ideas of the *Tractatus* were taken up by logical positivism (q.v.). Some of W.'s ideas on logic (use of the tabular, or matrix, method of defining the meaning of truth, probability, etc.) influenced the development of modern logic. His views, as summed up in *Philosophical Investigations* (published posthumously in 1953) have influenced linguistic philosophy (q.v.).

Wolff, Christian von (1679-1754), German idealist philosopher, who systematised and popularised the philosophy of Leibniz (q.v.). Professor at the University of Halle. Having stripped Leibniz's teaching of its dialectics, W. developed a metaphysical teleology, according to which the general connection and harmony of the Universe are explained as being in accordance with aims set by God. W. also systematised and revived scholasticism. He founded his system on the method of rationalist deduction, which reduced all the truths of philosophy to the laws of formal logic. His key to all philosophical problems was the law of contradiction. His work had an important effect in spreading knowledge of mathematics, physics, chemistry, botany, etc. Politically, he was on the side of enlightened absolutism. His main work was *Vernünftige Gedanken von den Kräften des menschlichen Verstandes* (1712).

World Outlook, the system of views, concepts, and notions about the surrounding world. In the broad sense, W.O. comprises the sum total of all views of man on the surrounding world: philosophical, socio-political, ethical, aesthetical, scientific, etc. The core of every W.O. (in the narrower sense of the term) is made up of philosophical views. The pivotal problem of W.O. is the fundamental problem of philosophy (q.v.). Depending on its solution

philosophy is divided into two main types of W.O.: materialist and idealist. W.O. is the reflection of social being, and depends upon the level of human knowledge, acquired in a given historical period, and also upon the social system. In a class society, W.O. bears a class character, and the W.O. of the ruling class is dominant there. W.O. is of great practical importance, because it determines human attitude toward the surrounding reality and serves as a guide to action. The scientific W.O. reveals the objective laws of nature and society and expresses the interests of the progressive forces; it also promotes general progress. The reactionary, unscientific W.O. serves the decaying classes and arrests social development; it defends the interests of the exploiting classes and diverts the workers from the fight for their emancipation. A consistently scientific W.O. is the communist, Marxist-Leninist W.O., i.e., Marxism-Leninism (q.v.), of which dialectical and historical materialism (q.v.) is the basis and an integral part. It expresses the interests of the proletariat, of all labouring masses, which coincide with the objective laws of social development. Born as a W.O. of the working class, Marxism-Leninism becomes the W.O. of the whole people. The scientific truth of the Marxist-Leninist W.O. is confirmed by the whole history of human practice, the data of science and the victories of the working people of the USSR and other countries which have accomplished socialist revolutions and are building socialism and communism. The liberation from bourgeois ideology and the assimilation of the communist, Marxist-Leninist W.O. promote higher consciousness and greater activity of the working class in the building of communist society, in the fight for peace and happiness for all mankind.

World Socialist System, the social, economic, and political community of the free, sovereign nations advancing along the paths of socialism (q.v.) and communism (q.v.). The socialist countries have the same type of economic foundation: social ownership of

the means of production and socialist production relations, identical political foundation, and a state system of the same type—the people's power headed by the working class; Marxism-Leninism is their single ideological basis. They have common interests in the defence of their revolutionary gains and national independence from the encroachments of the imperialist camp, and a single lofty aim—communism. On the strength of this, the W.S.S. has established within its framework an essentially new type of international relations which has no precedent in history. The characteristic peculiarities of the relations among the peoples of the socialist countries are the following: fraternal political, economic and cultural unity; genuine equality; absence of subjugation and exploitation of one country by another; mutual comradely support and reciprocal aid. The sum total of economic relations among the socialist countries forms the world system of socialist economy. Each socialist country plans and develops her own national economy. However, the economic development of each of the states belonging to the world socialist system does not proceed in isolation. It goes hand-in-hand with the constantly growing exchange of activities between all socialist countries, with comradely co-ordination of their economic plans. Each socialist country strives not only for the development of her own economy but also for the economic advance of the whole W.S.S. In its turn, the might of the W.S.S. promotes the steady growth of each country's economy, ensures the economic independence and sovereignty of each of the socialist states. At present the W.S.S. has entered upon a new phase of its development. The USSR is building communist society in all spheres. Other socialist countries are successfully laying the foundation of socialism, and some have already entered upon the period of building a developed socialist society. At this stage the development of the W.S.S. is characterised by a deeper division of labour between various countries, closer co-operation,

