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This book presents in a popular form the fundamentals of Marxist-Leninist philosophy—dialectical and historical materialism. It is intended for the people who are studying philosophy and are trying to understand the problems of our day.

ABC of Dialectical and Historical Materialism

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ДИАЛЕКТИЧЕСКИЙ И ИСТОРИЧЕСКИЙ МАТЕРИАЛИЗМ.

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FOREWORD

Many people are trying their best to grasp the meaning of the rapid changes occurring before their eyes and to understand how they are affecting their own lives. They are trying to develop their own view of the world and thus determine their place in it. But it is not simple to form a view of the world without knowledge of existing doctrines and theories. There are diverse theories explaining, each in its own way, the events occurring in the world. And it is vital, though not at all easy, to choose among them the one that is nearest to the truth and that is borne out by life, by the development of science and the real course of history.

The authors will consider their task rewarded if this book helps the reader to comprehend the phenomena and events in nature and society and to form a scientific, Marxist world outlook.

Chapter One

THE FUNDAMENTAL QUESTION OF PHILOSOPHY

§1. The Gist of the Question

In March 1881, a man jailed for his active opposition to the tsarist autocracy sat over a sheet of paper in a solitary confinement cell in the Peter and Paul Fortress in St. Petersburg, now Leningrad. The death sentence had already been passed on N. I. Kibalchich, and the day of his execution was not far off. But it was not of his doom he was thinking: his mind was on a fascinating scientific problem to which he had only just, so shortly before his early death, found a solution. There, on the sheet of paper, was the scheme of a jet-propelled aircraft, the first in the history of science.

Twenty-two years afterwards, in 1903, the eminent Russian scientist K. E. Tsiolkovsky, who had elaborated in detail the design of the jet-propulsion engine, laid the foundations of jet-propulsion theory and demonstrated that jet-propulsion engines could be used for interplanetary flights. Thirty years later, flying vehicles with jet engines were constructed and tested. Soon jet planes appeared, and in 1957, the first artificial earth satellite was launched in the USSR. Following a series of unmanned space flights, the first manned spaceship with the Soviet cosmonaut Yuri Gagarin on board was successfully launched.

That started a new age. Jet-propelled spaceships set off for the Moon, Venus and Mars. It could never have happened had the human mind not conceived the principle of jet propulsion and developed relevant scientific theory, and had it not posed to men the task of penetrating space. All man-made cosmic bodies are the products of scientific thought. And as thought need not necessarily be unique to earth-dwellers and there may be other beings in the universe who may well be our intellectual superiors, it is natural to suppose that other cosmic bodies whose origin is so far not clear to us may also be products of thought. Then why not suppose that the Earth with everything there is on it is also a product of thought?

One could indeed make such a supposition but would it tally with the evidence of science and experience?

Light travels 9, 440, 000, 000 kilometres a year. This distance is called a light-year. The Milky Way–a giant cluster of stars and other bodies, of which the solar system is a part–has a diameter of almost 100, 000 light-years. It moves among other clusters of stars (galaxies) which are vastly removed from it. The part of the universe which scientists can observe with the aid of powerful optical and radio devices has a diameter of 26, 000, 000, 000 light-years. This vast area is puny, compared with all other areas of the universe as yet out of the range of the available means of observation. And the Earth, with its continents and oceans, plants, animals and human beings, is an infinitesimal speck in the vast universe.

According to scientific evidence, life on Earth has existed but a short time compared with the Earth's existence, while the living organisms make up but an insignificant part of the sum total of bodies we call the Earth. As for the human race, it is relatively young, having appeared just a little over a million years ago. Space flights and scientific research have conclusively established that between the Earth and its natural satellite, the Moon, no living organisms exist, let alone rational beings.

Hence, although the universe evidently contains an infinite multitude of life forms, only a very small part of them possess the faculty of thought. Modern science confirms Engels' observation that "the time of organic life and still more that of the life of beings conscious of nature and of themselves, is just as narrowly restricted as the space in which life and self-consciousness come into operation...".[1]

Modern science suggests that thought is mere-

[1] Frederick Engels, *Dialectics of Nature*, 1972, p. 39.

ly one of the numerous products of the universe. The supposition that the universe, which is infinite in space and time, is the product of thought is hardly tenable. Supporters of this view may argue that our scientific knowledge is anything but complete, there being still much that we do not know. That is true enough. Yet, ignorance is no argument.

We have thus come to a point which merits close consideration. To form an idea of a science, one should, first of all, be informed of the basic problems it is concerned with. In chemistry, for instance, the question of how atoms join and separate and how, as a result, substances undergo changes of composition, is basic to all other questions. Knowing this, we can already form a basic idea of the science of chemistry. It is so with all other sciences. To know the fundamental question a science is concerned with, is to know what it is about. Hence, in order to form an idea of what philosophy is, we must find out what its *fundamental question* is.

All bodies and the mechanical, physical, chemical and physiological processes they undergo are usually described as material phenomena, or *matter*. Pride, shame, joy, and all other feelings supplied by our five senses, as well as thoughts teeming in the mind are usually described as ideal, or spiritual phenomena or *consciousness*.

It has long been observed that man's capacity to distinguish colours, sounds and smells, as well as his feelings and his mind improve with age, as his body develops and as he learns to perform diverse jobs, handling different objects and associating with other people. Some grave bodily diseases cause aberration or even loss of consciousness while with the destruction of the body sensations, thoughts cease altogether. These facts show that spiritual phenomena are based on material phenomena.

Other facts have also been noted. When we say that a boy has smashed a window without meaning to, the idea is that he did not intend to smash it. This does not, however, mean that the hand threw the stone of its own accord, irrespective of the boy's intention. Clearly, his action was prompted by some emotion or idea. He simply did not aim the stone well and it hit the wrong object.

Man is not a machine but a creature that thinks and feels. All his actions–reasonable or otherwise–are prompted by his emotions or ideas. Before making a plough and tilling and sowing the field he *thinks over* how it should all be done.

The desire for freedom and anger at social injustice long ago caused slaves to rise up and fight their oppressors. Love of their country moved men to fight invaders to the death. The immediate source from which such actions sprang were, again, men's ideas and emotions.

Reflecting on these facts, one was naturally led to conclude that material phenomena were the products of spiritual phenomena which were, therefore, decisive to human activity.

This view spread particularly when society became divided into the antagonistic classes of toilers, who worked hard and lived in poverty, and masters who did no work and appropriated the wealth produced by others. Education, science and art became the exclusive privilege of a tiny minority–the ruling classes. Their will became law, regulating the behaviour of everyone. That made it seem as if consciousness were primary in relation to the material life of society. Hence the conclusion was made that even outside society, indeed in the whole world, spiritual phenomena dominated material ones.

Which then derives from which? The material from the spiritual, or vice versa? Does matter originate from consciousness or consciousness from matter? Which is primary, spirit or nature? Philosophers began to argue about it back in antiquity. This problem is the key to all other philosophical problems. The philosophers divided into *two camps:* those who regarded nature, the material world, as the product of consciousness, of spirit, which they held to be independent of the material world, of nature, formed the *idealist camp;* those who regarded consciousness, spirit, as the product of the material world, of nature, formed the *materialist camp.* Engels said that the question of the relation of consciousness to the material world was the great fundamental question of philosophy as a whole, observing that it also involved the question of whether consciousness was capable of truthfully reflecting the world. The views of various philosophers will be discussed here later. For the time being, let us look at the main question, the subject of long-standing dispute among philosophers.

§ 2. Faith or Knowledge?

What is primary–spirit or nature? If you ask this question of a believer, you may be sure of the answer. For God, whom he believes to be the creator and ruler of the world, is also, to him, the spiritual source of all existence. True, the believers are unable to prove it because, taking religious doctrines on trust as they do, they put faith above knowledge.

In the middle ages, when the church had political as well as spiritual power, the clergy persecuted scientists, throwing them into dungeons, torturing them, and burning them at the stake. Today, clergymen no longer deny the importance of science. Moreover, they claim that science is quite compatible with faith, although, unlike the immutable, exact and infinite truth of religious faith (as they describe it) scientific knowledge is unstable, inexact and limited. "Science has its limits," wrote the Metropolitan Nicholas. "It has to do merely with what one can see, touch and hear and thereby infer. But there is another realm ... the realm of faith. Besides the visible world, there is one which is invisible. Science cannot reach it, but faith can."

Of course there is much in microcosm and space that we cannot see. Yet, it was science and not religion, that penetrated into the "invisible world" with microscopes, telescopes and other instruments and helped obtain exact knowledge of what was going on there. And the theologists' "invisible world" is still a mystery, like the invisible clothes of the naked king Hans Christian Andersen wrote about in one of his tales. Just as in the tale, faith in the "invisible" is only for those who would not trust their eyes, their ears and their minds.

Is it true that knowledge and faith are compatible? What is the difference between them?

In *L'île des pingouins* by Anatole France we find the story of a man with a charge brought against him in the absence of any evidence.

"That Pyrot had stolen the eighty thousand haycocks certainly no one hesitated to believe.

They never doubted it as their ignorance in the matter gave them no reason to doubt, and doubt is impossible without a reason, because one cannot doubt a thing for no reason the way one can believe a thing for no reason."

In Catholic educational institutions the following rule is effective to this day: "We must believe that what looks white to us is black if the hierarchic church should choose to describe it so,... persuading ourselves that all this is just, and abandoning with unquestioning obedience any judgements to the contrary."

Jean Bodin, an opponent of medieval obscurantism, wrote in the 16th century that a student of mathematics who believed a theorem suggested by the teacher, without understanding it, could be described as having faith without having knowledge. However, once he had understood the demonstration of the theorem and seen its truth for himself, thus achieving knowledge, his faith was lost.

A scientific assumption may prove to be inexact or even erroneous. But it is still knowledge, not faith, because the assumption was based on evidence, even though this was insufficient. That does not mean we should reject any judgement the reasons for which we do not know. Having thought it over and checked it thoroughly, we must establish whether it may be considered true or untrue. Refusing to control one's thoughts, blindly following a sudden hunch, common prejudices, or even books is a false path in knowledge. To quote an example, communism, Lenin pointed out, is not blind faith in conclusions picked up from books, but views at which one must arrive after weighing and thinking over thoroughly what one has read comparing the conclusions with the proofs and satisfying oneself that the conclusions have been proved beyond any possible doubt. Lenin wrote: "Communism will become an empty word, a mere signboard, and a Communist a mere boaster, if all the knowledge he has acquired is not digested in his mind," if he accepted pedantically "the cut-and-dried conclusions he had acquired, without putting in a great deal of serious and hard work and without understanding facts he should examine critically...".[1] The building of socialism, Lenin wrote, required "the really enlightened elements for whom we can vouch that they will not take the word for the deed...".[2]

Let us assume that we put the fundamental question of philosophy to one who has never heard of it before, and let us assume that he will say at once: "Certainly, matter is primary and consciousness is secondary". The important thing then is to see how that person will

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[1] V. I. Lenin, *Collected Works*, Vol. 31, pp. 287-88.
[2] Ibid., Vol. 33, p. 489.

prove his assertion and disprove the opposite idea. If he fails, we shall have to admit that it is faith, and not knowledge, on his part. It may even seem to him that no arguments can generally be adduced in favour of idealism, so that there really is nothing to disprove, while the truth of materialism is so obvious that it needs no proof. Actually, however, every philosophical doctrine gives definite reasons for its conclusions. If one is seeking knowledge rather than faith, one needs to sort out the conclusions and arguments furnished by different philosophical trends.

§3. Materialism vs. Subjective Idealism

Here is the substance of one such doctrine: We have merely three types of knowledge: (1) that which we hear, see, feel by touch, etc., i.e., our sensations; (2) that which we conceive by reason of memory or imagination, i.e., our conceptions; (3) we also know ourselves, having an awareness of "self", of "spirit" which is capable of sensing, remembering, feeling and dreaming. We have a notion of objects solely because we see or smell or feel them, i.e., because we perceive them physically. Without this ability, we would know nothing about the external world. When we see something round, yellow-red on one side and dark-red on the other, feel a smooth rounded surface and perceive a specific smell, we know it is an apple. The sensations are all we know about this particular object. Thus an apple is nothing but a combination of sensations. Likewise, all objects we observe in the room, street, field or woods, i.e., all external or material things, are combinations of visual, tactile and other sensations. *All* we know about such things are our impressions of them. These impressions exist only in the mind. Men, however, regard a visual or other sensation as a likeness or image of an external thing. What they proceed from is that unless we acknowledge the existence of sensible things outside us, it is impossible to explain how sensations arise. Yet, when we dream we feel sensations, although the things and events we are dreaming of exist only in the mind. Therefore, to explain sensations it is not at all necessary to assume that things have an objective existence. As we need not assume this to explain dreams, so we need not assume it to explain what we feel in our waking hours.

This doctrine which holds that everything commonly regarded as material exists solely in the mind of the subject (man) is called *subjective idealism,* as distinct from *objective idealism* which holds that the primary source of being is not man's consciousness but consciousness without man, some objective spirit independent of human consciousness. We have just stated the reasoning of the subjective idealist George Berkeley (1685-1753), who wrote: "...all those bodies which compose the mighty frame of the world, have not any subsistence without a mind...."[1] His teaching boils down to two points: (1) outside consciousness there is nothing, and (2) to exist is to be perceived; what nobody perceives does not exist. This doctrine conflicts with the materialist proposition that (1) apart from and independent of the mind there are objects which produce sensory reactions in us, and that (2) sensible objects exist even when they are not perceived by the senses.

But let us see what Berkeley, the most significant exponent of subjective idealism, has to say further. Asserting that notions emerge and are dropped solely at man's will, Berkeley wrote: "But ... the ideas actually perceived by sense have not a like dependence on my will. When in broad daylight I open my eyes, it is not in my power to choose whether I shall see no, or to determine what particular objects shall present themselves to my view; and so likewise as to the hearing and other senses, the ideas imprinted on them are not creatures of my will."[2]

[1] *The Works of George Berkeley*, edited by George Sampson, Vol. I, London, 1908, p. 181.

[2] Ibid., p. 191.

In this Berkeley was perfectly correct. But from his words it follows that outside the mind there exist things which, acting on our eyes, ears, etc., cause sensations. In other words, sensations (which are phenomena of consciousness) entirely depend on the objects which cause them and which exist independently of the mind, i.e., on *material* objects. That it is indeed so has been established by natural science. Lenin wrote: "...outside us, independently of us and of our minds, there exists a movement of matter, let us say of ether waves... which, acting upon the retina, produce in man the sensation of a particular colour. This is precisely how natural science regards it.... This is materialism: matter acting upon our sense-organs produces sensation."[1]

Thus scientific evidence and the facts which Berkeley himself has to acknowledge *prove the truth of materialism.* But even after recognising the independent existence of the source of sensations Berkeley remains an opponent of materialism. Defending religion, he addresses the materialists thus: "...I assert as well as you that, since we are affected from without, we must allow powers to be without, in a being distinct from ourselves.... But then we differ as to the kind of this powerful being. I will have it to be spirit, you Matter..."[2].

[1] V. I. Lenin, *Collected Works,* Vol. 14, p. 55.

[2] *The Works of George Berkeley,* Vol. I, p. 373.

Thus to prop up faith in the primacy of spirit, Berkeley has to forego both logic and science and have recourse to god. Yet, while he asserts that god exists, he gives no proof of his existence–god is absent from the list of objects of knowledge with which Berkeley opens his discourse. After promising to present philosophical knowledge the truth of which has been demonstrated, he presents us with a proposition to be taken on trust.

Yet, as he maintains that god is an independent source of sensations, Berkeley acknowledges by the same token that something which exists outside and independently of mind produces sensation; that the object producing the sensations exists whether or not it is perceived. Thus, this philosopher does, in fact, unwittingly disprove subjective idealism.

What then, according to Berkeley himself, made him accept that "without a mind" there is something whose existence does not depend on us, and this something produces sensations in us? It was, above all, the indisputable fact that sensations arise and disappear *independently of* "the mind", unlike notions which we can usually evoke in the mind just when we like. This difference between sensations and notions is a fact which conflicts with subjective idealism. To be consistent, a subjective idealist would have to deny that sensation results from causes which are outside, and are independent of, the mind. That is just what many contemporary subjective idealists do. Rudolf Carnap, for instance, wrote that the line between sensations and notions is "rather arbitrary".

This assertion is contrary to fact. For example, I can *imagine* myself, if I like, basking in the sun on the beach. But I cannot–however much I may like to–make my body *feel* warm with the sun or make my eyes *see* the surf. Transformation of that which we can conceive into that which we can see and feel does not depend on arbitrary choice. There is only one conclusion to be made from this, namely, that subjective idealism, which denies that the sensations we experience have a material source existing outside the mind, conflicts with the facts conclusively established both by science and experience.

No one in his right mind would deny that illusion and reality are two different things. How to tell dreams from reality, fact from fancy? The common way is to regard whatever exists solely in the mind as illusion; and whatever exists outside the mind (irrespective of whether or not it is perceived), as reality or fact. Berkeley rejects this method of telling between seeming and being and claims that the objects and events we observe when awake exist merely in the mind in just the same way as those we dream about. No one would subscribe to the view that fact and fancy are the same thing. So Berkeley declares that his philosophy, too, has a method of distinguishing illusion from reality–by comparing notes with other people. The sensation most of them regard as fact is fact, and the one regarded otherwise is illusion. Nevertheless Berkeley himself says that the majority may be in error and often are. Most people denied for thousands of years that the Earth is round and believed that the Sun moved round the Earth.

Surely opinion polls would not do as a method of differentiating between seeming and being. Still, neither Berkeley nor his successors found any other. Some of them even thought it quite unnecessary to make such surveys because, they said, there was practically no difference between illusion and reality. The subjective idealist Ernst Mach (1838-1916) cited the following: a pencil partly submerged under water seems broken, and this is called an illusion. But Mach was of a different opinion. He wrote: "It makes practical, but not scientific, sense to speak of *illusion* in such instances. Nor does the oft-repeated question whether the world is real or whether we have merely dreamed it up, make any sense from the scientific point of view. Besides, the weirdest dream is a fact as good as any other."[1]

[1] *Die Analyse der Empfindungen und das Verhältnis des Physischen zum Psychischen*, von E. Mach, Jena, 1906, pp. 8-9.

What Mach means by a "scientific point of view" is utterly unacceptable to science because the object of science is to penetrate through what *seems* to what *actually* is. It is easy to imagine what will happen to a scientist (or anyone for that matter) who will take guidance from Mach's doctrine, for he will fall into every pit scattered along the path of the rainbow-chaser and wishful thinker.

Our sensations are all we know about an object, says Berkeley, and consequently "... the object and the sensation are the same thing". Thus the basic premise of Berkeley's subjective idealism rests on the assertion that we know nothing at all about things save through our sensations of them. Yet we know that a commodity has its value, which is, however, impossible to perceive by the senses. We know that light travels at a speed of 300,000 kilometres a second, which man can neither see nor even imagine. A radio transmitter emits waves whose properties have been thoroughly studied even though they cannot be perceived by the senses. And so *ad infinitum.*

Berkeley's doctrine leaves out a most important part of human knowledge–*concepts* or abstract ideas. Berkeley denied their existence, reducing knowledge entirely to sensations and notions. Such a theory, which rests on the denial of concepts, is incompatible with genuine science.

Now let us presume that objects are merely combinations of sensations. Then the Earth, with everything and everybody on it, is a combination of sensations. It follows then that each of us is the only person in the world while all others are mere sensations. That is *solipsism*. Berkeley and most of his successors concede that other people also exist, i.e., they reject solipsism. Bertrand Russell, the modern idealist philosopher, remarked: "As against solipsism it is to be said, in the first place, that it is psychologically impossible to believe, and is rejected in fact even by those who mean to accept it. I once received a letter from an eminent logician, Mrs. Christine Ladd Franklin, saying that she was a solipsist, and was surprised that there were no others. Coming from a logician, this surprise surprised me."[1] And no wonder. It is hardly logical for one who would be the sole being in the world to be surprised that nobody else should claim the distinction. Yet, another subjective idealist, Carnap, writes that the very question as to whether other people exist is impermissible in philosophy. Nor is it fortuitous, for subjective idealism immediately leads to solipsism. After all, there are but two possible answers. One may either acknowledge the truth of subjective idealism and agree

[1] Bertrand Russell, *Human Knowledge. Its Scope and Limits*, London, 1956, pp. 195-96.

that every one of us is the only person in existence; or one may acknowledge, with the materialists, that there are other people too and subjective idealism has not a leg to stand on. There is no third answer. Human experience and science alike prove that materialism is correct and knock the bottom out of subjective idealism.

§4. Materialism vs. Objective Idealism

We find a different form of idealism in the teachings of its classical exponents, such as Plato (428/427-347 B.C.) in ancient Greece, and Hegel (1770-1831) in Germany. These philosophers recognise that nature exists independently of mind. According to their reasoning, we perceive with our senses individual objects of which the world consists, but sensory experience yields only superficial knowledge such as even little children can have. Sensory experience does not give us ultimate knowledge, i.e., knowledge of the essence of things. Man can have sensory experience of colour, smell or taste. Recollection of these perceptions will bring specific objects to his mind. Yet, that which is common to them and makes them what they are, i.e., their essence, can neither be perceived by the senses nor imagined.

Even in Plato's time science was not confined to sense-data. After all, sensory experience and notions tell us merely what isolated, transient, accidental objects look like. Science, however, seeks to understand their essence. This requires that one should be aware of the common, stable and lasting qualities which are at the basis of and manifest themselves in isolated, contingent facts and things. Briefly, to *conceive* what the things the world consists of really are, one must form a *concept* of them.

The object of sense-perception or representation is a specific individual thing, e.g., the isosceles triangle drawn in my notebook. The object of thought, on the other hand, is the essence (the essential, principal properties) of all triangles which have ever existed or will ever exist, fixed in the concept of "triangle". It does not make the slightest difference to the nature of a triangle what material it is made from, what size or colour it is, and so on. The individual features differentiating the innumerable triangles there are in existence are equally of no significance. Yet every triangle must possess all the features of the triangle as such, constituting its essence which is always the same, whatever happens to its innumerable individual expressions.