and greater economic mutual assistance. The W.S.S. exerts a tremendous revolutionary influence on the further growth of the national liberation movement, on the development of the class struggle in all the capitalist countries.

Wundt, Wilhelm Max (1832-1920), German psychologist, physiologist and idealist philosopher; professor of philosophy at Leipzig University; founder of experimental psychology. W. based his psychological studies on the theory of psycho-physical parallelism (q.v.). W.'s philosophical conceptions are an eclectic combination of Spinoza, Leibniz, Kant, Hegel (qq.v.), and others. W. divided the process

of cognition into three stages: first, immediate perception; second, rational cognition of definite sciences representing different points of view on the same object of investigation; third (cognition by reason), philosophical synthesis of knowledge, which is the subject of "metaphysics". According to W., metaphysics transcended the dualism of natural science and psychology and achieved the fusion of materialism and idealism. W. defined being, the subject of metaphysics, as a volitional system of spiritual values. Lenin advanced strong arguments against W. in his book, *Materialism and Empirio-Criticism* (q.v.).

X

Xenophanes of Colophon (c. 6-5 cent. B.C.), Greek philosopher, founder of the Eleatic school (see Eleatics), elegiac poet and satirist. He is known as one of the first critics of anthropomorphism and mythology (qq.v.). He asserted that people create gods only in their own image, and that any animal, if it believed in gods, would picture them as animals. Treating of the concept of being from a purely materialist standpoint together with the pre-Socratics (q.v.), i.e., as earth and water, and as that which they engendered,

X. arrived at a high level of abstraction which made him regard being as always the same, identical with itself, uniform, and unchanging. Although X. himself did not approach the problems of the singular and multiple, the identical and the changeable, his views facilitated the formulation of the problem of dialectical relationship between these categories. In his theory of knowledge X. attempted to prove the insufficiency of sensory data or "impressions".

Y

Yang Chu (c. 395-335 B.C.), Chinese philosopher who adopted positions of naive materialism and severely criticised religious views and the belief in immortality. According to him, all events and phenomena of nature and society are subject to the law of natural necessity, which he defined as fate. Hence, his views are not free from elements of fatalistic determinism. Y.C. asserted that everything has to die or to be destroyed. Life, of natural necessity, gives way to death, destruction follows birth. In ethics he laid much stress upon the individual with his desire for maximum satisfaction of his feelings and wishes. However, the hedonism and eudæmonism of Y.C. were not carried to the extreme. He called on man to enjoy the present life and not to bother with the thought of what happens after death. His individualism was a reaction to the ethical and social gradation of men in Confucianism (q.v.).

Yin and Yang, basic concepts of ancient Chinese philosophy. Originally, they served to express lightness and darkness, hardness and softness the male and female principles in nature. As Chinese philosophy developed Y. and Y. They increasingly symbolised the interaction of the extreme, diametrical opposites: light and darkness, day and night, sun and moon, heaven and earth, heat and cold, positive and negative, etc. Yin-yang acquired exceptionally abstract meaning in the speculative schemes of Neo-Confucianism, especially in the doctrine of *Ri* (q.v.), the absolute law.

The concept of interaction of polar forces, regarded as the axis of the cosmic forces of motion and the prime cause of constant change in nature, forms the main content of most of the dialectical systems of Chinese philosophers. The doctrine of dualism of the yin-yang forces is an indispensable element of the dialectical constructions of Chinese philosophy. The yin-yang concepts have also found diverse applications in elaborating the theoretical principles of Chinese medicine, chemistry, music, etc.

Yoga, an orthodox idealist system of Indian philosophy. From the viewpoint of Y. the main purpose of all man's actions must be complete release from material existence, death and birth. The two main conditions for this release are *voiragya* (fearlessness, aloofness) and *yoga* (contemplation). The first stems from conviction of the futility of mundane life, which is full of evil and suffering. The second arises out of conviction of the need for knowing the highest truth—God. In contrast to other systems of Indian philosophy, Y. attaches exceptional importance to the perfection of the body and the sense-organs. The main principles of Y. were formulated by Patanjali in the *Yogasûtras* (c. 1st century B.C.).

Young Hegelians (or Left Hegelians), ideologists of the German liberalism in the 1830s-1840s, representatives of the radical wing of Hegel's (q.v.) philosophical school. In the conditions prevailing in Germany at that time their interpretation of Hegelian phi-

losophy and their criticism of Christianity were but a specific form of bourgeois-democratic thought and political interest in general. David F. Strauss' book, *Das Leben Jesu* (1835), which critically analysed the Gospel dogmas, promoted the formation of the Hegelian Left wing. Strauss considered Jesus as an ordinary historical personality, whose supernatural entity was due to a myth. The next step in the criticism of religion as a false form of consciousness was made by Bruno Bauer. He regarded the Gospel dogmas as deliberate inventions and the person of Jesus as fiction. The theories of the Y.H. were but the first attempt, modelled on religion, to analyse social consciousness as a social structure (ideology). Their attention was centred on the question of how false concepts of society appear and acquire the force of compulsion. Strauss explained this by the traditional persistency of mythological views. Bauer saw the source of this phenomenon in the "alienation" of the products of individual "self-consciousness", in that the products of the human mind were considered as abstractions independent of it. The critical analysis of the idealist doctrine of the Y.H. laid bare the limitedness of a purely immanent analysis of social consciousness and pointed to the necessity for investigating material social relations, for deducing from them the spiritual life of society. To a certain extent this necessity was grasped by Feuerbach (q.v.). The task was fulfilled by Marx and Engels, who joined the Y.H. movement at the beginning of the 1840s. But they arrived at a radically new understanding of social development—the theory of historical materialism (q.v.). The bankruptcy of the Y.H. movement as bourgeois radicalism is seen most clearly in its underestimation of the role of the masses in history. This is clear from the works of Stirner (q.v.), one of the forerunners of anarchism (q.v.). The ideas of class struggle, of the objective laws of social development, and of the role of economic relations in the life of society were alien to the Y.H. Their character-

istic feature was revolutionary phraseology, containing only liberal threats to the ruling classes who were trying to arrest the bourgeois development of Germany. They regarded the masses as the "enemy of the spirit" and progress. According to them, the "critically thinking individual" was the motive force of history. Marx and Engels sharply criticised the ideas of the Y.H. in their works, *The Holy Family* and *The German Ideology* (qq.v.).

Yurkevich, Pamfil Danilovich (1827-74), Russian idealist philosopher and theologian, professor at the Kiev Theological Academy (since 1851) and Moscow University (since 1861). He became famous after the publication of his article "On the Science of the Human Spirit" (1860), in which he tried to refute the works of Chernyshevsky (q.v.) on the anthropological principle in philosophy and thus earned the praise and recognition of the reactionaries who opposed the materialism of the revolutionary democrats. Y. rejected the materialistic explanation of man's psychical life, countering to it the Christian notion of the unity of the body and the soul. Man, in his opinion, is cognised in two ways: the body is perceived by external senses, while spiritual phenomena are perceived by inner senses, by faith. Science should not interfere in the explanation of the spiritual life because it does not possess the means necessary for such cognition. In his article, "Polemical Gems" (1861), Chernyshevsky showed that Y.'s religious idealism was untenable. The works of Sechenov (q.v.), particularly his *Refleksy golovnogo mozga* (*Reflexes of the Cerebrum*), 1863, laid the foundations for the scientific study of the psyche and refuted Y.'s religious views of the soul from the psychological point of view.