Thus, all material things as perceived by the senses are external manifestations of the essence of the given things while their essence is the root, the inner source of phenomena–that to which they owe their existence. Sensible material objects exist objectively, outside consciousness. Yet that is but the external aspect of reality. The basis of the material phenomena comprising the world is the eternal essences, which can neither be created nor destroyed, of individual external phenomena.

What are these essences in Hegel's view? The essence of a triangle does not depend on its material, size or colour. The essence of all triangles is what is common to all of them, viz., that every triangle is a closed straight-lined figure forming three angles. It is impossible to see or even imagine the essence of a triangle, since one can imagine only things which can be perceived by senses. The triangle I can imagine may be drawn in chalk on a blackboard or in pencil on white paper, but nobody can imagine a "triangle in general". It is not a material object, not even a visual representation, but an abstract idea, i.e., a concept. Essence (heat as such, plant as such, speed as such) becomes comprehensible through thought alone. Does this not suggest that at the basis of all reality there is thought which man can mentally perceive but which exists, without ever appearing or disappearing, independently of whether or not it has been grasped?

From this Hegel drew the conclusion that the true basis of the world, which exists outside consciousness and which we investigate, is concepts or ideas, while all material objects and facts are products and manifestations of ideas. Whose ideas? Since they embrace the whole world they must clearly be the ideas of some "spirit" which Hegel calls "world spirit" or the "absolute idea". According to Hegel, the "absolute idea" and the world are identical. Nature is the "other-being of the absolute idea", and "we should ... speak of nature as a system of unconscious thought, as fossilised intelligence" and of man as the "conscious idea" (unlike animals, let alone plants and minerals).[1] Like every material object, man is a manifestation of the infinite spirit which is at the basis of the world, but a manifestation possessed of consciousness, of the "finite spirit", and able to think and grasp the essence of things, or concepts, and conceive the world as the thought process of the world spirit. Consequently, the "world spirit" knows itself as a spirit, and the "world ideal" thinks of itself through man. Hegel wrote of his philosophy that it was a "*representation of God in his eternal being prior to the creation of nature and a finite mind*".[2]

That is the gist of objective idealism which holds that the world is based on the impersonal

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[1] See: Georg Wilhelm Friedrich Hegel's *Werke*, Vol. 6, Berlin, 1843, pp. 45-46.
[2] Ibid., Vol. 3, p. 33.

spirit, the "absolute idea" rather than on man's individual consciousness.

The starting-point of objective idealism is that we know the material world outside the mind through thought, by forming concepts of the essence of things. Therefore thought is a means of knowing the essence of things, and this knowledge is the concept of their essence. This is an obvious deduction. The objective idealists, however, say: If we know the essence of things by thinking and forming concepts, then the world outside the mind must consist of concepts, not of objects. But is that logical? If our *knowledge* of the essence of things is a concept, it does not follow at all that the *essence of things* is a concept. Concepts exist in the mind while both the essence of things and the things themselves exist independently of it. Consequently, unlike concepts, which are ideal, the essence of things, as well as the things themselves, are material. The essence of the triangle existed when men knew nothing of it, and even when men were not there at all. As for the concept of the triangle, it emerged when men had attained a high enough standard of knowledge. It is plain that the *material* essence of things is *primary* while the idea or the concept of it is *secondary*. Consequently, logic attests the truth of materialism and the unsoundness of objective idealism.

The objective idealists argue that the real world comprises isolated objects, each having a beginning and an end, while the ideal world comprises abstract concepts which have neither beginning nor end, i.e., are eternal. But while each thing is indeed finite, we cannot say this of the real world as a whole. Every material object springs from other objects (otherwise it would have to spring from nothing). It cannot disappear altogether–as it disappears itself, it gives rise to other material things. Consequently, the real world has neither a beginning nor an end, it is eternal. Certainly the world of concepts shares the fate of mankind which has evolved the concepts and is using them. Yet mankind came into being at a definite point of time, nor did Hegel himself allow it any eternal existence. We know when the concepts "patrician", "fief", "factory", "electron", etc., emerged and when the concepts "epicycle", 'phlogiston", etc., were dropped. Concepts are mutable and temporal. They emerge at particular stages in the progress of human knowledge and are refined and amplified. Nature, which is infinite, is primary, and its conscious reflection–the world of concepts, which are finite–is secondary.

In objective idealism, the consciousness of the "infinite world spirit", which existed prior to the creation of nature and of any "finite mind", i.e., man, is considered to be at the basis of the world. But, first, although it is not at all unusual to observe a person without consciousness (e.g., in a dead faint, under ether, and so on), nobody has ever met consciousness without a person. Second, even granting the impossible and conceding that consciousness can exist separately from its material source, can it be allowed that nature is the product of this consciousness? The realisation of an idea indispensably requires the presence of certain material phenomena (present even before its realisation). Basically, it proceeds by way of transforming material phenomena into other such phenomena emerging in the process. Material phenomena are never a product of nothing. These are facts proved by science and experience. No objective idealist has ever been able to disprove them or produce a single piece of evidence to show that nature has been created out of nothing by a bodiless spirit. Only one who sets reason and science at naught can believe such things. "To help to bring philosophy nearer to the form of science", to make it "*actual knowledge*–that is what I have set before me,"[1] Hegel wrote. In truth, however, Hegel, like Berkeley, turns his back on scientific knowledge and embraces religion.

Just as there are subjective idealists who do not believe in god, so are there objective ideal-

[1] Georg Wilhelm Friedrich Hegel, *The Phenomenology of Mind*, London, 1931, p. 70.

ists who say god does not exist. But is it possible by deleting the word "god" from a philosophical doctrine to prevent idealism leading to religion? This is how Lenin answers the question: any form of idealism holds nature to be secondary, derived from intelligence. Yet, to produce nature, one must exist independently of it. "That means that something exists *outside* nature, something which moreover *produces nature*. In plain language this is called God. The idealist philosophers have always sought to change this latter name, to make it more abstract, more vague. . . ."[1] That, however, changes nothing. The idealist solution of the fundamental question of philosophy conflicts with scientific knowledge, with human reason and experience, and therefore *any* idealist doctrine, even one whose supporters reject religion, objectively clears the way for religion.

There is something else subjective and objective idealism have in common. All existence, Hegel taught, whether nature ("fossilised", unconscious thought) or human consciousness (thought knowing itself as thought), is thought. The essence of objective idealism is the identification of being with thinking. And the subjective idealists hold all existence—both nature and man's consciousness—to be the subjective experiences of the human spirit. Hence both

[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 229.

the objective and subjective idealists are unanimous in reducing all existence—that commonly termed material and that commonly termed ideal—to consciousness or in identifying matter with thought. As a result, any form of idealism contravenes such patent facts as, for instance, that my thinking of a ticket for a performance at the theatre and the ticket itself are two different things. Hard as I may try to persuade the usher that the thought of a ticket and an actual ticket are the same thing, he will never let me in just for thinking of the ticket.

In everyday life people start from the conviction that all their perceptions, notions, ideas and concepts of things depend on the things themselves, not the other way round. After all, things exist even when we have no notion of them. Hence people in their daily lives naturally share the materialist point of view. They do not usually, however, stop to think why they should share it; they take it for granted. What, then, is the difference between this practical materialism and philosophical materialism? By comparing the arguments for and against philosophical materialism we have learned that the materialist answer to the fundamental question of philosophy is no rash prejudgement but an inference that necessarily follows from all that science has found out about nature, about men and their thinking—in a word, from human experience as a whole.

We shall now examine two important scientific proofs of the materialist answer to the fundamental question of philosophy.

§5. Science of the Earth's Past and the Fundamental Question of Philosophy

No evidence of perception or thought ever being discovered in inanimate objects, science regards life as the first indispensable requisite of consciousness. When did life emerge on earth? Different sciences have helped find the answer to this question. Physicists, for instance, have found that by measuring the number of the first and last terms of the radioactive series of uranium, actino-uranium and thorium and the amount of helium present in minerals and rocks one can make a fairly accurate estimate of the age of geological deposits. Using this method geologists have established not only how old the earth's crust is (almost 4,000 million years) but also the duration of individual geological epochs. By examining various layers of the crust, geologists and palaeontologists have found that no life, not even the simplest, existed before 3,000 million years ago.

Microbiological research has shown that microorganisms which are the oldest living things on earth are incapable of sensation, let alone thought. They possess only irritability. The study of fossilised animals (palaeontology) shows that over hundreds of millions of years animals gradually became more complex until, in the Tertiary period (from sixty-nine million to one million years ago), mammals appeared, including the higher animals capable not only of sensation but also of perception and conception. Nevertheless, consciousness, the ability to think, is found only among humans. And analysis of the products of radioactive decay found in the layers of the earth's crust which contain the fossilised bones of the hominids, man's immediate ancestors, attests that man's separation from the animals took place from five to one million years ago.

If the Earth with all that is on it is the product of sensations and ideas, then whose sensations and ideas were they during the thousand million years that there was yet no life on earth? The idealists fail to answer this question in the context of knowledge. "Natural science positively asserts," Lenin wrote, "that the Earth once existed in such a state that no man or any other creature existed or could have existed on it. Organic matter is a later phenomenon, the fruit of a long evolution. It follows that ... matter is primary and thought, consciousness, sensation are products of a very high development."[1] Thus the only alternative is

[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 75.

either the modern natural science and materialism that necessarily follows from it or idealism and the consequent denial of the elementary truths firmly established by science.

§6. Physiology of the Brain and the Fundamental Question of Philosophy

Now let us turn to the physiology of the brain. Investigation of higher nervous activity has proved that the cerebral cortex has specialised areas where sensations are produced when impulses resulting from the stimulation of sense-organs (the eye, the ear, etc.) are transmitted to them by afferent nerves. If one of these areas (in the back of the head) is destroyed, the result is blindness, and if another area located at the temples is injured, the sense of hearing is lost. Destruction of certain areas in the cortex renders a person unable to perceive an object as a whole, although colours will still be perceived. There are areas (or, rather, points) in the cortex whose stimulation by electricity arouses vivid recollections, and so on. The brain sharply reacts to oxygen deficiency. The slightest drop in the blood supply to the brain gravely affects its function, causing a sudden suspension of consciousness.

Science has incontrovertibly proved that sensations and ideas depend on the normal functioning of an intricately organised material organ—the brain. In other words, consciousness depends on particularly organised matter (the brain) which does not depend on consciousness. Natural science "inflexibly holds that thought is a function of the brain, that sensations, i.e., the images of the *external world*, exist *within us*, produced by the action of things on our sense-organs".[1] Subjective idealists, on the other hand, hold that any body, the brain as well, is a combination of sensations, from which it follows that the brain is a product of consciousness rather than consciousness the product of the brain. Therefore the subjective idealist Avenarius, just as Mach, openly rejects the findings of natural science, asserting that "the brain is not an organ of thought" and that notions and sensations are not functions of the brain. By this token, Lenin observes, he "denies the most elementary truth of physiology".[2] Here again we must choose between the facts firmly established by physiology, and thus materialism, and idealism which makes one deny what has been proved in the physiology of the higher nervous activity.

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[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 90.
[2] Ibid.

§7. What, After All, Is Philosophy?

How does philosophical knowledge differ from other scientific knowledge? Before Marx, it was commonly believed that philosophy furnished exhaustive and final answers to literally every question concerning nature, men and thought. The German idealist philosopher Johann G. Fichte (1762-1814) wrote that philosophy "exhausts all human knowledge in its fundamentals.... Each investigation made resolves a question once and for all".[1] The philosophical systems of the German philosophers Leibniz, Kant and Hegel represent attempts to provide final solutions of all cardinal problems even where essential scientific evidence was not yet available.

Marx and Engels held a different view of philosophy and its goals. They argued that the problems and laws dealt with by chemistry, botany or any particular science concern merely one sphere or aspect of reality. Yet, there are general problems concerning every sphere, and general laws operating in every sphere of nature, society and thought. These general problems and laws are dealt with neither by chemistry nor botany nor any particular science. They are investigated by philosophy. As we

[1] Johann Gottlieb Fichte, *Sonnenklarer Bericht an das großere Publikum über das eigentliche Wesen der neuesten Philosophie,* Berlin, 1801, p. 197.

discussed the fundamental question of philosophy we saw that its correct solution was a deduction from knowledge obtained by all sciences together. The same goes for all other philosophical problems. Philosophy examines and compares the facts and laws discovered by different sciences, sums up this material, and draws the general conclusions that necessarily follow from it. Consequently philosophy is the *science of the more general laws governing the development of nature, society and thought,* which is the conclusion of all knowledge amassed by mankind.

Every scientist, whatever his field, uses such general concepts as the material and the ideal, motion and rest, continuity and discontinuity, cause and effect, truth and error, and so on. The meaning with which he invests them often seems to him self-evident. In fact, however, the meaning of these concepts intimately depends on a definite understanding of the general problems and laws philosophy is concerned with. In attaching certain meanings to the concepts, the scientist actually proceeds in his research from the solution of certain general problems although he may be unconscious of the fact. As they follow a certain conception of general laws, a certain solution of general problems, scientists, consciously or otherwise, take a definite philosophical stand. This does not prevent some of them being perfectly ignorant of the fact that their principles constitute a definite kind of philosophy, all too like Molière's M. Jourdain who had no idea he had been talking in prose all his life.

The principles or method of research is what the scientist proceeds from, what guides him in his work. And that, as we have just seen, is actually the philosophy he shares. Consequently philosophy is both the conclusion of all sciences (and of the experience on which they rest) and the method of all science and experience.

Science does not stand still. Important discoveries often result in revolutionary upheavals in science, making it necessary to more narrowly specify and even revise earlier findings. Lenin wrote: "...natural science is progressing so fast and is undergoing such a profound revolutionary upheaval in all spheres that it cannot possibly dispense with philosophical deductions."[1] Hence there can be no final or exhaustive system of knowledge. Philosophy must be developed and refined as knowledge accumulated by different sciences extends. Thus science advances philosophy. And as the philosophy evolved from a higher level of science is more true and exact, so is the scientific and practical activity following it more successful and fruitful. The noted English physiologist J.B.S. Haldane wrote: "...a good deal of my recently published research has been inspired

[1] V. I. Lenin, *Collected Works*, Vol. 33, p. 234.

by my gradually increasing knowledge of dialectical materialism. ...I find dialectical materialism a valuable tool in research..."[1]. The materialist philosophy thus advances particular sciences. As for idealist philosophy, it does science harm. Commenting on the harmful influence of idealist views on the work of the physicist Ernst Mach, Albert Einstein wrote: "This is an interesting example of the fact that even scholars of audacious spirit and fine instinct can be obstructed in the interpretation of facts by philosophical prejudices."[2]

Hence philosophy is knowledge such as is not found in any other science. Marxism rejects the view–which emerged in antiquity and is now advocated by the existentialists–that philosophy has allegedly nothing to do with knowledge of reality, and that by ignoring and despising scientific knowledge philosophy shows man that he should not depend on such knowledge but solely on his inner world in which he is sure to find the answers to his anxious questions about what he must aspire to, what eschew, and what he generally should and should not do.

There exists another old view that, apart from knowledge of what occurs in nature, so-

[1] *Science and Society*, New York, Vol. II, Number 2, Spring 1938, p. 239.

[2] Albert Einstein, *Autobiographical Notes* in: *Albert Einstein: Philosopher-Scientist*, edited by Paul Arthur Schilpp, 1949, Evanston, p. 49.

ciety and mind, nothing concerns philosophy. "To look at things philosophically" commonly means to judge things with supreme indifference, just looking on and never interfering in anything. If, on the other hand, a person actively pursues his ideals and fights what he believes to be wrong, people would say of him: "He has a practical, not a philosophical, turn of mind. He is a practical person whose ideals have nothing to do with philosophy."

This view of philosophy was utterly rejected by Marx, who wrote: "The philosophers have only *interpreted* the world, in various ways; the point, however, is to *change* it."[1] Philosophy does not merely answer the question as to what the world is but also what *attitude* we should take towards it, how we should remake it. It is not merely knowledge of what there is but a way of *looking at* what there is, a definite view of the world, a world outlook which determines our aims and goals. Philosophy makes the scientific explanation of reality a means of transforming it.

Here we encounter one more distinction between philosophy and all other sciences. The law, for instance, which states that "...capitalistic accumulation ...constantly produces... a surplus-population",[2] i.e., unemployment, is

[1] Karl Marx and Frederick Engels, *Selected Works in three volumes*, Vol. I, Moscow, 1973, p. 15.

[2] Karl Marx, *Capital*, Vol. I, Moscow, 1972, p. 590.

recognised by science not because Marx and other philosophers consider it just, but because it represents authentic knowledge of capitalism. Every science confines itself to seeking knowledge in its proper field. Objective knowledge does not depend on a scientist's ideals, likes and dislikes. The questions about what we should aspire to and what attitude we should take towards the world are answered by philosophy. It gives expression to man's practical attitude to the world, his world outlook. As man is a social being, so is his outlook a social phenomenon, and in class society it expresses the interests of a definite class. The opposition of two currents in philosophy, materialism and idealism, is, now as before, an expression of the class struggle.

Being either with one or with the other of these two opposite currents constitutes *partisanship in philosophy.*

Opponents of Marxism take roughly the following line of argument: assuming that philosophy is true knowledge and its doctrines are true inasmuch as their authors have succeeded in learning the truth about the world, it does not matter whether the doctrines are to somebody's advantage or disadvantage, for in the presence of truth interests are silent. Conversely, assuming that the aim of philosophy is to teach what benefits a certain class, it does not matter whether or not its teachings are true, for in that case they need not conform to *truth* but to the *interest* of that class. Therefore, they conclude, the statements "philosophy expresses authentic knowledge" and "philosophy expresses class interests" are mutually exclusive.

We must, however, remember that philosophy emerged with the division of society into classes. In class society, in every age the decayed classes which must leave the scene along with the decayed regime under which they have ruled are opposed by other classes which have to crush the old regime and help society ascend to a higher stage. The reactionary classes think in terms of the past, for they fail to see that the existing order has run its course and is no longer serviceable. In a nutshell, they have a perverted view of the state of things. Furthermore, the reactionary classes are vitally interested in having everybody share this view for, so long as it prevails, the masses will believe that the existing order is immutable and will dumbly submit to it.

The revolutionary classes, on the contrary, are objectively interested in making truth accessible to as many members of society as possible, because so long as the masses believe what the reactionaries tell them it is difficult to rouse them to a struggle against the existing order. It is only after they have learned the truth that they may be victorious in the revolutionary struggle.

Does this mean that such a role in the life of society may belong to true and false statements bearing merely on what is happening in society? To see whether or not it is so, let us look at the bitter struggle that developed during the Renaissance between the supporters and opponents of Copernicus and his follower, Galileo. The ideological positions of the contending parties expressed antagonistic class interests. Although neither Copernicus nor Galileo ever concerned himself with social and political problems in his writings, many people were burned at the stake for supporting their ideas. Nor would Copernicus and Galileo themselves have escaped the stake if Copernicus had not died just when his *On the Revolutions of the Celestial Bodies* was published in 1543, and if Galileo had not recanted. Nevertheless Galileo had to spend the remaining nine years of his life in confinement imposed on him by the Inquisition for, as the sentence runs, "having held... the doctrine that the Sun is the centre of the terrestrial orbit and does not move westward from the east whereas the Earth does so move...".

Galileo was condemned because the scientific truths he defended overturned the prevailing unscientific conception of the world. Scientific comprehension of reality makes people approach everything they learn critically, checking it against experience and reason, which helps them learn the truth about what occurs in society. The unscientific world outlook suggests that people should rely neither on science nor on their own experience and intelligence but solely on what their leaders tell them. ("The Führer thinks for you.") Therefore, even where scientists say nothing against the existing order of things, the knowledge they spread and the scientific outlook seizing the people's minds helps them see things in their true light; they no longer blindly believe those who unduly extol the established order, and come to understand that the old system is on its way out and must make room for the new. Hence, the scientific world outlook, as it takes hold of the masses, promotes their interests, making them aware of the tasks before them and the way to accomplish them.

Truth is the ideological weapon of the masses in the struggle against the existing order and reactionary classes which defend it. And falsehood, spread by the reactionary classes, makes the masses impotent and submissive slaves. For this reason the quest for truth, for knowledge, for science is the ideological expression of the class struggle. The materialist solution of the fundamental question of philosophy is the *true* conception of reality and the idealist solution—a *false* one. Hence, the antagonism of the two camps in philosophy has always reflected the antagonism of class interests. Today too, materialism serves the interest of the proletariat and other progressive classes, whereas idealism serves the capitalist and other exploiting classes.

Lenin showed that idealism does not, however, spring from class interests alone. The process of cognition itself may breed idealism, as it is a process which "... *includes in it* the possibility of the flight of fantasy from life; more than that: the possibility of the *transformation* (moreover, an unnoticeable transformation, of which man is unaware) of the abstract concept, idea, into a *fantasy*...".[1] Should the assertion that consciousness is primary be all that the idealist doctrines are about–in other words, should they be entirely false–their role would be merely reactionary and they would have nothing to offer us. However, in spite of their idealism, Leibniz, Kant, Hegel and other philosophers did, in fact, make significant contributions to man's quest for true scientific knowledge. Hegel elaborated the dialectical method. It is a revolutionary method, although Hegel himself did not apply it to nature but only to the development of concepts.

Whose class interests a philosophical doctrine will serve depends on the doctrine itself, not on its author's intentions. In 1899, the German biologist Ernst Haeckel published a book, *Die Weltsrätsel* (The Riddle of the Universe) in which, by advocating the materialist outlook

[1] V. I. Lenin, *Collected Works*, Vol. 38, p. 372.

in natural science, he knocked the bottom out of idealism. For all that he was no revolutionary politically, the bourgeoisie of all countries fiercely turned on Haeckel, while in Russia the entire printing of his book in Russian translation was sentenced by a court to be burned. Lenin observed that "this popular little book became a weapon in the class struggle",[1] a weapon against the bourgeoisie, despite the author's bourgeois political views. At the same time, the philosophical writings of Bogdanov (criticised by Lenin in *Materialism and Empirio-Criticism*), who set out to fight the bourgeoisie on behalf of the proletariat, actually promoted the interests of the former, as their author advocated idealism.