Yushkevich, Pavel Solomonovich (1873-1945), Russian journalist, translator of philosophical literature, Social-Democrat and Menshevik, who retired from political activity in the 1920s. In the book *Materialism i kritichesky realism* (*Materialism and Criti-*

cal Realism), 1908, he criticised the philosophy of Marxism from the standpoint of Machism and subjective idealism. He preached empirio-symbolism (q.v.). His work *Mirovozzreniye i mirovozzreniya* (*World Outlook and World Outlooks*), 1912, attempted to justify idealistic myths by employing the specific character of philosophical cre-

ativity. According to him, philosophy is not a science but a result of semi-artistic, intellectually emotional vision, "a form of collective thought and sensation". This brings him close to James, Dilthey, Nietzsche (qq.v.). Lenin criticised Y.'s views in his *Materialism and Empirio-Criticism* (q.v.).

Z

Zen Buddhism, a trend in Buddhism (q.v.); originated in China in the 6th century; postulated a single essence of Buddha and of all creatures, and the natural way, *tao* (q.v.), which supersedes all theoretical methods. Unlike other Buddhistic schools, Z.B. preaches "sudden awakening", *satori*. The irrationalism and intuitionism of Z.B. has been rousing widespread interest among West European and American philosophers, especially in recent years.

Zeno of Citium (c. 336-c. 264 B.C.), founder of the stoic school (see Stoics). Born in Citium on Cyprus, son of a merchant; studied under Crates the Cynic, then under Stilpo and Diodorus of the Megarian school (q.v.) and later under Polemon the Platonian. In Athens about 300 B.C. he founded his own school which was called stoic (from *stoa poikile*, portico decorated with frescoes). Only a few fragments of Z. writings are extant. He divided philosophy into three parts—logic, physics and ethics. He introduced the term "catalepsis" (concept). According to Z., the idea (*fantasia*) is the imprint (*tuopsis*) of things in the mind. He regarded the "captivating image" as the criterion of truth, inasmuch as it is associated with the apprehension of reality.

Zeno of Elea (c. 490-c. 430 B.C.) of the Elea school (see Eleatics). Was the first to introduce the form of dialogue; known for his logical paradoxes, which posed in negative form important questions of the dialectical nature of motion. Z. held that being is non-contradictory, therefore contradictory being is seeming being. His paradoxes amounted to proof that (1) it is logically impossible to conceive the multiplicity of things, (2) the assumption of motion leads to contradiction. His

best known paradoxes against the possibility of motion are "Achilles and the Tortoise" and "the Flying Arrow" (see Aporia). Lenin, pondering over Z.'s arguments stressed that Hegel was right in raising objections to them: to move means to be in this place and at the same time not to be in it; it is the unity of the continuity and discontinuity of space and time which makes motion possible.

Zhegalkin, Ivan Ivanovich (1869-1947), logician and mathematician, professor at Moscow University; one of the founders of the Soviet school of mathematical logic (q.v.). In 1927-28, he devised a logic of propositions in the form of an arithmetic of two figures—nought ("even") and one ("uneven"), thus achieving great simplicity in the solution of logical problems. Unlike the usual logical constructions, his logic employs no conjunctions, only disjunctions (q.v.) being used in the same way as odd and even numbers in arithmetic.

Zoroastrianism, a dualistic ancient Iranian religion. Its creation is credited to the mythical prophet Zarathustra (Zoroaster in Gk.). Z. had been fully shaped by the 7th century B.C. The main thing in Z. is the doctrine of the constant struggle in the world between two opposite elements: good, personified by the god of lightness Ahurō Mazdāo (Ormazd), and evil, personified by the god of darkness Angrō Mainyush (Ahriman). Its eschatological ideas (see Eschatology) on the end of the world, retribution in another world, judgement, resurrection of the dead and a future saviour born of a virgin exerted great influence on Judaism (q.v.) and Christianity (q.v.). Exists now in the form of Parsiism in India, which has preserved the old dualistic ideas but developed the concept of a single Almighty God.

GLOSSARY OF FOREIGN WORDS AND PHRASES CURRENT IN PHILOSOPHICAL LITERATURE

A, in logic, a universal affirmative proposition. Abbreviation for *affirmo*.

Ad oculus (L.), to the eyes, visibly.

A fortiori (L.), a phrase signifying all the more; applied to a proposition which is more admissible than the one previously conceded by an opponent.

A posteriori (L.), after experience, as a result of experience.

A priori (L.), prior to experience, independent of experience.

Agens (L.), set in motion; a driving force, acting entity.

Amicus Plato, sed magis amica est veritas (L.), Plato is dear to me, but truth is dearer still. A paraphrase ascribed to Aristotle (q.v.).

Analogon rationis (L.), similar to reason. By this term Leibniz (q.v.) designated the lowest forms of consciousness inherent in animals.

An sich (Ger.), translated from the Latin *in se* (in itself), introduced by Wolff (q.v.) to designate things, objects as such, taken outside their relation to other things or phenomena. After Kant (q.v.) idealists used it to denote the inherently unknowable "thing-in-itself".

Antecedens—consequens (L.), antecedent—consequent.

Arbitrium liberum (L.), a free decision, freedom of the will.

Argumentum ad baculum (L.), literally: the argument of the stick; figuratively: most forcible of arguments.

Argumentum ad hominem (L.), an irrelevant appeal to personal emotions, diverting an argument from sound facts and reasons to the personality of one's opponent.

Argumentum ad rem (L.), an argument to the point.

Argumentum ad veritatem (L.), objective proof.

Argumentum e contrario (L.), the proof from the contrary.

Argumentum e silentio (L.), a misleading argument used in reliance on keeping silent about something.

Bellum omnium contra omnes (L.), war of all against all. According to Hobbes (q.v.), this is a natural condition of human society prior to the emergence of the state. Hobbes' original expression reads slightly differently: "Bellum omnium in omnes".

Bon sens (F.), common sense.

Causa activa (L.), an acting cause.

Causa corporalis (L.), a physical cause.

Causa efficiens (L.), an efficient cause.

Causa essendi (L.), cause of being, existence.

Causa finalis (L.), a final cause.

Causa formalis (L.), a formal cause, as the form according to which a statute is made.

Causa materialis (L.), a cause acting in substance, matter; a substratum of action.

Causa movens (motiva), L., a motive force, or cause.

Causa occasionalis (L.), an accidental cause.

Causa sui (L.), cause of itself; this term was used by scholastics to signify causelessness (God is uncaused and necessary). F. Suarez, Descartes, Schelling and Hegel (q.v.) applied the term as well. *Causa sui* was the main principle of Spinozism.

Characteristica universalis (L.), universal language, a system of symbols projected by Leibniz (q.v.) who

believed in the possibility of translating philosophical concepts into a language of symbols.

Circulus vitiosus (L.), also *circulus in probando*, a vicious circle, proof or evidence involving premisses which assume the conclusion which is to be established.

Cogito, ergo sum (L.), I think, therefore I am. Descartes' fundamental basis of philosophy.

Coincidentia oppositorum (L.), coincidence of opposites. Nicholas of Cusa (q.v.) used this term to denote removal of contradictions in the infinite.

Conditio sine qua non (L.), an indispensable condition.

Consensus gentium (*consensus omnium*), agreement of people; a criterion of truth: that which is universal among men carries the weight of truth. This argument was widely used by the stoics (q.v.), Cicero and the thinkers of the Scottish school. By means of this argument certain philosophers sought to prove the existence of God.

Contradictio in adjecto (L.), contradiction in a definition; a favourite example is the phrase "round square".