Marxist-Leninist philosophy is simultaneously the science of laws governing the development of nature, society and thought and the world outlook of the working class, affirming communist ideals and moral principles. In it, elucidation of truth and defence of class interests do not exclude but, on the contrary, necessarily imply each other. That is why the Marxist-Leninist philosophy is an instrument for the revolutionary remaking of society and a method of scientifically examining social phenomena which helps find the correct path towards the historical goals of the working class.

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[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 348.

Chapter Two

REVOLUTION IN PHILOSOPHY

§1. Social and Historical Prerequisites of Marxist Philosophy

When capitalism became entrenched in Western Europe, turning millions of peasants into wage workers whose lot was back-breaking toil and appalling poverty, many workers imagined that the source of their misery lay in the machines, in mechanised production, which had replaced manual work. The early 19th century was marked by a spontaneous mass movement of workmen destroying machines as a protest (the Luddites). Soon, however, the workers' understanding increased and the first class battles were fought between them and their exploiters. The Chartist movement in England in the 1830s and 1840s, the French workers' uprisings in 1831 and 1834, the weavers' uprising in Silesia (Germany) in 1844, and subsequent strikes made it clear that a new class had emerged, destined to abolish capitalism and end the era of exploitation of man by man. To effect the drastic change, the proletariat had to understand the laws of society's development much better, and to see how to employ them much more clearly, than the other revolutionary classes needed to, which carried out less stupendous social reforms. It took new ideological equipment, a new world outlook to accomplish tasks unprecedented in history.

Such were the material, socio-historical prerequisites of Marxist philosophy. Its emergence was prepared ideologically by preceding philosophy, natural science and the social sciences from which Karl Marx (1818-1883) and Frederick Engels (1820-1895) proceeded.

§2. Ancient Dialectics and Modern Metaphysics

One of the greatest achievements of philosophy before the emergence of Marxism was Hegel's dialectics. What are dialectics? Two thousand five hundred years ago no particular sciences, e.g., physics, geography, botany, and so on, were yet in existence. There was only one form of knowledge: philosophy (Greek for "love of wisdom") which embraced everything. Philosophers concerned themselves with the earth and the sky, things and creatures, society and mind, seeking to grasp everything at once. Proceeding in this way they could not fail to observe that all things are in state of perpetual motion, that they appear and disappear, are connected in one way or another and marked by inner contradictions. "This primitive, naive but intrinsically correct conception of the world" is commonly called dialectical thinking or the dialectics of the ancients. "But this conception, correctly as it expresses the general character of the picture of appearances as a whole, does not suffice to explain the details of which this picture is made up, and so long as we do not understand these, we have not a clear idea of the whole picture. In order to understand these details we must detach them from their natural or historical connection and examine each one separately...".[1]

The structure and characteristics of celestial bodies, the Earth, minerals, plants and animals are studied by particular sciences. In antiquity there were no such sciences and knowledge was not specialised. There was pure speculation founded on simple observation without experimental proof.

As time went on, particular sciences appeared one by one. For more than two thousand years, however, attempts to find out the truth about natural phenomena were more often based on pure speculation than on experimental research. It was not until the 16th-17th centuries that experimental natural science took shape. That epoch saw the emergence of classical mechanics which explained with remark-

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[1] Frederick Engels, *Anti-Dühring*, Moscow, 1977, p. 30.

able accuracy very many terrestrial and astronomical phenomena and was broadly applied in industry. Physics vastly extended its knowledge of heat, light, magnetism and electricity. The scientific basis of modern astronomy was laid. Voyages around the world and the geographical discoveries made at that time vastly increased men's knowledge of continents, oceans, seas, mountains, deserts, rivers and lakes. By the end of the 18th century, botanists and zoologists had studied and described some scores of thousands of plant varieties, and almost twenty thousand animal species. Human anatomy was investigated for the first time.

Mechanics, however, outpaced all other sciences. Its success in a variety of fields, its experimental verification and mathematical precision inspired in scientists a belief that *the laws of mechanics were the key to all phenomena,* of inanimate and animate nature alike. This *mechanistic* view prevailed among scientists in the 17th-18th centuries. From the principle of mechanics that "every body remains in a state of rest or of uniform motion in a straight line, unless it is compelled by external forces to change that state" it was deduced that all motion is due to the application of an external force which compels a body to change its state.

The natural scientists' mechanistic views were fully shared by the 18th-century materialist philosophers.

One thing about the discoveries made in astronomy in the 16th-17th centuries was that there was nothing to tell the astronomers whether the solar system had ever been different from what they observed. On the contrary, from the laws of classical mechanics it followed that the planets had always been moving in the same orbits and would continue in them forever. The geographical discoveries had yielded much new information but no evidence that there had been a time when the Earth's surface was in a different condition. It followed then that the continents, oceans, mountains, rivers, deserts were just where they had always been. In other words, the Earth's surface would always be as it was since time began. Botanical and zoological data concerning many thousands of plant and animal species gave no indication that there had been a time when they did not exist. On the contrary, everything seemed to suggest that although individual plants and animals were born and died, the species went on indefinitely.

Available scientific data suggested that although everything in nature was in a state of motion, that motion was merely a repetition of the same cycles and forms. And as the forms—being the most essential thing in any part of nature—were immutable, motion engendered nothing new, while nothing essential ever disappeared.

That deduction was natural to science at that time. Before investigating the relationship *between* objects and their action on one another, and so the processes developing in them and the variation they underwent, the scientists needed enough information about the structure of the objects, which, however, they could only gain by abstracting from what actually happened to the objects (from their relationships, interaction and change). When viewed in such terms, the phenomena under examination emerged as a totality of immutable, fixed objects. The differences and contradictions emerged and were viewed merely as existing between individual objects but never *within* them, the latter being considered altogether impossible.

This approach, which was necessary and effective at the beginning, became customary. The connections and variations, temporarily disregarded, began to appear unimportant and then simply non-existent. As a result, a scientist engrossed in his particular field discovered in it innumerable characteristics which made it utterly unlike and apparently unconnected with any other sphere of nature.

Thus the conception was formed that movement was the repetition of the same forms which were always identical, permanent and unchangeable, that the world consisted of ready-made objects which could not be self-contradictory, and that connections between phenomena were superficial and inessential. This view focuses attention on only one aspect of the world, viz., on the inherent repetitiveness of motion and inherent stability of material bodies, and on contradictions *between* things. Such a one-sided conception of the world, diametrically different from dialectics, is described as the *metaphysical method* of thinking or *metaphysics*.

Drawing on contemporary scientific knowledge, 18th-century materialist philosophy adhered to the metaphysical method which was then prevalent. Like mechanicism, metaphysics played a progressive role in its day. Scientists amassed vast knowledge about the world by following this method. Yet, the metaphysical conception of motion, interconnection and contradiction is a step backwards, compared with ancient dialectics.

§3. Hegel and Feuerbach

The weak points of 18th-century materialism were seized upon by the idealists who criticised its mechanistic and metaphysical approach. But proceeding from pure speculation and not, as a rule, from natural science, the idealists were unable to advance a more correct scientific interpretation of development, as they themselves largely reasoned on metaphysical lines. The change came with the appearance of Hegel's doctrine which marked a turning point in the history of dialectics. Marx wrote that Hegel was "the first to present its (dialectical–*Ed.*) general form of working in a comprehensive and conscious manner".[1]

Hegel's philosophy greatly influenced his contemporaries. In the ideological struggle which developed in Germany on the eve of the 1848 Revolution both the opponents and supporters of monarchy and religion (Young Hegelians and Old Hegelians respectively) adhered to Hegel's dialectical idealism. Later on, however, they went separate ways.

One of the Young Hegelians, Ludwig Feuerbach (1804-1872), opposed Hegel's philosophy, arguing that, like any idealist doctrine, it was actually a philosophical apology for religion. By showing that religion and idealism were false and moreover played a reactionary role in the life of society, Feuerbach took a consistent materialist stand.

His defence of materialism and atheism made a tremendous impression. Describing how warmly Marx welcomed the new opinion and how greatly he was influenced by it, Engels wrote: "Enthusiasm was general; we all became Feuerbachians at once."[2]

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[1] Karl Marx, *Capital,* Vol. 1, p. 29.

[2] Karl Marx and Frederick Engels, *On Religion,* Moscow, 1972, p. 200.

In 1839, when Feuerbach became a materialist, Marx was twenty-one and Engels nineteen. Both were Hegelians, but their militant atheism and revolutionary democratic views made it imminent that they should renounce idealism and adopt a materialist standpoint. Feuerbach's work was a great encouragement to this transition. Engels wrote that of all the philosophers after Hegel, Feuerbach's influence on Marx and himself was the greatest. However, it soon became clear to them that, as he shattered Hegel's idealist philosophy, Feuerbach simultaneously discarded its rational content, dialectics. And thus, although he had advanced far ahead of 18th-century materialism, he still failed to cope with its major shortcomings.

Then what is the significance of Hegel's dialectics which Feuerbach overlooked and which Marx and Engels thought so highly of and used in evolving dialectical and historical materialism?

It consists first of all in the teaching that, although there is repetition in movement, nothing–either separate objects or the stages and forms of development–is repeated completely. The world contains no forms which eternally repeat themselves and are immutable. In general, there is nothing eternal in the world except the eternal change of forms and phenomena replacing one another.

According to Hegel, all is interlinked in the world which is a single whole and every particle of which is involved in an endless multiplicity of relations. This is a very important point, not to be overlooked in scientific research.

While Hegel's dialectical method acknowledges that there are contradictions between things, it sees this as only one side of the matter; the other side is much more important, viz., "*all things are contradictory in themselves*" and that inner contradiction "is the root of all movement and vitality; it is only insofar as something embodies a contradiction that it moves".

Hegel's dialectical method disclosed the unsoundness of the metaphysical view which took into consideration merely the stability of real phenomena and our conceptions of them, and which therefore regarded the world as a totality of ready-made things, and thought as a totality of ready-made concepts. Such a view, Hegel argued, ignores the other, most important, aspect–the eternal mutability of everything in the world, which is not a totality of finished things but of processes, connections and relations.

As he created his method, Hegel was the first to advance, formulate and work out in detail the main laws of dialectics which govern all development. He offered a dialectical interpretation of the most general concepts (categories) which play an exceedingly important role in science and experience. Lastly, Hegel, more amply and correctly than anybody before him, elucidated the complex and contradictory nature not only of thought but of the whole process of knowledge.

Much as they appreciated it, Marx and Engels nevertheless could not incorporate Hegel's dialectics into their doctrine because it was *idealist* and consequently had serious flaws.

Firstly, Hegel deduced the laws of dialectics not from existence but from consciousness. He maintained that nature and human history must be subject to those laws because everything occurring in nature and society was merely a reflection of consciousness, of the Absolute Idea. To Marx and Engels, however, it was not "a question of building the laws of dialectics into nature, but of discovering them in it and evolving them from it."[1] Marx and Engels worked out a *materialist* dialectic in which the dialectical laws emerge above all as those governing the development of the real world (nature and society), whereas the laws of thought are their peculiar reflection in men's heads.

Secondly, although Hegel stated that development was infinite, the Absolute Idea in his philosophical system actually completed its development. Hence Hegel considered his philosophy to be final, all-embracing knowledge, while he considered the society in which it was

[1] Frederick Engels, *Anti-Dühring*, p. 18.

evolved to be the crowning stage in the development of mankind. But a "system of natural and historical knowledge, embracing everything, and final for all time, is contradiction to the fundamental law of dialectic reasoning",[1] and so is the "final" stage in society's development. Hegel sacrificed to his idealist system the most important dialectical principle, the principle of development.

Lastly, being an idealist, Hegel considered it somewhat degrading for the Absolute Idea to be embodied in matter, in nature. He attributed progressive dialectical development to nothing but the "conscious idea", i.e., to men. As for the "unconscious idea", i.e., nature, it, according to Hegel, *does not develop in time.*

It was for this reason that Marx wrote that dialectics with Hegel "is standing on its head. It must be turned right side up again".[2] It was for Marx and Engels to evolve the materialist dialectical method which is diametrically opposite to Hegel's idealist dialectics.

§4. Philosophical Generalisation of New Scientific Discoveries

Discriminating use of Feuerbach's materialist ideas and Hegel's dialectics is merely one aspect of the philosophical work of Marx and

[1] Ibid., p. 35.
[2] Karl Marx, *Capital*, Vol. 1, p. 29.

Engels which ensured continuity between their own doctrine and those of their philosophical predecessors. The other aspect of their theoretical work was the summing up of new *scientific knowledge.*

In the 19th century, the study of heat, magnetism, electricity and light revealed that even within the pale of physics reducing all to mechanical phenomena was out of the question. It was still less possible with relation to chemistry, botany and zoology. The progress of natural science cut the ground from under the feet of mechanism.

If Hegel convincingly demonstrated the internally contradictory nature of consciousness, extensive research conducted in the 19th century in the natural and social sciences demonstrated no less convincingly the inherently contradictory nature of many natural and social phenomena.

In the 1840s, the universal *law of conservation and transformation of energy* was discovered, in accordance with which energy neither disappears nor is created anew. This law, which states that mechanical, thermal, electrical, chemical energy is mutually convertible, led to the deduction that all phenomena in the universe are connected in some way, that the "unity of all motion in nature is no longer a philosophical assertion, but a natural-scientific fact".[1]

[1] Frederick Engels, *Dialectics of Nature,* p. 197.

In the latter half of the 18th century, M. Lomonosov and J. Hutton suggested that the Earth's surface was quite unlike what it was in the past. In the 19th century, so much evidence was accumulated about how substantially and recurrently the Earth's appearance used to change that the science of geology was born. Geologists found that none of the stages of the Earth's development (e.g., the Archean, Proterozoic, Palaeozoic, Mesozoic, Cainozoic) had been a repetition of any of the previous stages. The beginning of every new era meant the disappearance of a number of continents, islands, seas, mountains, etc., and the appearance of entirely new geological phenomena, as well as substantial climatic changes.

In 1755, Kant suggested that the solar system did not exist eternally but had naturally emerged at some time in the past, and he formulated a hypothesis, according to which the solar system originated and developed out of a nebula. The 18th-century scientists, in whose minds metaphysics reigned supreme, remained deaf to the call to stop regarding astronomic phenomena as unchangeable cycles eternally repeating themselves. In 1796, however, Kant's hypothesis was supported and carried forward by Laplace, and in the middle of the 19th century it was substantiated mathematically. Although in the 20th century the Kant-Laplace hypothesis of the origin of the solar system was supplanted by others, it is now commonly accepted that the solar system appeared at some time in the past as a natural result of the development of matter.

There emerged comparative anatomy and the physiology of plants and animals, and it was revealed that there is an essential likeness and connection between rather distant species. In the first half of the 19th century it was discovered that all plants and animals are built of cells which are built more or less on the same pattern and which feed and multiply in roughly the same way, whether they be the cells of a seaweed or a tree, of a minute infusorian or man. This signal discovery put it beyond all doubt that all living things are mutually connected.

Another new science, palaeontology, established that over hundreds of millions of years many plant and animal species had been replacing one another, some of them dying out and others appearing in their stead. It was found that nothing in nature was eternal, stages of development never repeating themselves but replacing one another in an eternal succession.

In the mid-19th century the English scientist Charles Darwin discovered the *law of natural selection* establishing the connection between all living beings and demonstrating that their development was no repetition of the old but the extinction of the old and emergence of the new.

Thus, as early as the first half of the 19th century natural science began to study the interconnections of objects and changes within and between them, rather than isolated objects; processes, rather than finished things. This led to the discovery of the intrinsically contradictory character of everything in nature and in society.

The metaphysical mode of thinking thus came into conflict with scientific knowledge which testified to the "universal, all-sided, *vital* connection of everything with everything...".[1] Newly-obtained knowledge has made it clear that *nature contains nothing eternal besides the eternal succession of developmental stages, each of which disappears sooner or later to be replaced by an essentially different stage which shares the fate of its predecessors; that the world is not a totality of things but of processes, connections and relations, and that all phenomena are marked by inherent contradictions.*

To draw such conclusions was to subject to a revision the dominant mechanistic and metaphysical views and prejudices which had got hold of scientists and philosophers. It took extraordinary power and boldness of mind to generalise scientific knowledge in terms of philo-

[1] V. I. Lenin, *Collected Works*, Vol. 38, p. 146.

sophy, as Marx and Engels did, and declare that "in the last resort, nature works dialectically and not metaphysically".[1]

§5. The Role of Practice in Human Existence

While nature exists independently of man, his entire existence–both physical and spiritual –depends on nature. A person lives or dies, and, if he lives, he is happy or miserable, all depending on the external world around him. That world, acting on man's sense-organs, produces sensations, emotions and ideas in him. This was how the pre-Marxian materialists explained the dependence of the spirit on nature, of consciousness on matter.

Marx was the first to see and expose the one-sidedness of that view which suggests that the external world alone is capable of affecting man while all man can do is passively perceive and reflect on the things and events around him. But can a person merely gaze at things, listen to sounds and reflect and do nothing else? Not unless he is a paralytic unable to move hand or foot, and even then he must be looked after by others who certainly do more than just feel sensations and reflect.

[1] Frederick Engels, *Anti-Dühring*, p. 33.

As Feuerbach quite rightly observed, in order to live, man must satisfy his needs. But Feuerbach went no further than that. Marx, on the other hand, showed that in order to have that without which man cannot live, i.e., food, clothing, shelter, the means of protecting himself from savage beasts, and so on, man has to act on the things round him so as to make them satisfy his needs. Unlike the old materialists' imaginary man, real man does not merely look on, but acts; he does not passively suffer the influence of the external world but influences it himself. The external world changes man, but man changes the world too. Man's activity whereby he changes the external world, i.e., nature and society, is called *practice.* Practice implies influencing nature in order to gain one's livelihood (work, production); influencing other people (social or public activity), and influencing nature so as to gain knowledge (scientific experimentation).

Marx and Engels proved that practice, which the old materialists overlooked, was of immense significance to men.

1. Practice as the production of the means of subsistence is the primary condition of human existence. Its significance is clear if only from the fact that man's survival depends on it.

2. Animals as well as men have to influence their natural environment to protect themselves

against hunger, cold and enemies. There is, however, an essential difference between man's work and animal behaviour. In order to sustain itself an animal tackles the object directly whereas man tackles objects with the aid of implements he manufactures himself, and forms certain relations with other men. These relations greatly affect man's behaviour, moulding him as a social being. Work gave rise to human intelligence and transformed the primitive herd into human society with its morals, science and art. In a word, work is what makes us human, it is man's essence.

3. Marx was the first to show that the progress of mankind from the lower to higher stages of civilisation is determined by the progress of commodity production which, in the long run, determines the course of history. Consequently practice has the decisive role in history.

4. The old materialists' error was that while they spoke of man's dependence on the external world they overlooked the other side of the matter or the dependence of man's environment on his influence. Men have changed the appearance of the Earth out of all recognition. Vast forests have been felled, marshes drained, artificial rivers and seas created and soil, climate and the composition of the atmosphere greatly altered and new varieties of plants and animals developed by man. The crops and ani-

mals we raise have been bred by man. Our natural environment bears the stamp of men's practical activity. Men themselves, the relations that have been established among them and the things they have created are all products of this activity. Hence, although it is true that material conditions influence man a great deal, it is also true that these conditions themselves are to a great extent products of the practical activity of generations. Therefore the influence of these conditions on man includes the influence on him of other people's practice.

Having thus exposed the unsoundness of contemplative materialism, Marx and Engels showed that practice plays the decisive role in men's material and intellectual life.

Until the mid-19th century nobody had managed to supply a materialist explanation of the history of human society. All philosophers –idealists and materialists alike–arrived at an idealist interpretation of society. Yet, by that time the progress of social relationships and the social sciences had prepared enough material for solving the problem. First, however, one had to examine the material thoroughly, draw general conclusions from it, make proper deductions and, overcoming the ingrained views which had dominated society for centuries, take a path yet untrodden by any thinker. That was what Marx did. Having demonstrated the unsoundness of the old materialists' idealist view on history, Marx, using the latest information provided by the social sciences and subjecting the workings of modern society to a detailed and penetrating examination, was able to offer a *materialist explanation of human history*, to be dealt with further on in this book.

Lenin wrote that Marx was "the founder of *modern materialism*, which is immeasurably richer in content and incomparably more consistent than all preceding forms of materialism . . .".[1] The creation of Marxist philosophy spelled the defeat of mechanism and metaphysics characteristic of the old materialism and the triumph of *dialectical* materialism. Contemplation was exposed and the immense role played by *practice* elucidated. The idealist view of society was overcome and *historical* materialism created. These changes were so extensive as to make the emergence of the Marxist doctrine a real *revolution* in philosophy.

[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 336.

Chapter Three

MATTER

§1. Conception of Matter in Ancient Philosophy

A Hindu philosopher, Kapila, who lived 2,500 years ago, reasoned as follows. Nothing is eternal. Yet no thing can spring out of nothing nor can it be reduced to nothing, for when things are destroyed they do not disappear altogether but turn into stuff from which other things are made. Thus Kapila arrives at the conclusion that there exists some material which can be neither created nor destroyed, and of which all things are formed, namely, *matter.*

Other ancient philosophers similarly arrived at the idea of matter. Early Greek philosophers who lived at about the same time as Kapila sought matter among the bodies immediately observable in nature. Thales regarded water or moisture as the primary stuff or principle of things. Anaximenes identified primary matter with air. Heraclitus held that fire was primary. Empedocles believed that the universe was made up of particles of earth, water, air and fire. Democritus taught that matter consisted of eternal, indestructible and unchangeable bodies, *atoms*, so small that they cannot be diminished any further (Greek *atomos,* indivisible) or seen or touched. Atoms possess hardness, size, shape, weight and motion. Everything consists of atoms arranged in particular ways. When a particular combination of atoms, a thing, breaks up, the thing is destroyed. Diversity of the real world, according to Democritus, is due to the diversity of atom combinations. Subtle emanations of atoms, thrown off from the surface of an object, penetrate the sense-organs, producing sensations and then ideas, for which sensations are responsible. Both sensations and ideas are impressions left by the emanations of atoms.

Thus, Democritus taught that (1) matter is real and exists independently of consciousness; (2) matter is that which produces sensations; (3) sensations and ideas are impressions produced by matter; (4) matter has certain physical properties and is the stuff of which all things are made (it is the ultimate level of nature); (5) matter is immutable: atoms have always been as they are, and they will always be so.

§2. Revolution in Natural Science. Philosophical Controversy

The view that matter consists of atoms which are the immutable, ultimate level of nature governed by the laws of mechanics persisted to the end of the 19th century. In that century, however, the connection between electricity and magnetism was discovered. Shortly afterwards, electromagnetic fields, waves, charges and the electromagnetic nature of light were discovered and investigated, giving rise to electrodynamics, the science concerned with these phenomena. None of them was found to contain atoms. Some people expected that with time atoms would be found, after all, to be the basis of electromagnetic phenomena. Others, who saw that everything could not be reduced to atoms, began to think that along with bodies which consisted of atoms, i.e., along with matter as they understood it, there were natural phenomena of an essentially different kind, such as electromagnetism, which they considered to be immaterial.

There were others still who held that electromagnetic fields, waves, charges, and so on, were not really natural phenomena but concepts invented by physicists to make it more convenient for them to describe their observations. These people maintained that, unlike matter composed of atoms–the reality of which they never questioned–electromagnetic fields, waves, etc., exist only in mind and not in reality.

The Austrian physicist Ernst Mach took a different line. He argued that nothing (and not electromagnetism alone) existed outside consciousness. There is nothing but our sensations, he wrote, and to believe in atoms is not a whit better than to believe in witches. This subjective-idealist theory was rejected by all but a few natural scientists.

At the turn of the 20th century it was found that atoms of certain chemical elements are capable of changing into atoms of other chemical elements (e.g., an atom of radium changes into one of radon and then of lead); that the atom is a system of particles charged with electricity (electrons), and electromagnetic fields; that the mass of electrons, contrary to the laws of classical mechanics, alters with their velocity. That which scientists called matter (atoms) was reduced to electromagnetic phenomena, to what was termed electricity or energy and was regarded as immaterial. After these discoveries, the majority of scientists were inclined to think that matter does not consist of atoms but of electrons. Some scientists, however, who had earlier believed in the existence of atoms but denied the reality of electromagnetic phenomena, now held that since the atom itself presented fields, charges and waves, it meant that there was no matter; there were merely physical concepts. All views that had been commonly accepted in natural science now came under sharp criticism. Natural science reached a crisis.

The idealists were not slow to see their opportunity and claimed that the new discoveries apparently corroborated the idealist views.

It was urgently necessary to disprove the new form of idealism, and by drawing philosophical conclusions from the new scientific discoveries, enrich Marxist philosophy and show the way out of the crisis in natural science. That task was brilliantly carried out by Lenin.

§3. The New Concept of Matter Elaborated by Lenin

In his *Materialism and Empirio-Criticism* Lenin showed that Mach's "new" doctrine was actually the old doctrine of Berkeley, altogether inconsistent with science. Lenin wrote that the new discoveries had exposed the unsoundness of metaphysical materialism which held nature (atoms) to be immutable, infinite in extent but finite in depth, and saw everything as mechanical motion. Not only did the new scientific discoveries confirm dialectical materialism but they enabled it to be enriched by the philosophical deductions which Lenin made from them. He conclusively proved that nature is as infinite in depth as in extent that "the electron is as *inexhaustible* as the atom, nature is infinite. . ."[1], it has no "ultimate" level. There-

[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 262.

fore, to declare that matter consisted of electrons rather than atoms would be to retain the metaphysical conception of matter. The whole point was that in the transition from one level of nature to another, deeper level, many properties of the former disappeared, being replaced by other properties, not present at the previous levels. There were no immutable things or properties, no immutable form of motion to which motion at all levels could be reduced. The electromagnetic structure of the atom was not evidence of its "dematerialisation" but of man's deeper knowledge of the atom. The trouble with physicists was that they knew none but mechanistic and metaphysical materialism. Therefore they took the collapse of the mechanistic method and metaphysics for the collapse of materialism. "Denying the immutability of the elements and of the properties of matter known hitherto, they ended by denying matter."[1]

Natural science, Lenin wrote, "... will overcome all crises, but only by the indispensable replacement of metaphysical materialism by dialectical materialism"[2] and, above all, by the replacement of the narrow concept of matter (embracing the atoms alone) by a broad dialectical concept. Matter is "...objective reality existing independently of the human mind and

[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 262.
[2] Ibid., p. 306.

reflected by it"; "...matter is that which, acting upon our sense-organs, produces sensation".[1] Such is Lenin's definition of matter. It comprises three points, viz., (1) matter is that which exists apart from and independently of consciousness; (2) matter is that which produces sensations in us; (3) matter is that which our sensations and consciousness reflect in general.

All that which produces sensations is real, but not all that is real produces sensations. Thus, we cannot feel the ultraviolet rays, processes going on in the centre of the sun, or endless other phenomena. Important as the second and third characteristics of matter are, the main thing that distinguishes what is material from what is immaterial is that the former exists outside consciousness. Lenin wrote: "...the *sole* 'property' of matter with whose recognition philosophical materialism is bound up is the property of *being an objective reality*, of existing outside the mind."[2] That precisely is the distinguishing feature of Lenin's conception of matter. For Lenin, not only all that is real objectively exists, but all that objectively exists is real.

Now you may ask: "Is shadow material? Is the absence of light rays reflected from a surface material?" But their absence is just as much

[1] Ibid., pp. 261, 146.
[2] Ibid., pp. 260-61.

a reality independent of the mind as their presence is. Both these phenomena are thus equally material. If, besides, we take it into account that the world is no collection of finished things but a totality of processes and relationships, we shall see that the idea that material is corporeal, i.e., the metaphysical materialists' view, must give way to another, which regards the gravitational field and electromagnetic wave propagation and all kinds of connections existing outside the mind (including social relationships) as material phenomena.

Modern scientific discoveries attest that Lenin's conception of matter is true.

Early in the 20th century everything in nature was believed to consist either of discontinuous microparticles (substance) or of continuous electromagnetic fields. Both were taken, by and large, to be subject to the same laws which govern the objects possessing mass and velocity or macroobjects which we meet in ordinary experience. It seemed no less obvious that if discontinuous substance (in which case motion occurs along a definite line, receiving a definite impulse at each point of the line) is the opposite of the continuous field (in which case motion consists in wave propagation) then no object can be a substance and a field simultaneously.

As scientists investigated such fields and particles with a mass of a billion-billionth of a gram, moving almost as fast as light, a wonderful world, the *microcosm*, opened up before them. In that strange world certain laws of classical mechanics lose their force and are replaced by other laws. Substance and field coincide in the same object and particles do not possess simultaneously a definite impulse and a definite position. In fact, the more definite a particle's position, the less definite its impulse, and vice versa. When these and other unusual laws of the microcosm were discovered, scientists evolved, in the mid-20th century, a new branch of physics, the *quantum theory*.

Again, the idealists hastened to take advantage of its unusual character and insisted that quantum objects and processes did not really exist, being merely concepts invented by scientists to explain their experiments. That was, however, rejected by leading physicists. One of the authors of the quantum theory, Louis de Broglie, wrote that whether he studied macro-objects or micro-objects a physicist was sure of their objective existence, for "it is doubtful that he would be able to pursue his research usefully, by abandoning all belief in objective reality".[1] Einstein pointed out time and again that the certainty of the external world existing independently of the researcher underlay the

[1] Louis de Broglie, *Sur les sentiers de la science*, Paris, 1960, p. 203.

whole of natural science. Planck and Born, who made significant contributions to quantum theory, held the same view. Concerning microparticles, Born wrote: "I maintain that we are justified in regarding these particles as real in a sense not essentially different from the usual meaning of the word."[1] As for the ambivalent opinion accepting the reality of things of everyday experience (macrocosmic objects) while denying the reality of microcosmic objects, Born wrote that "there is a continuous transition.... Where does that crude reality, in which the experimentalist lives, end ... and where does the atomistic world, in which the idea of reality is illusion and anathema, begin? There is, of course, no such border; if we are compelled to attribute reality to the ordinary things of everyday life including scientific instruments and materials used in experimenting, we cannot cease doing so for objects observable only with the help of instruments".[2] And, Born concludes, quantum theory "calls for new ways of describing the physical world, but not the denial of its reality".[3]

Such is the view of leading contemporary physicists whose research results have induced them to arrive at certain propositions of dia-

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[1] *Physics in My Generation.* A Selection of Papers by Max Born, London and New York, 1956, p. 160.

[2] Ibid., p. 153.

[3] Ibid., p. 159.

lectical materialism spontaneously, although they do not consciously support Marxist philosophy. Nevertheless, many outstanding modern physicists have consciously accepted dialectical materialism as the only philosophy consistent with modern science. They are P. Langevin, F. Joliot-Curie, J.-P. Vigier, Sakata Shoichi, and others.

All this confirms Lenin's prediction that the spirit of materialism, which is inherent in natural science, will enable it to overcome every possible crisis.

Chapter Four

MATTER AND MOTION

§1. Is There Matter Without Motion?

To answer this question one must first clearly understand what matter is and what motion is. We have already discussed the nature of matter. As for motion, it was established as early as the 19th century that mechanical motion is merely one form of the motion of matter, which has different, if connected, forms. Engels evolved the following basic principles of the Marxist conception of the forms of the motion of matter.

Firstly, the forms of the motion of matter are essentially different, none of them being reducible to another. For example, although chemical reactions play a major role in the processes occurring in the body of an animal and in the formation of species in the animal kingdom, it would be quite wrong to attempt to reduce animal life to a chemical form of motion. With the emergence of life, there come into effect biological laws, not operative in inanimate nature; life is a form of motion, essentially different from any other (although it is connected with other forms of motion).

Secondly, under certain conditions some forms of motion turn into other forms. Thus, at a certain stage in the development of matter and the complication of chemical processes, life appeared as a new form of the motion of matter. At a certain stage in the development of the animal kingdom, man was singled out from it; there emerged a new form of the motion of matter, namely, social processes.

Thirdly, complex forms of the motion of matter include relatively simple forms, by no means being merely their sum. All chemical reactions necessarily involve electromagnetic and other physical processes, although the decisive role here belongs to the laws of chemistry. All vital processes in plants or animals necessarily involve a great number of chemical reactions, though the decisive role is played by biological laws. All social processes necessarily involve biological processes occurring in man. But the decisive role in the social process is undoubtedly played by the laws of the development of society.

Engels advanced also the important idea that the classification of the forms of the motion of matter underlies the classification of sciences. The further progress of science has fully confirmed these ideas.

In the light of modern scientific conceptions, the following groups of forms of the motion of matter may be isolated: (1) the *physical forms* or change of the position in space, velocity, mass, energy, electrical charge, temperature, volume and other characteristics of real objects; (2) the *chemical forms* or the conversion of substances, combination and recombination of atoms; (3) the *biological forms* or life and changes occurring in plants and animals; (4) the *social forms* or the changes occuring in human society and peculiar to it alone.

Each of these forms of motion exists objectively, outside the mind, and is a material process. The motion of human feelings, moods and ideas, on the other hand, exists merely in man's mind. Certainly emotions and ideas do not exist without their material seat, i.e., the brain. "But," Lenin explained, "to say that thought is material is to make a false step, a step towards confusing materialism and idealism."[1] While they are a social phenomenon, emotions and ideas are at the same time spiritual processes, and this distinguishes them from all other social phenomena, which are material processes.

This shows the one-sidedness of the mechanistic materialists' view that motion presumably boils down to the movement of bodies in space, wholly explainable by the laws of mechanics, in the process of which bodies never change,

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[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 244.

always remaining the same. Hence, according to this conception, matter is immutable and motionless. Yet the deeper natural science penetrates into nature's secrets, the more obvious it becomes that nature contains no immutable objects, and that the motion of matter is not confined to a single form of motion but comprises *any kind of change at all.*

Then is nothing at rest in the world?

When lava ejected from a volcano has solidified into rock, it seems to be at rest. Nevertheless, solid rock also undergoes constant change induced by temperature fluctuations, rain, wind, surf, electromagnetic processes, which sooner or later will cause the rock to crumble. Long as its rest may be, it is still of a transient nature. Lastly, the rock moves relative to the sun, just as the Earth does. In mechanics generally, two bodies which are at rest relative to each other are performing identical motions relative to a third body. Therefore every object which is at rest moves. It is only resting in a certain respect. It is clear that rest is a particular instance of motion.

While rest is finite and relative, motion is infinite and absolute. In other words, it is uncaused and indestructible.

For this reason, all attempts to interpret the laws of nature so as to show that motion is not indispensable to matter, that matter without motion is possible, have failed. The second law of thermodynamics is a case in point. It reads that in a closed system, in which no energy is received from outside or lost, all forms of energy tend to be converted into heat. As heat can only pass from a hot to a cold body, the temperature of every part of such a system must eventually become exactly the same, and the system must reach thermal balance, when no conversion of one form of energy into another occurs. Regarding the universe as a closed system, the physicists Clausius and Kelvin concluded that in some time all forms of motion except heat would disappear and a balance of heat or the "thermal death" of the universe would set in.

Yet movement is indestructible in qualitative as well as quantitative terms. Becoming incapable of changing from one form into another, movement would be destroyed in that respect, should a thermal balance be established. Engels wrote that to believe in the "thermal death" of the universe was to believe that movement was not indestructible. Besides, the "thermal death" of the universe implies that movement has both an end and a beginning. If there is a point at which movement loses its ability to change into different forms, there must have been a point at which it acquired that ability. One who believes that the universe will reach thermal balance, must also believe that the "world clock has to be wound up, then it goes on running until it arrives at a state of equilibrium from which only a miracle can set it going again".[1]

If nothing but an external impulse, intervention by a preternatural force, i.e., a miracle, can pull the universe out of its impending balance, then, plainly, it could only be by a miracle that it has been put into its present rather restless state. Thus, Engels held, the idea that movement is destructible, which is implied in the theory of "thermal death", leads to religion quite unavoidably. Indeed, in 1951, Pope Pius XII said: "The farther back we look, the richer we find matter to be in free energy.... Thus everything seems to indicate that the material universe, charged as it was with incredibly vast reserves of energy, received, at a certain point in time, a powerful initial impulse.... Hence, creation in time; and therefore, a Creator; and consequently, God."[2]

As he criticised the theory of "thermal death", Engels expressed his confidence that the progress of science would refute it. As early as the 19th century the physicist Ludwig Boltzmann showed that the tendency towards changing all forms of movement into heat in a closed system is the tendency towards the chang-

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[1] Frederick Engels, *Dialectics of Nature,* p. 285.

[2] Paul Labereune, *L'origine des Mondes,* Paris, 1953, p. 161.

ing of this system from a less probable to a more probable state. However, as was established in the mid-20th century, all states of a system comprising an infinite number of particles are equally probable. Assuming that the universe is a system of an infinite number of particles, one must accept that thermal equilibrium will never be its most probable state. Nevertheless, in terms of the general theory of relativity, the conditions of the existence of the universe do not remain immutable. Therefore the universe is not a closed system, and even should it comprise a finite number of particles, it still would not reach thermal equilibrium.

Modern natural science bears out the tenet of dialectical materialism that motion is an intrinsic property of matter, its mode of existence.

§2. Does Motion Without Matter Exist?

Thermodynamics and electromagnetic theory, which emerged in the 19th century and covered a very wide range of natural phenomena, took no account of atoms. (Their connection with the electromagnetic phenomena was yet to be established.) Scientists almost unanimously believed that matter consisted of atoms, while everything else (energy, electromagnetism) was thought to be "energy", not matter. Wilhelm Ostwald, a German chemist and physicist, reasoned that as thermodynamics and electrodynamics had solved a great number of problems of physics and chemistry, ignoring the existence of atoms, it might be presumed that all other problems of natural science could also be resolved without having to assume that atoms exist. Hence, the assumption was false, and atoms did not exist. Having made that deduction and never doubting that atoms alone were matter, Ostwald concluded that the "ultimate" level of matter was not matter, which did not exist anyway, but motion. Everything in the world consisted of "pure motion". That gave rise to "energism", a philosophical concept according to which the world was based neither on matter nor spirit but on energy, which was identified with motion. Insisting that both materialism and idealism should be discarded and replaced by energism, Ostwald wrote: "The simple and natural removal of the old difficulties arising from the antithesis between the concepts of matter and spirit by subordinating both to the concept of energy appears to me to be a great improvement. . . ."[1]

[1] *Vorlesungen über Naturphilosophie gehalten von Wilhelm Ostwald*, Second edition, Leipzig, 1902, p. VIII.

In his *Materialism and Empirio-Criticism* Lenin exposed the erroneous nature of this theory. To assert that both matter and spirit boil down to energy, he pointed out, is to contend that neither matter nor mind exists, and there is only movement. But no scientist has ever denied yet the existence of ideas. And no wonder, for how can one express ideas, while insisting that ideas do not exist? Moreover, the belief that ideas exist and matter does not is an idealist point of view with nothing new in it. Such is Lenin's first argument against energism.

His second argument is, briefly, this: "Ostwald endeavoured to avoid this inevitable philosophical alternative (materialism or idealism) by an indefinite use of the word 'energy' " and thought that in that way he ended the contradiction between materialism and idealism. If we designate as energy both movement outside consciousness (physical, chemical, physiological and other processes) and movement inside consciousness (varying sensations, strivings, ideas), "...if we 'subordinate' both matter and mind to this concept, the *verbal* annihilation of the antithesis is beyond question...."[1] But, in reality, the question whether mind depends on matter or vice versa remains. So does the irreconcilable conflict between materialism and idealism, which offer opposite answers to this question.

[1] V. I. Lenin, *Collected Works*, Vol. 14, pp. 270-71.

The discovery of the electromagnetic nature of atoms made it obvious that Ostwald was wrong and, in 1908, he acknowledged that the existence of atoms was beyond question. In the middle of the 20th century, scientists could see atoms for themselves, photographed by an electronic microscope.

Even so, attempts were made relatively recently to revive the view which Ostwald himself had renounced. In 1948, Bertrand Russell wrote: "It is energy, not matter, that is fundamental in physics" because "both relativity and quantum theory have had the effect of replacing the old conception of 'mass' by that of 'energy' ",[1] and if mass has taken the place of energy, the latter has taken the place of matter, as mass is, indeed, matter. Russell's reference to the theory of relativity here concerns the relationship between energy and mass, discovered by Einstein.

Even supposing Einstein's discovery did mean that mass was replaced by energy, it does not follow that matter does not exist, since its place has been taken by energy. Its existence is really a question of whether the world contains anything besides ideas, emotions and sensations. The answer to this does not depend on whether real objects have the properties of inertia and gravitation, i.e., mass.

[1] Bertrand Russell, *Human Knowledge. Its Scope and Limits*, pp. 309, 39.

Besides, Einstein's discovery does not imply any replacement of mass by energy. If we put a piece of iron on a hot stove, it will get hot as it receives energy from the stove, the latter losing the same amount of energy. According to classical mechanics, the weight of the piece of iron and of the stove does not change–their mass remains the same. Einstein's discovery, however, discards this notion, and implies that when an object transfers its energy to another object, it also transfers a certain amount of mass, while every time mass is transferred from one object to another, some energy is also transferred. Einstein wrote: "...a piece of iron weighs more when red-hot than when cool; radiation ... emitted from the sun contains energy and therefore has mass; the sun and all radiating stars lose mass by emitting radiation."[1] When a piece of iron gets hot from the stove, the mass it thus acquires is practically negligible. But the sun, which radiates huge amounts of energy, is losing mass at a rate of 4,000,000 tons a second.

So that attempt to revive energism was also unsuccessful. Now, another question arises. Ideas, sensations and aspirations are not material facts. They exist only in men's consciousness. Does it not follow, perhaps, that the suc-

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[1] *The Evolution of Physics* by Albert Einstein and Leopold Infeld, Cambridge, 1938, pp. 207-08.

cession of sensations, ideas, and so on, is motion without matter? In other words, while it is erroneous to think, as the energists do, that any kind of movement represents motion without matter, would it not be correct to say that in some instances, i.e., mental processes, it is a case of motion without matter?

It is true that conceptions, sensations and aspirations are not material facts. Yet they are always somebody's conceptions, sensations and aspirations; they cannot exist without man. And man is not immaterial. Therefore the succession of ideas, emotions, etc., is far from being motion without matter; it takes place in man, a material being. It is the idealists alone who, in the face of all the scientific and practical evidence, maintain that ideas may exist without a material expositor. In fact, however, whether apart from mind or within it, motion without matter is impossible.

Chapter Five

SPACE AND TIME

§1. Can Matter Exist Outside Time and Space?

Every material object has shape, is three-dimensional, occupies a certain place, is at a definite distance from other objects and at some angle to them. These relations of coexistence of material objects are known as spatial forms and relations or *space.* The succession or simultaneous occurrence of material facts, the duration of each and the irreversible character of the succession of phenomena, which has but one dimension, one direction—from past to present—all these relations of material phenomena are called temporal relations or relations in time.

Can matter exist outside space and time?

This question can occur only to those who acknowledge the existence of matter. The subjective idealists, who deny the existence of anything apart from mind, hold that space and time exist solely in man's mind. All those, however, who never question the existence of matter as an objective reality take it for granted that all material phenomena exist in space and time, outside man's consciousness, just as matter does.