Contrat social (F.), social contract (see Social Contract, Theory of).

Crede, quia absurdum est (L.), literally: I believe it because it is absurd. This dictum is often attributed to Tertullian but not found in his works. Its meaning nevertheless conveys the thought of this Latin church father who maintained the rule of faith on the basis of one's trust in the authority of Christ rather than upon the compulsion of reason. Cf. *Sacrificium intellectus*. Some philosophers hold that this expression appeared in the 17th century.

Crede, ut intelligam (L.), literally: I believe in order to understand. A principle held by Anselm of Canterbury (q.v.), who posited faith as the basis of knowledge.

Cum principia negante non est disputandum (L.), logically, it is impossible to conduct a dispute unless there is a consensus regarding the basic premisses.

De omnibus dubitandum (L.), doubt everything. A point of departure in

Cartesian philosophy. Having opposed scholastic speculative philosophy and its admission of scientifically undemonstrable truths, taken on trust, Descartes (q.v.) declared that doubt was the only right method of scientific cognition.

Deus sive natura (L.), God, or nature, i.e., the identity of god and nature. A tenet of Spinozism. Feuerbach (q.v.) criticised it from the materialist position.

Dictum de omni et nullo (L.), literally, said of all and of none, the axiom of syllogism that whatever is affirmed (denied) of an entire class may be affirmed (denied) of any object included in this class.

Differentia specifica (L.), a generic distinction.

Docta ignorantia (L.), literally: learned ignorance, refers to men's "understanding" of the immensity of the infinite and divine, and of the incomprehensibility of God.

E, in logic, a universal negative proposition; *E* is the first vowel in the Latin word *nego*.

Élan vital (L.), literally: life force, vital impetus. This term was used by Bergson (q.v.) to denote the source of efficient causation.

Ens (L.), being, existence in the most general sense of the term; essence, thing.

Ens a se (L.), being as such, existence thanks to itself, as distinct from *ens ab alio*, that which is dependent on something else, being conditioned and created by it.

Ens entium (L.), the essence of essences.

Ens rationis (L.), an entity of reason.

Ens reale (L.), a real thing.

Ens realissimum (L.), the most real entity, the inner content of all reality.

Eppur si muove (It.), "It does move all the same!"; this is attributed to Galileo (q.v.) who said it before the Court of Inquisition after he was forced to renunciate the Copernican theory.

Esse est percipi (L.), to exist means to be perceived, the main postulate of Berkeley's (q.v.) philosophy: the existence of things consists in perceptibility.

Essentia (L.), essence, a basic concept of scholasticism; *existentia*—existence—is an opposite concept.

Exclusi tertii principium (L.), the law of excluded middle; one of the basic laws of logic: of the two mutually excluding statements one is bound to be true. A is B or A is not B, the third being excluded.

Ex nihilo nihil fit (L.), out of nothing nothing is made (or comes), a proposition advanced by the Greek philosopher Melissus (5th century B.C.). Lucretius (q.v.) developed this idea in his poem *De rerum natura*. Subsequently, it was used by materialist philosophers in their attempt to prove that the world is eternal, contrary to the idealist teaching that God created the world.

Experimentia est optima rerum magistra (L.), experience is the best teacher.

Experimentum crucis (L.), the experiment of the finger-post, a crucial test which helps to ascertain which hypothesis is right and which is wrong. This expression belongs to Francis Bacon (q.v.).

Genus proximum (L.), the nearest genus, i.e., a broader class of objects encompassing all the species under study.

Homo homini lupus est (L.), man is a wolf to man. According to Hobbes (q.v.), this phrase expresses the gist of relations existing among people prior to the emergence of the state. The dictum belongs to Plautus, a Roman poet.

Homo sapiens (L.), a human being; this concept was introduced by Linnaeus (q.v.) to designate man as a biological species.

I, a conventional sign in logic, designating a partial positive proposition. *I* is the second vowel in the Latin word *affirmo*.