The question whether matter can exist outside space and time was posed in the 18th century by the German philosopher Immanuel Kant (1724-1804). He recognised that the objects around us exist apart from mind and independently of it. "...I am just as certainly conscious that there are things external to me...", he wrote, "as I am that I myself exist...."[1]

Vis-à-vis time and space, Kant argued that, whereas spatial and temporal relations are inherent in things themselves, we can only learn about this through our contact with things, from experience, in the course of which "...objects which affect our senses, and partly of themselves produce representations, partly rouse our powers of understanding into activity, to compare, to connect, or to separate these, and so to convert the raw material of our sensuous impressions...."[2] Experience is the source of our conception of things. It is impossible to observe all facts of a kind (for example, all instances of bodies submerged in liquids). Therefore, no matter how many facts we have observed, we cannot deduce from that experience any universal rule admitting no exception. We cannot, for instance, assert that all bodies immersed in a liquid are subject to pressure.

[1] *Critique of Pure Reason*, translated from the German, London, 1930, p. XLI.

[2] Ibid., p. 1.

We can only draw a partial conclusion from experience since there may be some bodies which do not undergo pressure. Consequently, "if ... a judgement carries with it strict and absolute universality, that is, admits of no possible exception, it is not derived from experience...".[1] Our geometrical judgements about space (e.g., that a straight line is the shortest line between two points) are conceived as universal rules admitting of no exceptions. Our judgements about time are equally assumed to be rules without exceptions. Hence, these judgements have not been derived from experience. And if our judgements about time and space are not founded on experience, then their source is clearly not outside the mind but within it. Consequently, the ideas of space and time are inherent in the mind as forms of contemplation which are present there before any actual contemplation, observation or experience.

To prove his idea, Kant also adduced the following. Imagine that everything has disappeared: you will see empty space in your mind's eye. But try to imagine that not only things but the very space they occupied has also disappeared, and you will find it impossible. One can imagine that no events occur. But it is impossible to imagine that time itself

[1] *Critique of Pure Reason*, p. 3.

has disappeared. Consequently, the notions of space and time are inherent in the mind and are so firmly fixed in it that, try as it might, it cannot get rid of them. In other words, notions of space and time are built into the mind, and are present there before and regardless of any observation.

Kant's contention that our notions of space and time have nothing corresponding to them in the real world, and that they do not indicate actual, objectively existing relations or properties of things but ideal relations existing only in the mind makes him a subjective idealist. According to his thinking, the notions of space and time are a pair of glasses, as it were, through which we look at things. Outside our consciousness, there is neither time nor space. Thus, Kant arrives at the conclusion that matter exists apart from time and space.

Kant is right in saying that universal judgements cannot be derived from experience, from contemplation. Nevertheless, experience is not merely passive contemplation; it also actively influences things, which makes it possible to substantiate judgements of a universal nature.

Our mathematical judgements of space and time possess, according to Kant, universality not present in other scientific assumptions which Kant himself acknowledged as being derived from experience. But laws discovered in physics, chemistry and other sciences are also of a general character. Contrary to what Kant believed, there is no gulf between geometrical (and, generally, mathematical) and other scientific concepts. We imagine a point, for instance, as a tiny spot on a sheet of paper, a straight line, as a thin thread made taut by a weight hanging from it, and a plane, as the surface of a mirror. Our conceptions of space are visual images reproducing what we saw or felt.

Evolving concepts of space, geometry singled out some properties and relations of physical objects, neglecting all their other properties and relations. Geometrical figures have neither stuff, colour nor temperature. The spatial characteristics themselves are reflected in geometrical concepts in a rather peculiar way. In the classical work of the known Greek mathematician, Euclid (about 300 B.C.), a point is defined as something without dimensions, having position only; a line, as having but one dimension, length; a plane surface, as having two dimensions, length and breadth. As well as we may understand it, we cannot picture it. These notions are represented in the mind by a spot, a thread or a mirror. Yet, although our notions of space are undoubtedly consistent with the actual spatial relations and properties of things, they are also distinct in that geometrical notions, like all other scientific notions, are more exhaustive and accurate than our notions.

However, geometrical concepts, too, are only approximate reflections of actual spatial relations, being generalisations derived from previous experience. As geometrical concepts take into consideration but a small number of spatial properties and relations of things, disregarding all other properties and relations, one can deduce from the known properties of things hypotheses logically following from them. In sciences founded on experiment, every hypothesis needs to be made more exact and correct as new evidence is obtained. The same holds for geometry whose propositions do not express properties of bodies with absolute exactness, but only approximately and, like all other scientific theories, have to be refined as new knowledge is accumulated.

The invention of new geometries by N. I. Lobachevsky (in 1826) and G. Riemann (in 1854) showed that geometrical judgements were indeed subject to improvement and correction, and that our judgements about space do not possess "universality admitting of no possible exception". Thus, the postulate that only one straight line can be drawn through a point in a plane parallel to another straight line in the same plane (or, to put it differently, that there is only one line parallel to the given line through a fixed point) has no effect in Lobachevskian geometry. Meanwhile, physicists have found real objects to which this geometry conforms. In the 20th century, the theory of relativity has introduced even more drastic corrections to our notions of space and time. Clearly, such a fundamental change in our notions and judgements about space and time is due to the further accumulation of experience.

This offers a most convincing refutation of Kant's idea that these notions are not rooted in experience and, similarly, of his deduction that they originate in the mind and not in the real world. If the idea that things exist apart from us, which we derive from our contact with things, reflects their objective existence (and Kant acknowledged it), then the notions of space and time, equally derived from contact with things, also reflect objectively existing spatial and temporal properties and relations of material phenomena.

Practice, which refutes the idealist conception of space and time, confirms the materialist understanding of them, according to which there are, besides the perception and conception of time and space, also spatial and temporal properties and relations existing outside man's consciousness. Such relations are inherent in all material phenomena. *Time and space are universal forms of the existence of matter.*

What is the basis of this materialist view?

Firstly, perceptions occur independently of man's will and mind. This, among other things, makes most philosophers, including Kant, acknowledge that perceptions are produced by objects existing outside consciousness.

Secondly, we derive the most authentic scientific knowledge of nature from research into changes which occur only in space and time. What would geology be without data on the spatial disposition of the layers of the Earth's crust, the location of the continents, etc., and the length of the successive geological epochs? What would remain of electromagnetic theory if we took away the data on the spatial arrangement of the electromagnetic fields and the movement of electromagnetic waves in time and space? Natural science cannot exist without notions of space and time which faithfully reflect the real world.

Thirdly, the behaviour of animals demonstrates that they coordinate their actions with spatial and temporal relations in nature. Mach himself, who denied that time and space exist outside the mind, admitted that much. He wrote: "...time and space are systems of the sensations of orientation,"[1] providing for biologically expedient reactions of adaptation. This undoubtedly applies to men as well. "If the

[1] *Die Mechanik in ihrer Entwicklung, historisch-kritisch dargestellt von Ernst Mach,* Leipzig, 1897, p. 498.

sensations of time and space can give man a biologically purposive orientation," Lenin wrote, "this can only be so on the condition that these sensations reflect an *objective reality* outside man: man could never have adapted himself biologically to the environment if his sensations had not given him an *objectively correct* idea of it."[1]

Fourthly, man (unlike animals) transforms the environment, adapting it to his own needs. In doing so, he evolves and clarifies his ideas of space and time. If these ideas were not more or less correct reflections of the objectively existing relations between real things, any attempt to rely on them whilst changing reality would be doomed to failure.

§2. Do Time and Space Exist Outside Matter?

Most philosophers who were convinced of the objective reality of space and time (from ancient philosophers to 18th-century philosophers) held that independently of atoms, there exists a limitless void in which they move; that—as the 17th-century French materialist Gassendi wrote—outside atoms there exists only time, which does not depend on things, for

[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 178.

whether things exist or not, and whether they move or not, it always flows evenly, being subject to no change. Yet, the great Greek philosopher Aristotle (384-322 B.C.), who recognised the objective reality of space and time, contended that spatial properties and relations were inseparable from things, having no existence outside matter, and that vacuum did not exist.

In the middle ages, this idea of Aristotle's was thought to mean that "nature abhors a vacuum". Until the 17th century, they saw a confirmation of this in the operation of a pump, in which liquid moves upwards, overcoming its own weight, to prevent vacuum (a clearance between the level of the liquid in the tube and the piston). The idea that space was inseparable from matter was supported by the eminent 17th-century philosophers Descartes and Leibniz. Arguing that vacuum could not possibly exist, Descartes wrote: "There is ... nothing but matter in the entire Universe".[1] All adjacent bodies touched, transmitting further pressure or impact which instantaneously spread throughout the universe. Leibniz, too, wrote that "...there is no space in which there is no matter".[2]

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[1] *Les Principes de la Philosophie*, par René Descartes, Rouen, 1706, p. 92.

[2] G. W. Leibniz, *Ausgewählte philosophische Schriften*, Vol. II, Leipzig, 1915, p. 173.

Nevertheless, many scientists considered that vacuum really existed. The founder of classical mechanics, Isaac Newton, was one of them. He believed in the existence of absolute space–an absolutely immovable void, separating celestial bodies from one another; and of absolute time–a flow of continuity existing separately from matter and not to be changed by any material processes or events. That conception of space and time was predominant in natural science till the beginning of the 20th century.

Marx and Engels expressed some very important ideas on whether space and time can exist without matter. Engels wrote that the idea of absolute time and space existing apart from and independently of matter was a graphic expression of metaphysical materialism. He criticised that view from the standpoint of dialectical materialism.

How is a concept formed? From a multiplicity of properties, relations and states of objects we select the most essential, discarding the rest. A concept is indeed a reflection in our consciousness of different things, phenomena and processes in terms of their more substantial characteristics. But the source of concepts which arose long ago may be forgotten, and then the characteristics of a real object which underlie the concept will begin to seem to exist independently. That is what happens to the concepts of space and time which have been formed by separating from real phenomena their relations in space and time. To regard the height, length and breadth of real objects, as well as the simultaneity, succession and duration of real processes, as existing separately from these objects and processes, is equivalent to accepting that viscosity exists somewhere apart from viscous substances, and independently of them, or that reason exists separately from men. "It is the old story," wrote Engels. "First of all, one makes sensuous things into abstractions and then one wants to know them through the senses, to see time and smell space.... The two forms of existence of matter are naturally nothing without matter, empty concepts, abstractions which exist only in our minds."[1]

But if it is true that space and time are forms of the existence of matter, it is equally true that they do not exist apart from matter.

The dialectical interpretation of space and time proposed by Engels clearly pointed in the direction in which the scientific investigation of these forms of existence of matter was to go. And 20th-century physics has indeed followed that direction.

Drawing on discoveries made at the end of the 19th century, mainly that all interactions

[1] Frederick Engels, *Dialectics of Nature*, p. 235.

occur at a finite velocity, and that the velocity of light is independent of the inertial system to which it is referred, Albert Einstein (1879-1955) evolved the *theory of relativity.* This theory ended the view that the properties of space and time were independent of the motions of nearby matter. When asked to explain the gist of his theory in a few words, Einstein said: "They used to think that if all things in the world disappeared, space and time would remain; and in accordance with the theory of relativity, with the disappearance of all things, space and time too must disappear."

According to the Special Theory of Relativity, all material objects and processes exist in the integral form of space-time, of which the relations of space and time are different but inseparable aspects. Two events are separated by a space-time interval which is independent of the framework of reference. The time interval between events is but one aspect of their space-time characteristic; it varies depending on the system of reference. So does the space interval, the size of which depends on the reference system.

According to the General Theory of Relativity, the local properties of both space and time are direct consequences of the existence of nearby matter. In turn, they have a causal influence on the motions of that matter. Let us note that the space-time pattern may change depending on circumstances. Thus in the cosmos it is different from ordinary experience.

These discoveries have shown that the single absolute space-time form of matter's existence is expressed in temporal relations and spatial relations which are relative; that not only are space and time inseparable from matter, but their pattern depends on the distribution, movement and interaction of masses of matter and has an impact on them; and that the common characteristics of space-time are expressed in different space-time patterns, depending on the nature and scale of the material phenomena.

The idealists seek to interpret these discoveries to their own advantage. They contend that the dependence of a body's length and of the time interval on the frame of reference presumably means that relations of space and time are not inherent in matter at all, but depend entirely on the observer's subjective qualities and reactions. Thus the idealists assert that a body's length and the time interval between events exist merely in our consciousness. Dingle, for instance, claims that this follows from the theory of relativity, which, he alleges, "declines all attempts to assign to matter any properties whatsoever". "Now this," commented Max Born, "is a misrepresentation of the theory of relativity, which has never abandoned the attempt to assign properties to matter, but has refined the methods of doing so. . . ."

To make it clearer, here is the example suggested by Max Born. Let us suppose that we cannot for some reason directly observe a cardboard circle but can see the shadows it casts on some screens placed at different angles to it. All the shadows will be different save that they will all be elliptical. On studying the axes of the elliptical shadows, we shall have enough evidence to show that they have been cast by a circle and to find its radius. The projections of the properties of the object concerned (the cardboard circle) relative to other objects, which play the part of reference systems (the screens), differ. But in each case the real properties of the object concerned (the circle) remain identical. Shadows of different size and shape are relative expressions of the absolute size and shape of the cardboard circle. Similarly, bodies and time intervals of different length are relative expressions of the absolute length of the space-time interval, which is independent of the reference system. The shadows cast by the circle are as real as the circle and the screens. The different lengths of the bodies and time intervals in different reference systems are as real, as independent of consciousness, as the space-time interval (whose expressions they are) and the corresponding reference systems.

It is clear that the interpretation given by the new theory to space and time is not only dialectical but also materialistic.

Such are the philosophical conclusions drawn from the latest achievements of natural science, that they have not only confirmed the dialectical-materialist proposition that space and time are inseparable from each other and from matter, but have also made it possible to refine and enrich that proposition.

Chapter Six

CONSCIOUSNESS

§1. Consciousness Is a Reflection of the Material World

Once there was a patient in a hospital who had lost the use of all his senses except hearing and sight. The doctors noticed that whenever he shut his eyes and covered his ears, he became unconscious. He regained consciousness only when his good sense-organs were functioning.

Here is a more ordinary case. When sleeping "like the dead", without dreams, a dog-tired person loses consciousness. He has neither ideas nor feeling. He does not react to strong light or noise. But if his sense-organs are subjected to some unusually strong stimulation, he will react to it. If, for instance, a shot is fired at close quarters, he will hear the sound. The sensation will be followed by notions, emotions and, finally, by ideas–he will regain consciousness. This shows that a person who experiences no sensations has neither notions nor thoughts. Thoughts may appear and exist only on the basis of sensations, perceptions and notions, as the result of their being processed.

What is sensation, what is perception? When touching one thing we feel that it is a sphere, and touching another, we feel that it is a cube, our perceptions reflect the shape of these objects. When we recall how we felt these bodies, we have a representation of them in our mind. It is clear that representations, just like sense-perceptions, are reflections of different aspects, characteristics and relations of material objects. Ideas (notions, judgements, conclusions), as we saw, arise, in the final analysis, from sensations and perceptions, which are mental reflections of the external world. Hence, all our ideas are also mental reflections of the external world.

Every reflection is secondary to what is reflected. Therefore, consciousness is secondary to matter. In denying this, idealists stubbornly oppose the idea that consciousness, thought in particular, is a reflection of the real world. How do they defend their view?

We know that to err is human. What does an erroneous idea reflect, which has nothing corresponding to it in the real world? Goblins, brownies or mermaids do not really exist, yet the notions of goblin, brownie and mermaid do. But, say the idealists, if these notions do not reflect anything, then other notions and conceptions equally do not reflect reality.

Idealists also argue that while such notions as "eight", "the square root of 81", "a plane", etc., are commonly accepted to be true, it becomes clear on analysis that there is no such thing as "eight in general" in the material world any more than there is a real life "square root of 81" or any body which has length and breadth but no height. Hence, mathematical notions have no objects to correspond to them and therefore they are not reflections of anything at all.

The idealists also assert that people have numerous notions of things that ceased to exist long ago. Palaeontology and history entirely comprise ideas of things that existed long ago and disappeared. On the other hand, man is capable of looking into the future. Tsiolkovsky, for example, predicted interplanetary flights at a time when they could only be dreamed of. What reality did his judgements reflect then?

Let us first take a look at the so-called false notions, such as "mermaid", for instance. It implies a half-woman half-fish, fond of dancing and singing and given to enticing handsome young fellows to their ruin. Women, fish, dancers, singers and "cruel charmers" indeed exist. The notion is false merely because it combines things which in reality are separate (woman and fish), and disjoins things which go together in a living being (the trunk is separated from the legs and the fish tail from the fish). The idea of a mermaid is therefore a reflection of reality, but it is a distorted reflection.

Certainly no "eight as such" or two-dimensional bodies exist in nature, but then there are no creatures with merely the general characteristics of the bee, eagle or elephant; they are all quite definite, individual animals. The fact, however, that the notion of an animal does not imply every possible characteristic of an elephant, and that the notion of fruit does not imply every possible characteristic of an apple, makes it no less certain that these notions reflect some characteristics of the elephant (and other animals as well), or some characteristics of the apple (and other fruit as well). The peculiar quality of a notion is just that it reflects only some, and not all, characteristics of an object. This also refers to the mathematical notions. The notion "eight" implies merely the quantitative aspect of things, regardless of everything else. The notion "a plane" implies only two dimensions, regardless of the third dimension and all other characteristics of bodies. Yet this one-sidedness, so to speak, of mathematical notions does not alter in the least the fact that they are reflections of properties and relations which really exist.

Now let us turn to situations where we think of what is no more or what is yet to be. From the metaphysical point of view, the world is a totality of *final* things, and so the idea of a thing which does not exist at the moment does not reflect anything. And from the dialectical point of view, the world is a totality of processes, connections and relations, and so ideas reflect processes, connections and relations rather than final things. In its progress from the state in which it was a hundred million years ago to the state in which it is now, the Earth has passed through numerous intermediate stages. Learning the connections between these stages–the laws of geochemistry and geophysics, which exist now too–and starting from the present condition of the Earth, scientists mentally fathom the condition in which it was hundreds of millions of years ago. To quote some other examples. Having grasped the dialectical connections–physical laws which existed in his day too–Tsiolkovsky mentally traced the chain of events which would inevitably, and actually did (when men turned these laws to use), result in space travel.

The historical process of capitalist society's development, which has resulted in a third of mankind embarking on socialism, also consists of definitely related stages. Having studied their relationships and starting from the state in which society was in the sixties and seventies of the 19th century, Marx mentally grasped the events that were to take place fifty or a hundred years later. In each instance, whether turned to the past or to the future, people's ideas reflect, above all, the relationships existing at the present moment. So the argument supporting the view that thought is not reflection does not hold water either.

Thus, "our consciousness is only an *image* of the external world", a reflection of it. Material phenomena exist outside us, while their reflections, "the images of the *external world,* exist *within us*".[1]

Then how does thought relate to the brain?

Carl Vogt, a 19th-century German scientist, answered this question by saying that thought was related to the brain in much the same way as bile to the liver. But bile is just as material as the liver which produces it. Vogt's assertion implies that thought is as material as the brain producing it. In other words, consciousness is a variety of matter; it is matter. And matter, as we know, is that which exists outside consciousness. If we assume that consciousness is matter, we shall arrive at the statement: "Consciousness is that which exists outside human consciousness." Now, that obviously makes no sense. This alone shows the absurdity of Vogt's conclusion, which Engels called *vulgar materialism.*

Idealists also reduce the material world to consciousness. What is the difference, then, between what they say and what Vogt says? It was not by chance that Lenin wrote that "to

[1] V. I. Lenin, *Collected Works,* Vol. 14, pp. 69, 90.

say that thought is material is to make a false step, a step towards confusing materialism and idealism".[1]

In the 17th-18th centuries, when they still knew very little about the essential distinctions between organic and inorganic nature and between man and animals, many materialist philosophers held that not only living creatures but inanimate things too were capable of thought or at least of sensation. It followed from this that even a stone was not insensible. This doctrine, which draws no line between animate and inanimate things, and views transition from inorganic to organic nature not as the emergence of something new but merely as a variation of something old, is known as *hylozoism.*

Lenin opposed the metaphysical notion held by hylozoists with the dialectical view that the transition from the inanimate to the animate does not merely involve a variation of old things but also the emergence of something altogether new, of sensation, which "is associated only with definite processes in matter organised in a definite way",[2] whereas matter which is not so organised is incapable of sensation. As he rejected both the view equating mind and matter and the view underrating the

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[1] V. I. Lenin, *Collected Works,* Vol. 14, p. 244.
[2] Ibid., p. 46.

contrast between them, Lenin stressed that the difference was absolute only within the bounds of the fundamental question of philosophy.

He insisted that it was not to be conceived metaphysically, as if there were nothing whatsoever in common between matter and consciousness. "...This contrast must not be made 'excessive', exaggerated, metaphysical ... the antithesis of matter and mind," Lenin pointed out, "has absolute significance only within the bounds of ... the fundamental epistemological problem of what is to be regarded as primary and what as secondary. Beyond these bounds the relative character of this antithesis is indubitable."[1]

§2. Reflection Is a Property of Matter

Now what do matter and mind have in common that makes the antithesis between them relative? In answering this question, Lenin suggested that we must "assert that all matter possesses a property which is essentially akin to sensation, the property of reflection...".[2] The essence of this is that after passing through some stages, material reflection, which is in-

[1] Ibid., pp. 245, 147.
[2] Ibid., p. 9.

herent in all nature, reaches one where it becomes something essentially new, turning into the mind, which, consequently, not merely differs from matter but is also linked with it by reflection, albeit of a highly peculiar nature. This brilliant idea, put forward by Lenin in 1908, received conclusive scientific confirmation later on, especially in the second and third quarters of this century, thanks to the great strides made by neurophysiology and the emergence of information theory and cybernetics.

If a meteorite falls on to the ground at a speed not exceeding several hundred metres a second, it makes a hole not much larger than its own size. A meteorite which falls at a greater speed, breaking on impact together with the ground it falls on, makes a much larger hole than its own size. But when the speed reaches from two to four kilometres a second, both the meteorite and the ground it touches instantly turn into gas, and a huge crater is formed. Thus the trace left by a meteorite is something like the imprint of its characteristics—of its size, shape and composition, the speed of its flight and the angle at which it fell. A meteorite will leave different traces in solid rock and in soft grass-covered ground. But in either instance, the trace will reproduce the meteorite's individual features. The trace left by a meteorite is its reflection resulting from its impact on the surface of the Earth.

It is the same with every reflection. When one material object acts on another, the latter changes in such a way as to reproduce certain characteristics of the former. Reflection takes place when one material phenomenon reproduces the characteristics of another material phenomenon acting on it. Dialectics, which tells us that all things are interconnected, so that "everything affects and is affected by every other thing"[1], sees interaction in every material process. That this is so follows most conclusively from modern physics which regards all natural processes as different kinds of material interaction. But interaction, the influence of material phenomena on one another, leads, as we saw, to the reflection of these phenomena in one another; and if interaction is inherent in all matter, so is reflection too.

One most important feature of this relation is that "an image cannot exist without the thing imaged, and that the latter exists independently of that which images it".[2] It takes a falling meteorite to leave a trace on the ground; but then a meteorite may exist for a very long time without falling and leaving its trace.

Reflection consists in the reproduction of peculiar characteristics of the object reflected. The reverberation of an avalanche in the moun-

[1] Frederick Engels, *Dialectics of Nature*, p. 178.
[2] V. I. Lenin, *Collected Works*, Vol. 14, p. 69.

tains, for example, is a process of reflection. The noise of the avalanche is the thing reflected, the mountains are the reflecting objects, and the reverberation is the reflection. Both the noise and reverberation consist of sound waves or air vibrations of a similar pattern. In this instance, the reflection and that which is reflected are of an identical physical nature. That, however, need not always be the case. The main sources of information on the plants of the geologic past are plant fossils preserved in the rocks: leaves, roots, fruits, flowers, etc. Fossil leaves, for instance, reproduce every single detail of a leaf's surface. Here, the reflection–a piece of rock–has physically nothing in common with the thing reflected, i.e., a plant.

Why do we describe both the reverberation of an avalanche and plant fossils as reflections? What is the connection between these widely different phenomena? It is the likeness between the reflection and the thing reflected. The phrase "reproduction of certain characteristics of the thing reflected" implies one-to-one correspondence between the reflection and its object, i.e., that every element or state and every relation between elements or states of a thing reflecting something corresponds to only one element or state or relation in the thing reflected. Moreover, every reflection is always limited. The impression of a leaf in the rock, for instance, reflects the spatial form of the leaf's surface but not the cellular or molecular structure of the leaf.

Depending on the nature of the reflecting thing or process, images may be reproduced in diverse forms. But no matter how different the forms may be, they are identical in content, having the same organisation as the phenomenon reflected.

Such are some general characteristics of reflection both in organic and inorganic nature.

§3. From Irritability to Mental Activity

Every living organism is characterised above all by *metabolism,* i.e., continued interchange of material with its surroundings. Another important characteristic is what we shall term here "survivability", meaning the capacity of a living organism to react to external influences in a way which increases the chances of its survival. Lastly, all living organisms are capable of growth and reproduction.

Earlier, we mentioned the law stating that all material systems tend to proceed towards greater chaos, developing from complex forms of motion to simple chaotic heat motion of particles. At the same time, the processes of life such as the development of species show the preservation or even increase of order. The reactions of a grown-up animal are more orderly than those of a newborn. Species of later origin are usually more highly organised compared with those long extinct. The capacity of living bodies *to survive* is of great importance to reflection. That is the main requirement which every variation in an organism must satisfy. When a ray of light, penetrating through a chink in the door of a dark cellar, falls on a green plant that has sprouted in the cellar, the stem begins to grow in the direction of the light which helps it obtain the carbon necessary for its growth. When roots strike an obstacle, they curve so as to bypass it. Plants usually react to external influences rather slowly. But it is not always so. A pumpkin tendril, for instance, begins to curl up five minutes after being touched, and in twenty minutes coils up completely. Insectivorous plants respond even more quickly. And the simplest unicellular animals, like amoebae, infusoria, etc., react to some external stimuli very quickly.

Irritability—a quality which distinguishes living organisms from dead things, and which consists in a body's capacity to react to the environment in a way which helps it survive—depends on the structure of the living organism's body. The latter is such that, on being stimulated, (1) reflects those characteristics of the external phenomena which increase or decrease its chances of persisting in a living state, and (2) transforms the reflections into internal chemical and physical processes, enabling it to effect a response essential to self-preservation. This quality of living organisms emerged in the process of natural selection. Organisms that were built in such a way, that their reactions to the environment provided for their preservation, lived and multiplied, while all others died out. Thus, the structure of the body of a living organism is, in a way, a reflection of the conditions under which it exists.

At the basis of the mechanism responsible for transforming external stimuli into responses in plants and the simplest animals (i.e., irritability) are chemical reactions induced in organisms by different stimuli. Let us take, for example, the chain of chemical reactions and corresponding movements with which a Venus's fly-trap (*Dionaea muscipula*) responds to a chain of stimuli. As an insect alights on one of the leaves, a chemical reaction starts in the plant, which makes the leaf curl up. In response to the movements of the insect which naturally tries to get away, a chemical reaction begins, causing the projections along the outer edge of the leaf to overlap, the leaf closing on the insect and pressing against it. In response to the insect's frantic movements, another chemical reaction sets in—the numerous small bristles on the upper surface of the leaf begin secreting a digestive fluid. The insect's body is disintegrated and the nutrients are absorbed by the leaf. Two series of events are present here, namely, a series of stimuli and a series of corresponding chemical reactions. As both were repeated thousands of millions of times, they finally became connected in a way which reflects the relationship between the events producing the given reactions. The chemical reaction causing the leaf to curl up began to induce the chemical reaction causing the outer projections on the leaf to bend and overlap, the latter reaction, in its turn, setting off the chemical process by which the digestive fluid is produced. As the reactions are greatly accelerated by enzymes (proteins), they follow one another more quickly than the stimuli, so that the plant gives all three responses (i.e., the leaf curls up, its projections bend and overlap, and the digestive fluid is produced) even to the first stimulus (the insect alighting on the leaf). The first stimulus is the *signal* that the other two are to follow, and the plant responds in advance. An amoeba in pursuit of prey trying to escape behaves in a similar way.

As many proteins, acting as catalysts, accelerate chemical reactions in living organisms hundreds and even thousands of millions of times, it is evident that this enormous difference in the rate at which chains of reactions occur in living organisms and the rate at which changes in the environment occur, which are reflected in the reactions, plays a great role in the life of plants and animals. In the more highly organised animals, a special tissue develops whereby an organism's responses increasingly anticipate external phenomena. It is the *nervous system.* An anticipatory reflection effected through the nervous system is called a *reflex.* However, we shall discuss reflexes further on. At this point we shall merely note that modern scientific evidence reveals that changes which are only forthcoming but which are associated with existing facts can be reflected not only by man (as was mentioned earlier) but by the simplest animals and even plants.

Reflections which appear, are transmitted, stored, processed and retrieved are called *information.* Information is the amount of order in the reflecting object reproducing the amount of order in the object reflected, the former being the information carrier and the latter the information source, and is used in the process of control. As every living organism is a self-regulating system, reflection in this case represents information. This cannot be said of inorganic systems, in which self-regulation is not present. Information is transmitted from the regulated part of a living system, which is in immediate contact with the environment and receives stimuli from it, to the regulating part, in which information is stored and transformed into a change by which the organism must respond to the external stimulus in order to survive. This new information is then transmitted from the regulating to the regulated part which, being in direct contact with the environment, responds to the stimulus. Information not only circulates within a living organism but is passed on from generation to generation, thus ensuring transmission of qualities by heredity.

One of the great scientific discoveries of the 20th century is that heredity operates through *molecules*, of which living cells consist.

Since neither the emergence nor development of plants and animals is possible without natural selection, and thus without heredity, which depends on information transmission (i.e., reflection), the development of species is based entirely on biological reflective processes.

There is no reason to suppose that in plants, viruses, and the simplest unicellular animals, reflection is accompanied by sensation, still less, by emotion. In their case, only irritability is present but not mental activity, even of the most primitive kind. Rudiments of mental activity are found in more highly organised, multicelled animals not possessing a backbone (invertebrates). Most of these (insects, shellfish, earthworms) have a centralised nervous system which regulates their responses to stimuli and co-ordinates their movements. Although it is sometimes possible to produce a conditioned reflex in such animals, their behaviour is, on the whole, automatic. Their actions depend on unconditioned reflexes, i.e., responses to specific stimuli, transmitted by heredity. Thus a female spider lays her eggs in a brood-cocoon which she carries about for 15-20 days. She continues to take care of the cocoon even if the eggs are, for some reason, dead. A female spider will stay in the egg-laying posture for as long as it usually takes to lay eggs, even if she does not lay any, and then will clip the edges of the empty cocoon and carry it about just the same. Similar behaviour is found among bees and wasps too.

How does this essentially differ from irritability?

We have already mentioned that, with the emergence of life, all phenomena come to be divided from the point of view of their effect on the preservation of life, which may be either good or bad. Reflection in living matter not endowed with mentality consists in the differentiation of phenomena as favourable and unfavourable to life and in the regulation of appropriate responses. Hundreds of millions of years of natural selection have resulted in the emergence of conscious experience. The latter represents reflections of the characteristics of what is going on in the external world, i.e., sensations, on the one hand, and motivations to attain desirable, and avoid harmful, objects, on the other.

Both sensation and motivation are subjective experiences classed as *mental activity*. The subjective nature of experience (mental activity) lies in the fact that a sensation, feeling, etc., is experienced only by a specific individual (subject). Lenin noted this when he wrote that only "the usual *human* sensations familiar to all" exist and ridiculed the notion of "fictitious sensations, *nobody's* sensations",[1] which stresses the fact that every sensation must be somebody's sensation. This refers to animals as well. With them, too, sensation is always a sensation experienced by a definite organism and non-existent outside it. We already know that sensations are reflections of external phenomena, for this reason, living beings of the same species, when exposed to the influence of the same external phenomenon, experience similar sensations. When an artist portrays objects as they appear to him, other people, as a rule, recognise their own perceptions in the portrayal. This reveals the content of sensations and notions, which does not depend on the reflecting subject (man), but on the external objects

[1] V. I. Lenin, *Collected Works*, Vol. 14, p. 227.

which are reflected. Similar sensations may, of course, be experienced only by beings whose sense-organs, by which the given phenomena are perceived, are similar.

Mental activity is subjective also because it comprises not only reflections of the properties of external phenomena but also the subject's attitude to them, the specific motivation. In lower animals, it is confined to pleasure or pain, attraction or repulsion, while in highly organised beings it includes a wide range of needs and emotions.

It must, however, be remembered that neither the simplest motivations of a bee nor man's most complex requirements and emotions are purely subjective. These motivations are reflections of the significance objectively attached, as far as individuals are concerned, to the things towards or away from which the motivation is directed. These mental phenomena, like sensations, have some objective content which is independent of the subject. For this reason, we can have an idea of what others may feel under various circumstances.

If sensations and motivations changed nothing in the connection between organism and environment, they would have been eliminated in the course of natural selection as useless. I. M. Sechenov (1829-1905), a Russian physiologist, found that for living beings, sensation was of two-fold significance, serving to differentiate the conditions of an action and to guide the actions appropriate (i.e., expedient or adjustive) to these conditions. The enormous significance of sensation and motivation to the adjustment and behaviour of living organisms was also stressed by Sechenov's follower, I. P. Pavlov (1849-1936).

Changes in the environment, brought about by the vital activity of the creatures inhabiting it, depend on the particular features of both the living organisms and environment itself. Simultaneously, the changes which living organisms undergo under the impact of the environment also bear the imprint of the internal organisation of these organisms. The rabbits brought in the 15th century to the tiny Atlantic island of Porto Santo, in the absence of beasts of prey there, changed so much that a new species emerged, half the original size, with different colouring and habits. But if some other animals, e.g., foxes or wolves, had been brought to the island, they would have undergone quite a different sort of change.

The environment exerts its influence on the animal only through the internal organisation of the latter. In the interrelationship of animals incapable of mental activity and their environment, the animals' internal organisation plays a comparatively minor part, as compared to the environment. The addition of a new factor, i.e., mental activity (first, sensations and simple motivations and next, with more highly organised animals, perceptions, notions and emotions), essentially alters the interrelation of the organism and the environment. As animals develop a more complex mentality, they begin to influence their surroundings in more complex ways. Pavlov was the first to establish the presence in animals of the so-called *orientation reflex,* whereby in any new situation threatening danger, all other kinds of behaviour are inhibited, and the animal performs actions based on the specific situation. When the action producing the needed result is found, this form of behaviour is fixed and conditioned reflex is established.

As more and more highly organised animals appear, the significance of mental activity as a regulator of behaviour increases and so does the significance of the brain, the organ which controls uninherited forms of behaviour. A frog which has had the cerebral hemispheres excised continues to behave in the same way as before the operation. A pigeon, however, although it can still fly and keep its balance well after a similar operation, cannot properly react to stimuli and would not even feed. As for a dog, such an operation disables it completely. This shows that the brain plays an ever greater part as the internal organisation of animals becomes more complex.

§4. Labour, Language and Thought

Modern science has established that there is much in common between the nervous and mental activity of man and animals. Certainly, appreciable distinctions between them have also been found to exist. So what are the distinctive traits of human mentality, of *consciousness*?

Scientific data obtained in the 20th century conclusively confirm the truth of the Marxist proposition that man raised himself out of the animal world thanks to labour. Numerous excavations have yielded evidence that stone implements were fashioned back in the palaeolithic period (or the old stone age), when ape-man evolved. That led to the transformation of the animal herd into a social community and the emergence of *language*. At the close of the palaeolithic period, about a million years ago, primitive man, or Neanderthal man, appeared. Excavations at rock-shelters in which Neanderthalers lived have shown that they made stone adzes and pigmy tools from flint flakes. Later, in the middle palaeolithic period, when they began to hunt large animals together, Neanderthal men learned how to make flint spear tips, daggers, knives, scrapers and bone implements. The body proportions of this species and size of skull are similar to ours.

But the vault of the skull is low, and the thigh and lower and upper arm bones are curved. With the development of labour and implements in the later palaeolithic period, the primitive human herd of the Neanderthalers give way to the primitive communal society of Cro-Magnon men, who do not significantly differ physically from recent man and possess intellect of the simplest kind.

An animal's mode of life, habits and mentality are determined by the *natural* conditions, i.e., by its own nature and by the environment. Man, however, is a *social* being. His mode of life, activity and mentality are almost entirely determined by the kind of society in which he lives. Certainly, the emergence of labour, society and specifically human mentality (consciousness) was accompanied by essential changes in the structure and functions of the brain and nervous system in general, which, in man, have some distinctive qualities, not found in animals. Still, an infant's nervous system, though indispensable, is not yet a sufficient condition for consciousness. The mentality of a child growing up in isolation from human society does not rise above an animal's, and will develop into consciousness only if the child interacts with other people, i.e., society.

To be able to fashion and use implements and kill large animals, primitive men had to act jointly and circulate information of ever greater variety and scope. The advantage of common effort was two-fold. Not only did it make feasible that which was beyond the possibilities of single individuals, but it enabled the information picked up by single individuals to become accessible to all. Yet, to be accessible to all, information must be equally understandable to all. And, if it is of a multiple nature, then the signal conveying it must clearly be such as to indicate not unique but diverse phenomena that possess, at the same time, such common characteristics as must produce a uniform response in every member of the community. Then what information should such a signal convey? Different individuals may have more or less identical sensuous images and notions of similar things only if they have observed the latter under identical circumstances. If the circumstances of observation appreciably differ, so will the sensuous images differ with different individuals. The signal must, however, be common to a class of things, as well as to all those involved in a common effort. Hence, the information conveyed by a signal is not a sensuous image but a concept, a general idea; and the signal itself is a word by which the idea is expressed. Lenin wrote: "Every word (speech) already *universalises*. . . ."[1]

[1] V. I. Lenin, *Collected Works*, Vol. 38, p. 274.

The concept of a tree, for instance, contains no reference to its height, girth, shape, foliage, vertical or horizontal position. To imagine a tree devoid of size, shape and position is impossible, for nobody has ever seen it. Only a word, which is uttered and perceived as a signal reflecting the characteristics common to trees in general, makes the concept possible. No concepts or ideas could arise without the material phenomenon–a signal which, in the present instance, represents a combination of sounds, i.e., language. "Language is as old as consciousness."[1]

That concepts cannot be formed even by highest (Anthropoid) apes is obvious enough from the following example. By imitating people, a chimpanzee learned to get bananas surrounded by burning candles. He turned on the tap, filled a mug full of water and extinguished the candles. He could also cross a pond using a raft and pole. Once, when he was brought to the pond, there was a raft with a pole at the bank, while in the middle of the pond there was another raft with some bananas on it. All round the bananas were lighted candles, and beside them stood the familiar mug. The chimpanzee got on the first raft and reached the other raft. Picking up the mug,

[1] Karl Marx, Frederick Engels, *Collected Works*, Vol. 5, Moscow, 1976, p. 44.

he got back to the bank, ran up to the tap, turned it on, filled the mug and hurried back to the pond with it, intending to put out the candles with the tap water. He proved incapable of abstracting from the distinction between water running from the tap and water in the pond and form the image of water as such. Yet even a five-year-old, when it uses one word to describe that which runs from the tap, that which fills a pond and that which falls from the sky as rain, has the notion of water as such.

Man's capacity to think is one of the principal qualities distinguishing human consciousness from the mentality of animals.

An animal pays attention only to such things in its surroundings which relate to the satisfaction of its needs. It is incapable of catching the varied interactions of objects, i.e., of grasping the laws to which the latter are subject.

It is quite different with man. His ancestors could already use one object (unsuitable for immediate consumption, e.g., a stone) to act on another so as to obtain yet another object, an implement, which equally would not be able to satisfy a biological need. An implement cannot be fashioned from just any kind of stone but only from hard and durable stone, which must also be workable. The fashioning stone, too, must meet certain requirements. The fashioning requires a specific technique, and the implement must be of a specific shape. Haphazard strokes and just any shape would be to no purpose. To kill the game, the implement must be applied in a certain way. It is a chain in which every link is connected with its neighbours in a specific manner. So that they could work, our ancestors had to find out about these interconnections and relations. Consequently, the latter had to be correctly reflected by the mind. Actions, both fruitful and fruitless, were repeated thousands of millions of times, and in the course of hundreds of millennia there gradually began to form the habit of relating the reflections of objects in the mind in the same way as they are related in nature.

This habit involved not only sporadic phenomena, but also such as occur everywhere and always. For example, "if an object is harder than a second object and the latter is harder than a third, then the first object is harder than the third". Or, "if an object is inside a second object and the latter is inside a third, then the first object is inside the third". Thus, man learned to infer the unknown from the known, the unobserved from the observed, and that which is to be from that which is. Thanks to this capacity, engendered by labour, our ancestors arrived at this train of *reasoning*: if I bring one kind of stone to bear on another, I shall obtain an object with which, by using it in a certain way, I shall be able to kill a certain kind of game.

Animals' activity consists in their adapting themselves to the environment. In doing so, the former certainly affect the latter. The destruction by starfish of more than 350 square kilometres of the Great Barrier Reef, off the north-east coast of Australia, from 1966 to 1969 is but one example of this. Nevertheless, such changes are unintentional and, as often as not, harmful to the animals that have brought them about. Human activity, *labour*, on the other hand, consists in man's adapting nature to himself by completely refashioning things, so as to make nature serve his own needs. This was reflected in the mind by way of a substantial remodelling of perceptions and notions, emergence of concepts, deductions–in short, of *ideas*. To conclude, one of the principal qualities differentiating human consciousness from animal mentality, i.e., thought, owes its rise to *labour* and *language*.

Let us note also that in human labour, unlike animal activity, the creation of a new object, e.g., an implement, is preceded by an image of it. To form such an image merely from the correlation of sense-perceptions and representations is impossible, as sensuous images reflect nothing but the objects previously observed. A new implement is, however, an object previously unobserved.

Useful information acquired by a generation of animals is transmitted to the next only biologically, being embodied in the genetic code, i.e., by heredity. Hence the extremely slow evolution of animal species other than man. In human society, however, information is passed on from generation to generation with the help of language and is objectified in implements and other articles of material and spiritual culture. And this enormously speeds up the rate of progress.

§5. Subject and Object in Consciousness

It has been shown by scientists in the Soviet Union and other countries that both the environment and the animal's physical condition, mental experience, reactions and their results, have an effect on the animal as an integral whole, an entity existing at each given point of time. In this entity, according to the observation of Henri Wallon (France), the "subjective and objective factors form an indivisible unity".[1]

As it does not single out either the environment or itself from this situation, the animal

[1] Henri Wallon, *De a l'acte à la pensée*, Paris, 1942, p. 17.

does not mentally reflect the relations between itself and the environment. Thus, "...the animal does not *'relate'* itself to anything ... for the animal its relation to others does not exist as a relation".[1] Both the animal's orientation activity, aimed at finding the most suitable tactics, and retention of the method hit upon reflect merely the unity of the surroundings, the animal's state, its response and the end result in a definite situation, whereas man, in the process of labour, masters some connections of the external world, and some connections between his own and other workers' efforts. Ever since our ancestors began to master those connections, the latter were reflected increasingly in man's mind. The ability to discriminate between the reflections of the environment and of oneself (and so of the relation between oneself and the environment) was especially important in this respect. In its turn, the reflection of the environment became dissected into images of things, people, their actions and relations, the reflection of oneself—into images of one's own body, its parts and their interactions, and, lastly, into images of one's own conscious experience. Relations between these images, as they exist in the mind, reflect the relations between their prototypes,

[1] Karl Marx, Frederick Engels, *Collected Works*, Vol. 5, p. 44.

as they are in reality. In this way, the animal's mentality is transformed into human mentality, i.e., *consciousness.* "Consciousness is at first, of course, merely consciousness concerning the *immediate* sensuous environment and consciousness of the limited connection with other persons and things outside the individual who is growing self-conscious."[1]

Man owes his capacity to detach himself from the environment to social relations above all. To be able to separate from the situation all that which belongs to him alone and become conscious of himself and his attitude to external existence, man must associate with his fellow-creatures, with whom he establishes relations in the process of labour.