Idem per idem (L.), the same through the same; definition through definable.

Ignoramus et ignorabimus (L.), we are ignorant and shall remain ignorant. According to the German physiologist Du Bois-Reymond, who introduced this tenet, there is limit to human

cognition, there are phenomena which we cannot know for the time being (*Ignoramus*) and shall not be able to know in the future (*Ignorabimus*). To uncognisable phenomena he referred the essence of matter and power, the origin of motion.

Ignoratio elenchi (L.), ignoring the point in question, the fallacy of proving a conclusion which is other than that required or which does not contradict the thesis which it was undertaken to refute.

Im Werden (Ger.), in the process of becoming, appearance.

In abstracto (L.), in the abstract, out of contract with reality.

In concreto (L.), in reality, in actual fact, in a definite case.

In statu nascendi (L.), in the state of conception, in the moment of creation.

Ipse dixit (L.), literally: he himself has said it. Reference to Pythagoras was regarded by his disciples as the most conclusive proof in a dispute. Subsequently, this phrase has been used to emphasise blind reverence for authority.

Ipsa facta (L.), by that very fact; thereby.

M, a conventional sign in logic denoting the middle term of a syllogism. *M* is the first letter in the Latin word *medius*.

Medicina mentis (L.), the medicine of the spirit; medieval philosophers gave this name to logic.

Modus probandi (L.), a mode of proof.

Mundus intelligibilis (L.), the world of intelligible realities.

Mundus sensibilis (L.), the world of things perceived by the human senses.

Natura naturans (L.), creative nature; *natura naturata*, created nature. These terms were introduced in a Latin translation of Averroës' comments on Aristotle's work *De Caelo*. Later they were used by Johannes Scotus Erigena (q.v.), who regarded God as *natura naturans*. Both terms are to be found in the works by Bruno, Spinoza, and Schelling (qq.v.). With Spinoza, *natura naturans* was a substance, while *natura*

naturata was the world of individual things, modes. Schelling saw in *natura naturans* the nature as an active creating subject, an object of study by natural philosophy and not a lifeless object studied by natural science.

Natura non facit saltus (L.), nature does not make leaps. This phrase was used for the first time in Linnaeus' work *Philosophia botanica*. But the thesis on the gradual development of nature goes back to Aristotle. This idea is to be found in the works of Leibniz (q.v.) as well.

Nervus probandi (L.), the nerve of proof, the most conclusive and decisive argument.

Nihil est in intellectu, quod non prius fuerit in sensu (L.), literally: nothing is in the intellect which was not first in sense. The main thesis of sensationism (q.v.) formulated by Locke (q.v.). Leibniz (q.v.) qualified this proposition by adding: *nisi intellectus ipse*, i.e., except for what is already present as part of the innate nature of the intellect, thus indicating that reason possesses its own laws independent of senses.

Nosce te ipsum (L.), know thyself. These words in Greek "*Gnōthi scauton*" carved on the pediment of the temple of Apollo Delphinus, are ascribed to Thales (q.v.).

Nota notae est nota rei ipsius (L.), literally: that which falls within the comprehension of a "note", the axiom of syllogism that a known component of a thing also falls within the comprehension of the thing.

Notiones communes, or notitiae communes (L.), common notions. The stoics regarded notions as common to all men and, therefore, innate to them.

O, a conventional sign in logic designating a partial negative proposition. *O* is the second vowel in the Latin word *nego*.

Obscurum per obscurius (L.), explaining the obscure by means of the more obscure.

Omnis determinatio est negatio (L.), "every definition is negation" (Spinoza, q.v.).

Omnis verum omni vero consonat

(L.), all truths are mutually interdependent, a scholastic proposition.

Ordo ordinans (L.), the organising principle, the organising world reason. By this term Fichte (q.v.) called God.

P, a conventional sign in logic designating the predicate of a proposition. *P*, is the first letter in Latin word *Praedicatum*.