If it is true that the consciousness of self and a conscious attitude to the external world is what fundamentally distinguishes human intelligence from the animal's, it is no less true that man's capacity to think about his own ideas, sensations, feelings, strivings, etc., is of equal significance. The ideal phenomena that occur in the mind itself are reflected in consciousness as well as what happens in the environment and man's own body.

Consciousness is capable of imaging itself, of being a "reflection of a reflection". As I

[1] Karl Marx, Frederick Engels, *Collected Works,* Vol. 5, p. 42.

recall the impression made on me by the snow which covered the top of a mountain I saw from a distance, I think of my own perception. As I analyse the opinion I have formed of somebody I met yesterday, I think of my own thoughts. As I do it, I am aware that my perception is but an approximate reflection, and the snow may well be not such a pure white as it seemed to me from afar; and I realise that my judgement of the man I met yesterday is only an approximate reflection of what he may prove to be in fact. Man's consciousness reflects not only relations existing in the external world and relations between himself and the external world, but also the relations between his own sensations, representations and concepts on the one hand, and the things whose reflections and copies all of these are, on the other. Man correlates the mental images he forms and their archetypes as copy and original.

While acting under the influence of its needs and psychological responses, the animal is not aware of the latter, as it has no mental capacity of "self-reflection". Man, too, may have motivations (e.g., attraction or repulsion) he is utterly unconscious of, although his behaviour may be greatly influenced by them. Still, man is aware of many of his needs and aspirations as goals which he sets himself and consciously pursues.

In man, the capacity for reflection, which animals also possess, is carried to a much higher level.

The formulation of a goal and elaboration of a suitable plan of action proceeds in the aforementioned way, whereby external objects and their relations, the conscious individual and his attitude to the objects are all reflected in the mind. These reflections represent a sort of substitute, or model, of objects and connections. Man can mentally use these substitutes (models) in much the same way as he would handle their material originals, had he to deal with the matter practically. Before taking any practical steps, which may or may not help him achieve his purpose, he can mentally rehearse his actions, as it were, so as to see what their results may be, and select the best plan of action.

§6. The Highest Known Form of Reflection

For all its peculiar character, reflection of the world in the human mind is merely another stage in the development of the forms of reflection existing even before man. Demonstrating that the higher animals' behaviour shows the simplest forms of disintegration of an unfamiliar object into components (analysis), combination of things and actions to achieve a goal (synthesis), and what Pavlov was later to term orientation activity (a kind of experiment), Engels wrote: "The basic features of the method are the same and lead to the same results in man and animals, so long as both operate or make shift merely with these elementary methods. On the other hand, dialectical thought–precisely because it presupposes investigation of the nature of concepts themselves–is only possible for man. . . ."[1]

Thus, before human consciousness had evolved, its moderately developed prerequisites already existed in animals. Animals could form subjective images of the objective world (sensations, perceptions, representations) and have a fairly wide range of feelings long before men appeared. Therefore the separation of subject from object was nothing fortuitous. Man's mind anticipates reality by years and decades. But anticipatory reflection, though extending over smaller periods, is what other organisms have too. Generally speaking, all characteristics of the human mind, i.e., consciousness, are due to society. But human society did not spring out of nothing either; it developed from the animal herd.

All these facts must be borne in mind if we are to fathom–as Engels wrote–"the pre-histo-

[1] Frederick Engels, *Dialectics of Nature*, p. 223.

ry of the human mind, for tracing the various stages of its development, from the simple protoplasm ... of the lowest organisms right up to the thinking human brain. Without this prehistory, however, the existence of the thinking human brain remains a miracle."[1]

Idealists maintain that consciousness is an inexplicable property of the mysterious immaterial "soul". However, anthropology, neurophysiology, neuropathology, zoopsychology, and other sciences have shown that this contention has not a leg to stand on. *Cybernetics* has been particularly effective in disproving the idealist conception of consciousness and provides scientific evidence in support of the dialectical-materialist view. This science deals with automatic control and communication mechanisms in diverse systems, such as a machine, a complex of machines, an organism, a plant or animal species, man and, finally, society. On the basis of cybernetics, devices have been developed which can receive, store, analyse, retrieve and transmit information. Self-teaching systems, biomedical disease-diagnosing computers, etc., have been developed. Both the theoretical results of cybernetics and results obtained with the aid of computers prove the unity of the reflectory processes in animate and inanimate world, at premental and mental levels,

[1] Ibid., p. 197.

in man's nervous system and society's economic system.

All these scientific achievements of the 20th century forcefully confirm Lenin's idea that, apart from the question as to whether the ideal or the material is primary, "the difference of the ideal from the material is also not unconditional. . .".[1] For, besides the difference between them, the material and ideal phenomena are similar in that in both there occurs, as the result of the action of some material objects on other material objects, *reflection* of the former in the latter, the reflection which lies at the very root of matter. Consciousness stands out merely as the highest of the known forms of reflection, as the supreme product of matter, as "a function of that particularly complex fragment of matter called the human brain".[2]

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[1] V. I. Lenin, *Collected Works*, Vol. 38, p. 114.
[2] Ibid., Vol. 14, p. 228.

Chapter Seven

LAWS OF MATERIALIST DIALECTICS

§1. What Is a Law?

In 1911, Ernest Rutherford, a British physicist, calculated how alpha rays would be scattered by an atom of gold, should its nucleus be a point object, and how they would be scattered, should the nucleus be larger than that. Then he exposed a thin foil of gold to the action of alpha rays. The scattering indicated that the atomic nucleus has a diameter of roughly one thousand-millionth of a millimetre, i.e., that the atomic nucleus is a point object. The discovery worked a revolution in the views on the structure of the atom. No doubt, Rutherford could repeat his experiment as many times as he liked. But his discovery, the connection between his calculations, experiments and conclusions, was absolutely unique. Rutherford could no more re-discover what he had once discovered than be born once again.

Yet the unconditioned reflex (e.g., the involuntary blinking of the eye when an object appears suddenly right in front of it) implies a relation repeated many times not only during the lifetime of any one person, but throughout hundreds of generations of men.

Thus, some relations occur only once and some are repeated. Moreover, they may be essential and inessential. For example, hydrogen and nitrogen combine to make ammonia only at definite pressures and temperatures and in the presence of a catalyst accelerating the reaction. The relation between them is essential to the making of ammonia.

As for inessential relations, it must be borne in mind that those which may be inessential in one respect may prove essential in some other, and vice versa.

There may also be chance and necessary relations. How long an animal may live depends on the circumstances of its birth and life. The relation can be multiform. It may be such that the animal will live merely a few hours or days, or it could be such that the animal will live several decades. These are relations which may or may not occur, depending on the circumstances, and, in this sense, we may call them chance relations. But whatever the circumstances of an animal's birth and life, it must die sooner or later. Death is inevitable, and in this sense, the relation between birth and death is a necessary one.

Different relations are of varying significance to the understanding of all that occurs both outside and within us, as well as to the success of our activities in any field. The most significant are those which are *recurring* (i.e., common to many things and processes), *essential* and *necessary*. Such relations are called *laws*. A law is a relation which persists as long as phenomena subject to it persist (regardless of any change they may undergo during that time).

The laws of physics, chemistry, biology, history, political economy, and all scientific laws in general, are mental reflections of the laws governing the development of nature and society, which themselves are *recurring, essential and necessary relations* existing independently of the mind and discovered by men as they investigate nature, society and thought.

We have already mentioned that, as it draws general conclusions from the findings of particular sciences and from scientific laws concerning separate aspects of reality, dialectical materialism arrives at the *most general laws*, called the laws of dialectics. Let us see now what they are.

§2. The Law of Transition of Quantity into Quality

The ancient Greek philosopher Heraclitus (530-470 B.C.), whom Lenin called one of the founders of dialectics, said that *everything is always changing and always moving*. This is how he illustrated his idea. When you step into a river for the second time, water has already flowed downstream, so you are actually in different water. Hence, you cannot step into the same river twice. Cratylus, a disciple of Heraclitus, went even further. He said that you cannot step into the same river even once, for even as you are immersed into the water it keeps flowing, and your foot is in different water every instant. Generally, said Cratylus, you cannot make a true statement about anything because even as you are uttering the words the thing you are talking about disappears, giving way to something else. Thus, whatever you may say can only be false.

At first sight, this statement seems a mere quibble. But a closer examination reveals that it follows naturally from a definite conception of change and motion.

According to Cratylus, change is the disappearance of the old and appearance of the new. From this standpoint, an impassable gulf lies between water that flowed downstream a moment ago and that which has taken its place. How should change appear to a consistent adherent of this view? He should see a fantastic vision like this: a cloud floating before his eyes is displaced in a flash by a spreading oak, a sleeping kitten, a crag, a dancer, and so forth, all coming in quick succession.

That was, of course, an exaggeration. But the view on change as the final disappearance of some objects and sudden appearance of others essentially implies that every object exists but for a moment, perishing almost as soon as it has appeared. Could anyone say anything about such an object, which would be consistent with its real nature? Certainly not. Were change indeed as Cratylus conceived it, no true statements would be possible at all.

But it is not so in reality. Although material objects are in a process of change, they do not disappear at once but persist for varying lengths of time. Whereas a cloud's existence is comparatively short, the age of a cliff runs into millions of years. The mass of water or ice particles we call the cloud does not spring out of nothing; it results from condensation of vapour. Nor does it turn into nothing when it disappears. And so it is whenever anything appears or disappears. Therefore, to think that *every* change implies the destruction of one object and the appearance of another can only be erroneous.

The contrary view is that no changing object disappears. So, for instance, the Ganges, for all the changes it has undergone, is still the same great river of Hindustan as it was hundreds of thousands of years ago, and as it will be hundreds of thousands of years hence.

Now let us take the view in direct opposition to Cratylus, i.e., that *every* change is a change in what was, is and will be, and check it against scientific evidence.

By using a microfilm, the division of a living cell (which in the human body takes from one to two hours) can be observed. As it divides, the cell undergoes a number of vital changes such as the halving of chromosomes, fission of the content of the cell, etc., but the cell still retains its identity. There then comes a point where these gradual changes end. The old cell disappears and two new ones appear.

It is the same with plants. Buds develop gradually, undergoing changes imperceptible to the eye, and up to a point they are still buds. Then the gradual development is interrupted. The buds break and the tree is suddenly covered with foliage. A seed is a living body in which metabolism and other processes go on all the time, and often for a very long time. Yet, regardless of all these changes, a seed remains a seed until the moment when a leap takes place. The seed coat breaks and the embryo begins to sprout. The seed is replaced by a plant which did not exist until then.

Consequently, it is erroneous to say that *every* change in a plant or an animal implies the disappearance of something that did, and appearance of something that did not, exist before the change. It is, however, equally wrong to say that *every* change in plants and animals is merely a change in what did, does and will exist. As a matter of fact, both kinds of changes occur—the change in what existed and continues to exist (it never stops) and the change which represents the destruction of old and appearance of new objects (i.e., a break in continuity, a leap).

Botanical and zoological evidence proves both Cratylus and those of the diametrically opposite opinion to be wrong.

At this point, it is appropriate to recall the processes in inanimate nature already mentioned, which also present a unity of change in the old and the appearance of the new. No matter how one or more particles move about in space, these processes are still mechanical and reversible. But as soon as the number of chaotically moving particles attains a high enough level, a new form of motion appears, viz., heat processes, which are irreversible.

This holds of society as well. Contrary to the reformists, who claim that capitalism may turn into socialism through a series of gradual changes, the latter merely prepare the ground for socialism which emerges only after a revolution, a break in continuity. Of course, exploitative capitalist society persists from the time the capitalist productive relations become predominant till the moment they are abolished by a revolution. It undergoes continuous significant changes along with the growth of its productive forces, concentration of capital, etc. Nevertheless, this all serves to aggravate the contradictions inherent in capitalism and intensify the class struggle. Only a break in continuity, a revolutionary upheaval, dislodging the bourgeoisie from government and taking the principal means of production out of their hands, can end capitalism and bring forth a new society based on public ownership, in which power is taken by the working class led by its party, and exploitation of man by man is finally abolished.

We have already mentioned the valuable contributions to knowledge made by philosophy and the natural and social sciences in the last quarter of the 18th century, and especially the first half of the 19th century. Over that time, the findings of both the individual sciences and philosophy underwent appreciable change. But the middle of the last century was the turning point in mankind's intellectual progress. Marx and Engels, who had critically refashioned and drawn general philosophical conclusions from knowledge already gained by mankind, evolved a new doctrine, quite different from all previous philosophical theories.

It was a break in continuity, a revolution in the development of human thought, marked by the appearance of a philosophical doctrine unparalleled by anything in the past.

It was in exactly the same way that the continuous change in the natural sciences had paved the way for a leap, a revolution in our views on nature.

Therefore, gradual change, whether in science or society, causes the destruction and disappearance of the old and an abrupt break in continuity, the appearance of the new.

The disappearance of the old and the appearance of the new are described in philosophy as *qualitative changes.* All other changes, whereby different parts or aspects of an object become re-arranged, increase or diminish while the object retains its identity, are described in philosophy as *quantitative changes.*

Relative to all the changes suffered, for instance, by an animal during life, birth and death represent qualitative changes. And relative to an animal's birth and death, all the changes it may undergo during life are quantitative, as all that time it remains itself.

Qualitative changes may be of two forms: (1) "something did not exist, but now it does", and (2) "something existed but now it does not". Quantitative changes, on the other hand, are infinitely diverse, e.g., "larger–smaller", "more–less", "more often–more seldom", "faster–slower", "warmer–colder", "lighter–heavier", "worse–better", "poorer–richer", and so on.

Today, you would hardly find anybody sharing Cratylus' point of view, but there are plenty of people sharing the diametrically opposite, if equally metaphysical, point of view. These people argue that it only seems to us that there occur breaks in the processes going on in the environment and in the mind, and that on thorough examination we must see that things never stop changing. For should a process be interrupted, it could not be resumed without outside assistance any more than a broken eggshell can become whole again, unless somebody comes along and glues its broken edges together.

Let us, for the moment, agree that change is always continuous. It will appear then that a growing poplar, for example, is in a state of continuous change. The poplar sprout turned into a mature tree continuously, just as the seed turned into a sprout, the flower into fruit and seed, and the bud into a flower. The transformation of a little into big poplar is undoubtedly a continuous change, for, big or little, it is still a poplar. But if the transformation of the seed into the little poplar also is a continuous process, then there must be a diminutive poplar in the seed; and if the transformation of the flower into fruit and seed is a continuous process, then there must be infinitesimal seeds, and so infinitesimal poplars, in the flower. Because, after all, a poplar may change continuously only while it exists, no matter what its size. The changeover from "non-poplar" to "poplar" cannot be continuous because the disappearance of that from which the poplar sprout has formed, i.e., the seed, amounts to a break in its (the poplar's) development.

Another argument advanced in support of the metaphysical view that gradual change knows no interruptions is this. All stages of motion are related as cause and effect and are therefore continuous. All motion is therefore continuous. If we accept that there is a break, a gap between stage A and stage B, we must admit that they are not connected, whereby stage B has no cause. Yet to accept that something may exist without cause is to believe in miracles. Hence, leaps or breaks in continuity are impossible.

To answer this, we must say first of all that interruptions of continuity, leaps, do not occur without any connection with the preceding stage of motion. A leap is always prepared and caused, i.e., causally determined, by previous continuous motion. Thus, the birth of a living being is prepared and caused by the essential changes in the embryo during pregnancy. A social revolution is prepared and caused by sharpening conflict and mounting class struggle. A revolution in science is caused by the accumulation of knowledge.

On the other hand, the leap itself determines the character of subsequent continuous motion. The character of all vital processes and the rate at which they proceed in the embryo and the newborn are utterly different.

Diverse aspects of people's life in society develop after a revolution in a manner quite different from that before the revolution. The trend and rate of the progress of knowledge before and after a revolution in science are altogether different.

Thus, there is a close connection between a leap and what comes before and after it. Continuous changes cause a break and that, again, causes continuous change.

It must be noted that the leap does not occur at random but only when continuous change reaches a limit which is definite for every given process. How exact the moment is for a victorious revolution is sufficiently clear from Lenin's letter of October 24 (November 6), 1917, which concerns the uprising. Lenin wrote: "...the matter must be decided without fail this very evening, or this very night. History will not forgive revolutionaries for procrastinating when they could be victorious today (and they certainly will be victorious today), while they risk ... losing everything.... To delay action is fatal."[1]

Science also becomes ripe for a revolution at quite a definite point. As accumulated knowledge was leading up to the need to create rel-

[1] V. I. Lenin, *Collected Works*, Vol. 26, p. 235.

ativity theory, both Poincaré and Langevin, independent of each other, were approaching the discovery. If Einstein, who realised the need for a thorough revision of some physical notions sooner and better than others, had not worked the revolution in science, it would have been brought about–perhaps later and differently–by the efforts of other scientists, because it had become absolutely necessary. Einstein himself was actually of that opinion.

Thus, continuous change develops up to a limit determined by the nature of each process, after which a leap inevitably occurs. The limit beyond which continuous change is interrupted is described in philosophy as the *measure.*

And now let us see if a break in continuity does indeed imply a rift between adjacent stages of development, as metaphysicians would have it. Take an animal, a dog, for example. The changes it undergoes during its life are continuous only with respect to two breaks, i.e., birth and death. In other respects, however, some breaks, or leaps, occur during the dog's life as well. The first of them is the attainment of physiological maturity (at eighteen months to two-and-a-half years old). In turn, the changes a puppy undergoes in that period are continuous only with relation to two breaks between which the changes occur, i.e., between birth and physiological maturity. In other respects, there are breaks in that period too. Moreover, if we subject the animal's birth itself to a detailed examination, we shall see that this leap, this break, does not occur instantaneously but is of a certain duration and consists of a succession of continuous changes and leaps. Each of the latter, lesser leaps, so to speak, consists of still other continuous changes and related leaps, and so on.

Every continuous change in nature, society and thought is such only with respect to its "own" breaks or leaps. But at a deeper level, continuous change consists of special continua and special leaps. Equally, every leap is such only with respect to its "own" continuous changes. The leap itself has an infinitely complex structure. It comprises continua and leaps, which also comprise continua and leaps, and so on. Change is continuous only with respect to its "own" breaks, its own beginning and ending. But in other respects it contains breaks. In other words, there is no such thing as absolute, "pure" continuity. A leap, or a break, is such only with respect to the change whose continuity is broken by it. In other respects, however, the break itself contains continuous changes. It is not an absolute, "pure" break, but an inexhaustibly complex process, all the stages of which are causally related.

The dialectical tenet that continuous quantitative changes, upon attaining *measure*, cause abrupt qualitative changes which in their turn determine the character of the further continuous quantitative changes is called the *law of transition from quantity to quality and vice versa.*

This law plays an essential role in man's practical activity. Thus, it is known that engineers and chemists concentrated for a long time on evolving new methods of working diverse materials so as to make them meet the ever growing requirements of industry and everyday life. There came, however, a point where this continuous improvement of the methods of working natural materials, combined with other changes in science and technology, brought about a leap, a qualitative change in that particular sphere. Today, in the 20th century, especially in its latter half, whenever new demands are made on materials, engineers and chemists, rather than try to evolve new methods of processing available materials (which often would not answer the purpose anyway), develop synthetic materials with predesigned properties answering a specific need.

To quote an example from another sphere. Guiding themselves by the law of the transition of quantity into quality, revolutionaries reject not only reformism, but the anarchism of adherents of the ultra-left, who fail to realise the utmost importance of continuous development of the revolutionary movement, involving an ever larger proportion of the masses and paving the way for the revolution which will take place, not at the will of a handful of people, but only where and when the necessary conditions mature.

Thus, to ensure the success of any kind of activity, whether industrial, social or scientific, we must closely observe the processes we have to deal with, not miss the point where the continuous quantitative changes are superseded by a break in continuity, and be able to modify our proceedings accordingly.

§3. The Law of Negation of the Negation

The tender seedling sprouting from an acorn, a mere twig which anything, it seems, can easily destroy, grows, down the centuries, into a monumental tree inspiring awe at its great strength and the complex organisation of its root system, trunk, bark, branches, leaves and flowers.

How puny, short-lived, fragile and primitive vis-à-vis their organisation and behaviour were the first unicellular animals which originated more than a thousand million years ago, and how much more complex and durable is the anatomy, physiology, psychology and behaviour of recent highly-organised mammals (e.g., dogs or monkeys).

Similar things may be observed at every turn.

The helpless infant becomes a vigorous, intelligent person, an expert capable of tackling tasks of great complexity. And what a vast distance indeed there is between primitive society, almost entirely swayed by the forces of nature, and modern society which makes these forces, including atomic energy, serve man, and creates seas, forests and artificial Earth satellites. Our far-reaching, all-embracing, fast-advancing knowledge, too, is a far cry from the primitive beliefs of our cave-dwelling ancestors. This progress from lower to higher forms consists, as we have seen already, in an endless succession of stages, essentially distinct from each other.

How then does one stage change into another?

Exposure to a temperature of several thousand degrees Centigrade will cause the destruction (negation) of an amoeba. The next stage in its development will not take place, i.e., life will end and will give way to physico-chemical processes of inorganic nature. On the other hand, the method whereby the developmental stages replace one another (the method of negation), which is intrinsic to the amoeba, consists in division (which occurs under specific conditions) resulting in the emergence of two new amoebas in place of the original one.

An acorn, when consumed by an animal, is destroyed; although its negation contributes to the animal's further growth, its own intrinsic development ends there. Had it been allowed to proceed stage by stage according to its intrinsic method, it would have turned into the sprout of an oak.