Per se (L.), by himself; essentially; in itself.

Petitio principii (L.), or begging the question; the illicit assumption in the premiss of that which is to be proved in the conclusion.

Philosophia prima (L.), First Philosophy, the name given by Aristotle (q.v.) to metaphysics (q.v.) and by Wolff (q.v.) to ontology (q.v.).

Post factum (L.), after the event.

Post hoc, ergo propter hoc (L.), after this, therefore, because of this. A most current logical fallacy, in which it is argued that a consequent is caused by an antecedent simply because of the temporal relationship. This fallacy gives rise to many superstitions (belief in dreams, evil omen, etc.).

Pro et contra (L.), to argue for and against.

Professione de foi (F.), the profession of one's faith, the declaration of one's views and convictions.

Quaternio terminorum (L.), violation of a rule in logic. It is most apt to arise through equivocation, an ambiguous word playing the role of the middle term with one meaning in the major premiss and another meaning in the minor premiss.

Qui nimum probat, nihil probat (L.), he who proves too much proves nothing.

Quod erat demonstrandum (L.), or Q.E.D., which was to be proved or demonstrated.

Ratio (L.), reason, intellect, basis.

Ratio agendi (L.), the basis of action.

Ratio cognoscendi (L.), the basis of cognition.

Ratio essendi (L.), the basis of being.

Reductio ad absurdum (L.), reduction to absurdity; the proof of a proposition by proving the falsity of its contradictory.

Res cogitans (L.), thinking thing;

res extensa, extended thing. The terms introduced by Descartes to designate spiritual and material substances.

Reservatio mentalis (L.), a mental reservation. A person, who makes a public statement containing some obligation, imparts a special meaning to his words, which releases him from this obligation. The method of mental reservations plays a special role in the Jesuitical casuistry.

S, a conventional sign in logic denoting the subject of a proposition. S is the first letter in the Latin word *subjectum*.

Sacrificium intellectus (L.), "Sacrifice of reason", rejection of one's own thinking. After the Catholic Church adopted the dogma of the infallibility of the Pope this expression means sacrifice of one's convictions for the sake of the church authority.

Salus populi suprema lex esto (L.), let the welfare of the people be the final law. This expression is ascribed to Cicero.

Sic et non (L.), so and not so. The title of the work by Abélard (q.v.), who laid the foundations of the scholastic method based on the solution of problems through the conflict of diametrically opposite views, through the accounting of all arguments "for and against" (see *Pro et contra*).

Species (L.), in philosophy, a mental image; in logic and biology, a conception subordinate to a higher conception called a genus.

Spiritus (L.), the spirit.

Status nascendi (L.), the state of conception, origination.

Sui generis (L.), of its own kind, the only one of its kind.

Tabula rasa (L.), literally, a smoothed or blank tablet. The name given by the stoics and sensationalists to the soul at the birth of man. They held that experience lays its imprint on it only in the course of his development and fills it with ideas. The a priori juxtaposition of the soul with the blank tablet goes back to Plato, Aristotle (qq.v.), and other antique philosophers. The Greek equivalent belongs to Alexander of Aphrodisias and the Latin one, to Aegidius of Rome.

Terminus (L.), the limit, frontier; the concept.

Terminus a quo (L.), the limit from which; starting-point.

Tertium comparationes (L.), a basis of comparison.

Tertium non datur (L.), literally: the third is not given. See Excluded Middle, Law of.

Tout est pour le mieux dans le meilleur des mondes possibles (F.), literally: "All is for the best in the the best of possible worlds", a maxim from Voltaire's *Candide* where he ridicules the theory of pre-established harmony (q.v.) advanced by Leibniz.

Ultima ratio (L.), the last and decisive argument.

Volonté generale (F.), literally: the general will. According to Rousseau (q.v.), people who live in a natural state conclude a social contract in order to place their personality and property within the purview of the general will, which exercises supreme guidance in their interest. This will may be expressed by the people alone.

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