The succession of developmental stages proceeding in accordance with the laws inherent in the given object (but not such as results from the intervention of external forces destroying the given form of motion) is termed *dialectical negation.*

How does dialectical negation work? If you dig the ground under an oak seedling, you will find no acorn there. What has become of it? Like most green plants, the oak builds its body from the substances it draws from the soil (via its roots) and from the air (through its leaves, which contain chlorophyll). When a new plant is about to emerge, there are yet neither roots nor leaves. The first little green leaves and roots are formed from the material contained in the acorn. The protective outer coating decomposes and has no part in the new plant, but the embryo and the food by which it is surrounded turn into a sprout. No sooner does a tiny root appear than it gets busy extracting from the soil the substances helping to build the plant while the first green parts of the shoot begin at once to assimilate from the air the substances which go to build the body of the sapling. Therefore the plant replacing the acorn contains both the substances that were contained in the acorn and the substances that were not contained in it. The same may be said of the oak which will grow from the sprout. The young oak will be like its parents in many respects, but owing to the unique circumstances under which it has formed and developed, it will not inherit some of the parents' characteristics, while it will acquire some that the parents did not have. Dialectical negation consists in the fact that something of the stage which is negated is lost, something becomes part of the new, negating, stage (although in a modified form), and something entirely new is added.

All three elements are also present when a breed of animals disappears and another breed appears in its place.

In examining an enormous range of plant and animal species which replaced one another over hundreds of millions of years, palaeontologists have not discovered a single instance of re-emergence of an extinct species. In nature, nothing is ever completely repeated. Although later species possess some features of earlier, extinct species, they always lack some of their predecessors' characteristics while possessing other features absent in their predecessors.

Scientific evidence utterly disproves the metaphysical view that development amounts to a repetition of identical cycles, always return-ing to the starting point, i.e., that development moves in a circle. An individual living organism does not develop in a circle. Certainly, when from an acorn there grows an oak of the same kind as its ancestors, that is, in some respects, a return to what already existed. But in some respects the new oak differs from its ancestors. Indeed, should it be an exact repetition of them and should they, in their turn, have repeated every characteristic of the previous generations, oaks would exist forever. Yet it has been established beyond any possible doubt that there was a time when not only oaks but the species they have replaced did not exist. Some species disappear and other ones appear precisely because every organism, while it inherits much from its parents must also differ from them in some way. As such variations accumulate over long periods, old species are replaced by new.

When a new stage in society's development comes, it does not mean that all the people, technology and science pertaining to the old formation have disappeared. If it were so, no new stage in society's development would take place. In order that it can take place, it is necessary (1) to abolish the obsolete social order, together with both the state system which protected it, and the ideology which sanctified it; (2) to make the members of the old society part and parcel of the new society (the role of different classes being essentially changed) and utilise the industrial, technological and scientific advances of the previous stage; and (3) to create, on the basis of progress in science and technology and on the basis of a new ideology, qualitatively new relations of production and a new state system, and raise the productive forces to a new, higher, level.

Thus, no stages in the process of development are eternal; each stage disappears sooner or later, being negated by each following stage, and so on. Dialectical negation (i.e., a succession of stages of development, proceeding in accordance with the objective laws inherent in a given object or process) does not consist merely in the disappearance of some obsolete features of the stage which is negated, but implies, as well, the retention of some of the features of that stage and emergence of entirely new features which never existed previously. For these reasons, the succession of developmental stages is progressive. Although no stage is ever completely repeated, some features of earlier stages necessarily recur—although in a different form—at later stages, in consequence of which development proceeds in a spiral. All the above-mentioned peculiarities of development are called the *law of negation of the negation.*

When, after throwing off the colonialist yoke, a country starts building the new life, its people must certainly abolish all vestiges of oppression, eliminate entirely the sorry aftermath of imperialist rule and sweep out all anti-popular practices and institutions holding back national development. Nevertheless it is certainly necessary to preserve the buildings, enterprises and educational establishments which were constructed under colonialist rule, and place at the service of the people that which formerly served its oppressors. It is necessary to preserve, build up and use for the people's benefit the scientific knowledge acquired under colonialism by a small proportion of the oppressed people. But, apart from that, a people having embarked on independent development must create in the social, public, economic and cultural spheres of their country's life much that is entirely new, that was never heard of before. In this situation, therefore, all three features comprising the law of negation of the negation can be found.

§4. The Law of Unity and Conflict of Opposites

What causes a thing to move, to develop? Why does it change?

Why, for instance, is that nut rolling along the ground? It has been shaken off the branch by another branch which broke off and fell on it. The branch was broken off by a stone suddenly rolling down the hillside. The stone was tumbled from its place by a landslide which was started by a sudden gust of wind. This sequence could be prolonged indefinitely. Observations of this kind suggested to philosophers the idea which was formulated by Baruch (Benedictus) Spinoza, one of the most prominent materialist philosophers of the 17th century, who wrote that whether a body is in motion or at rest must be determined by another body, whose motion or rest is, in turn, determined by a third body, and that by yet another body, and so on to infinity.

The proposition that every object both begins to move and stops moving only under the impact of another object is closely associated with the one that opposite properties, characteristics and tendencies, e.g., motion and rest, cannot be combined in the same object at the same time. A moving object cannot simultaneously be at rest. If it is at rest, it is clear that it is not moving.

These two propositions must be the sole intelligent explanation of the causes of motion, of development. Such was the conclusion arrived at by nearly all noted philosophers and scientists of the 17th-18th centuries.

Indeed, when we try to understand how different objects are organised, examining them "each one by itself, alongside and after each other," we, as Engels observes, "do not run up against any contradictions in them. We find certain qualities which are partly common to, partly different from, and even contradictory to each other, but which in the last-mentioned case are distributed among different objects and therefore contain no contradiction within."[1]

Naturally enough, when looking into the structure, qualities and specific characteristics of objects, scientists first of all discover contradictions between things rather than within individual things. Nevertheless, when they begin to investigate the processes going on in a body and the connections between it and the external world, they are confronted with an essentially different situation.

As they are examining a living organism, for instance, paying close attention to what is going on within it, scientists discover that it is continually assimilating substances from the environment and simultaneously excreting substance into it. Furthermore, these diametrically opposite processes are so closely interconnected that it is enough to prevent a living organism from assimilating certain substances from without for excretion to stop at the same moment, while as soon as an organism becomes unable to discharge certain substances into the environment, it stops assimilating substances from it at once.

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[1] Frederick Engels, *Anti-Dühring*, p. 148.

An analogous situation can be observed in inorganic nature. As long as the atoms of different chemical elements were regarded alongside each other and people did not realise that atoms of one element can be transformed into those of another, opposite physical and chemical properties appeared to be distributed among the atoms of different elements while no opposites were thought to be present inside the atom itself. Since the beginning of research into radioactivity, which has to do with the transformation of atoms, the situation has changed. The atomic nucleus, in which almost the whole of the mass of the atom is concentrated, was found to consist of particles carrying a positive charge, viz., protons. Although, as we know, similarly charged objects repel each other, protons do not fly in different directions but are held together in the nucleus by diametrically opposite forces (so-called nuclear forces) by which the protons are attracted to one another. These opposites, viz., proton attraction and repulsion, are so intimately interconnected that one does not exist without the other. It is precisely this contradiction, inherent in the atomic nucleus, which causes the transformation of atoms.

Everybody knows that by sawing a magnetised bar in half, one does not get two separate poles. Each half will be a magnet with a North pole and a South pole. One can divide each piece into two again, and the result will be the same. One certainly may, if he likes, deprive the magnet of its North pole. For this, one must demagnetise the bar. But when one does this, the South pole will disappear simultaneously with the North pole.

We have already mentioned that a body appears to be either at rest or in motion only as long as we ignore the body's inner workings and its relationship to the surrounding environment. When we take all that into account, we shall find that every resting body is in motion and every moving body is at rest; that rest and motion simultaneously and inseparably belong to one and the same body.

The two laws of dialectics generalising our entire knowledge of nature, society and thought, which we have considered here, show that all motion is a unity of inseparable opposites, viz., quantitative and qualitative changes; continuous changes and breaks of continuity; disappearance of the properties of the stage which is negated and the retention of its properties; recurrence and uniqueness; stability and change. Being aware of the self-contradictory nature of all things and events makes it much easier to discover what causes every object to move and change.

What causes, for instance, the peculiar form of motion we call life?

An organism lives only as long as metabolism continues, which includes two opposite processes, viz., assimilation (i.e., transformation of food into body substance) and disintegration of body substance and excretion of the products of disintegration. When metabolism stops, life ceases. In any plant or animal, metabolism, as Engels wrote, "does not take place as the result of a process to which it is subjected from without. . . . On the contrary, life, the metabolism which takes place through nutrition and excretion, is a self-implementing process. . ."[1], i.e., a process which is *inherent* in a living body.

Depending on the organism's age, the work it has performed, its condition and numerous other factors, either constructive metabolism (assimilation) or destructive metabolism (excretion) may be predominant. Even where the two kinds of metabolism are at close enough levels of intensity (which may occur only for a time) the balance between them is not complete but approximate and relative, the opposition between them does not disappear but merely diminishes.

Thus, life is motion which is not due to any cause external to the organism. The cause that sets the organism in motion is internal. The source of this motion is the interaction of the opposites inherent in it, i.e., assimilation and

[1] Frederick Engels, *Anti-Dühring*, p. 104.

excretion. Even partial, approximate equilibrium between these opposites is possible only for a limited space of time. They are never so completely balanced as to neutralise each other. They are always opposed to each other, as long as there is life in general (and so its source–the conflict of opposites). Hence, life is self-motion.

And now let us look at a society in which the means of production are privately owned and which is divided into classes of the exploiters and the exploited. In the absence of the exploited, existence is impossible for the exploiters for whom would they exploit? And where there are no exploiters there can be no exploited. The struggle between these classes wherever private property predominates is the chief source of society's progress from lower to higher stages, e.g., from slavery to feudalism, from feudalism to capitalism, and from capitalism to socialism. Society is not set in motion by some external force. On the contrary, the force responsible for society's development, i.e., the class struggle, is inherent in society. Therefore, human history is self-motion caused by the conflict of opposite classes in society itself. Even when their forces become more or less balanced, they can still never be completely so.

It would be a mistake to deny the role of external influences which may further or hinder one form of movement or another. Nevertheless, all movement takes its source from internal contradictions, so that the emergence of new contradictions gives rise to a new form of movement, while with their disappearance it gives place to another form of movement for which other contradictions are responsible.

Thus every material or spiritual phenomenon or process is a unity of opposites which inherently belong to it and are inseparable. The source of any object's movement lies in the interaction ("conflict") of opposites which are inherent in it. Therefore movement is self-movement. Opposites can attain only partial, relative equilibrium, and that only for a time; they can never become balanced completely. The disparity, the contradiction between them is always present in varying degrees, being as indestructible as motion itself. The unity, the equal effect of opposites, is temporary and relative, whereas their conflict is eternal and absolute. Such are the tenets of materialist dialectics which constitute the *law of unity and conflict of opposites.* The significance of this law to dialectics is such that Lenin wrote: "In brief, dialectics can be defined as the doctrine of the unity of opposites. This embodies the essence of dialectics. . . ."[1]

Indeed, both the law of transition from quantity to quality and that of negation of the

[1] V. I. Lenin, *Collected Works*, Vol. 38, p. 223.

negation may be regarded as particular instances of the law of the unity and conflict of opposites, which reveals the source of all development.

The following is an example illustrating the significance this law has to the working people's struggle against capitalist oppression. Advocates of the capitalist system allege that the conflict of internal contradictions, i.e, the class struggle, is not a source of the development of society but an obstacle in its way. According to them, strikes, demonstrations, etc., bring factories to a standstill, and so hold back the development of production and of society at large. They say that only with class peace and co-operation between employers and workers can technology advance and production develop rapidly. In fact, however, in all capitalist countries where the working class is well-organised, its economic struggle compels the capitalists to raise wages, reduce hours and improve conditions in one way or another. The capitalists thus have to improve plant, technologies and organisation of production. But, most important of all, the broader and more vigorous the people's movement is, the sooner the revolution comes which abolishes capitalist oppression and raises production and the entire life of society to a new stage of development which capitalism cannot attain.

Chapter Eight

CATEGORIES OF MATERIALIST DIALECTICS

§1. What Is a Category?

The Earth has a satellite, the Moon. Some other planets in the solar system also have satellites, and so do the planets revolving round other stars, besides the Sun. Saturn, for example, has nine satellites, the largest of which is Titan. Being a satellite of Saturn, Titan is thereby one of the satellites of planets in general which revolve round diverse stars. Satellites, in their turn, belong to solid cosmic objects which form merely a part of the cosmic bodies in general. Thus, as we pass from the most narrow to the more and more inclusive of the aforementioned concepts, we shall have a series of concepts in which every following concept is broader than the preceding one, viz.,

TITAN,
A SATELLITE OF SATURN,
A SATELLITE OF A PLANET IN THE SOLAR SYSTEM,
A SATELLITE OF A PLANET,
A SOLID COSMIC OBJECT,
A COSMIC OBJECT,
A MATERIAL OBJECT,
MATTER.

Now let us take another concept, "wheat". Wheat is a cereal, and all cereals are covered-seeded plants having one seed leaf, which, along with the plants having two seed leaves, form the class of covered-seeded plants. The latter, along with the naked-seeded plants, belong to the seed plants, which, in their turn, belong to plants (to which seedless plants also belong). In this case, too, we have a series of concepts ranging from the specific to the more general, viz.,

WHEAT,
A CEREAL,
A COVERED-SEEDED PLANT HAVING ONE SEED LEAF,
A COVERED-SEEDED PLANT,
AN ORGANISM,
A SELF-REGULATING SYSTEM,
A MATERIAL OBJECT,
MATTER.

All concepts of material objects (e.g., the oak, the bee, the biplane) are links in similar series, and the series are linked with one another.

Since wheat is one of the cereals, all the attributes of the latter are included in the concept "wheat", which implies, besides, the particular attributes of wheat differentiating it from all other cereals. The concept "cereal" implies all the attributes of the covered-seeded plants with one seed leaf, plus those which distinguish cereals from the rest of such plants.

It is the same with other concepts, the meaning of the more general concepts being implicit in the more restricted concept, while implicit in the latter also are the attributes whereby the given subclass is differentiated from the other subclasses of the class to which it belongs. Therefore the attributes of an organism are implicit in the concepts of all plants (of which more than half a million species are known) and in the concepts of all animals (of which more than a million species are known). Yet the concept "matter" occupies a special place among the concepts of material objects. Being the most comprehensive, ultimate concept, it is implied in millions of diverse concepts of material objects, animate or inanimate, natural or manmade.

Matter is not the only ultimate concept embracing a vast multitude of narrower concepts. Philosophy is concerned with the following ultimate concepts: matter and mind, motion and rest, the general and the particular, substance and phenomenon, quality and quantity, cause and effect, necessity and chance, possibility and reality, content and form, structure and function, and so on. These ultimate concepts are called *categories.*

Each category embraces an enormous number of narrower concepts, while all categories combine to embrace all concepts at the command of human thought. And, as the content of a category is included in all the concepts brought under it, the apprehension of diverse phenomena and processes in nature, society and thoughts largely depends on what each category is intended to express.

The distinction between categories and other concepts was noted even in antiquity, and philosophers have been arguing about it ever since, advancing different doctrines of categories.

Let us look at Kant's account of categories. Kant stresses that each category, as it unites a multitude of narrower concepts, thereby serves to bring together, reduce to order and synthesise our knowledge; therefore categories are exceedingly important to apprehension. The train of thought he pursued is as follows. When they first found a metal that would not oxidize, men formed the concept "gold". The first voyages round the world produced the concept "globe". Navigators who had reached the Arctic Ocean for the first time, saw huge floating mountains of ice there. Thus, the notion "iceberg" emerged. All ordinary concepts are the result of sense-perception of material things, i.e., they are derived from experience. Therefore they represent knowledge of phenomena of the material world.

Categories, on the other hand, represent a different form of synthesis. Facing an unfamiliar thing, we immediately start looking for its cause and trying to see what is accidental and what is necessary in it, and so on. All contact with things, all experience necessarily involves these considerations. Even before we know the cause of the given phenomenon, we are sure that it must have a cause, as well as both chance and necessary attributes. Hence, according to Kant, we have the idea of necessity and chance, of cause and effect, in a word, of all categories, prior to contact with material things, i.e., prior to experience. From Kant's point of view, categories are not derived from experience but are prior to it, are something, in fact, without which human experience would be impossible.

Kant held that so long as categories–unlike ordinary concepts–are inherent in the mind and are prior to experience, they contain no knowledge about the material world: there is nothing in objective reality corresponding to categories. All categories–necessity and chance, cause and effect, and so on–are conceived merely in thought. It appears, then, that our major concepts, i.e., categories, do not depend on the material world at all, that thought is independent of matter. Proceeding from this idealist point of view, Kant held that categories do not emerge at all, but have been present in human consciousness ever since man appeared. Neither the number nor essence of the categories ever changes. There are as many categories today as there were thousands of years ago, and we understand them now just as they were understood then. Kant asserted further that as necessity is the opposite of chance, it follows that they are mutually exclusive because in combining them the mind would contradict itself, which is logically impossible. The relation of cause and effect and other categories are equally incompatible, being opposites.

Let us look into this interpretation of categories which modern idealists are still using in one way or another. In our daily contact with material things, we have to resort to concepts, e.g., a pulley, an engine, a switch, electric current, a television set, industry, cost, efficiency, oxygen, a germ, the nervous system, and so on. We never derived any of them from experience, having learned them from teachers or books. Moreover, with the exception of discoverers and researchers who may introduce a new concept on the basis of experience, nobody can claim to have derived from experience a concept previously not known. We receive all our concepts from other people. Does it follow from this that these concepts have not been derived from experience but are inherent in the mind and are prior to experience? Certainly not. Even though you and I derived no concepts from experience, others did a very long time ago, and later on still others, drawing on freshly gained experience, amplified, refined and developed them.

Thus, the fact that the concepts we apply in our daily lives have not been derived by ourselves does not in the least mean that they have been derived by nobody at all. If people use concepts already made, that does not prove their non-empirical origin, i.e., that they have not been acquired from experience.

Dialectical materialism has weighty proofs of the empirical origin of all categories. If all categories were present in human thought ever since it began, we should have also found them in the thought processes of primitive tribes. In fact, however, that is not the case. N. N. Miklukho-Maklai (1846-1888), a famous Russian traveller, anthropologist and ethnographer, established, for example, that the Papuans in New Guinea, who were familiar with some categories, e.g., causality, did not know other categories. When bartering their goods, they placed respective items opposite one another, as they did not know how to count. Not only were they ignorant of quantity as such but they had no notion of number. "Counting", Engels wrote, "requires not only objects that can be counted, but also the ability to exclude all properties of the objects considered except their number—and this ability is the product of a long historical evolution based on experience."[1] Scientific investigations proved that many primitive tribes lacked both experience and the notion of number, let alone the knowledge of the categories of quantity or matter.

Secondly, if categories were inherent in the mind, i.e., prior to experience, they would be inherent also in the mind of a little child. As it is, a two-year-old, while possessing a variety of notions, has, nevertheless, no notion of number or quantity. These facts conclusively show that categories, like all other concepts, grow out of men's experience as it progresses from one stage to another, some of them emerging earlier than others, so that their number is not invariable. Of course, a category takes much longer to arise than does a narrower concept. Moreover, this process is still carrying on today. The categories of structure and function, for example, emerge after Kant. Our descendants will undoubtedly evolve new categories on the basis of experience yet to be gained.

Having disproved the idealist point of view that cause and effect, necessity and chance, quality and quantity just do not exist in the material world, and merely our notions of them exist in the mind prior to experience, dialectical materialism has demonstrated that all categories and concepts, "all ideas are taken from

[1] Frederick Engels, *Anti-Dühring*, p. 53.

experience, are reflections ... of reality".[1] The ultimate concepts are different only in that the characteristics of objective reality they reflect belong not to some but to all things and events. Hence the great significance of these key concepts to knowledge. Lenin wrote of them: "Man is confronted with a *web* of national phenomena ... categories are stages of distinguishing, i.e., of cognising the world, focal points in the web, which assist in cognising and mastering it."[2]

Disproving the metaphysical assertions that the categories are invariable both as to content and number, that they have no interconnections, and that opposite categories cannot coexist, dialectical materialism has demonstrated that categories develop, represent a unity of opposites, and that all categories are interconnected, as they reflect different characteristics and aspects of the external world and different processes going on in it. "... If *everything* develops," Lenin wrote, "does not that apply also to the most general *concepts* and *categories* of thought? If not, it means that thinking is not connected with being. If it does, it means that there is a dialectics of cognition which has objective significance."[3] We shall concern our-

[1] Frederick Engels, *Anti-Dühring*, p. 407.
[2] V. I. Lenin, *Collected Works*, Vol. 38, p. 93.
[3] Ibid., p. 256.

selves here with only some of the categories of materialist dialectics, viz., cause and effect, and necessity and chance.

§2. Cause and Effect

In the 18th century, many scientists believed that the ability of bodies to burn was due to a special substance, "phlogiston". The more phlogiston there was in a body, the more readily it burned, and a body that had given off all of its phlogiston could not burn. Phlogiston was invariably the cause of fire; fire was invariably the effect of phlogiston. From that point of view, phlogiston could not be the effect of fire, nor could fire be the cause of phlogiston. Another contemporary view was that heat was caused by a weightless substance, "caloric". According to that view, a cold body became hot owing to caloric passing into it from a hot body contacting it. Textbooks on chemistry had listed caloric among chemical elements up to the mid-19th century. Caloric was considered to be *invariably* the cause of heat, and the latter to be *invariably* the effect of caloric. It seemed obvious that no contrary state of things, i.e., that heat phenomena should be the cause of caloric and caloric the effect of heat, was at all possible. All electric phenomena known at that time were ascribed to the action of invisible electrical fluids which produced electric current as they flowed from one body into another. These electrical fluids were believed then to be *invariably* the cause of electricity, and electricity to be *invariably* the effect of the electric fluids. Such conceptions of heat, electricity and other phenomena gave rise to the idea that once A was the cause of B, it could not possibly be the effect of B. This understanding of the relation of cause and effect boiled down to the undialectical, metaphysical view that opposites (such as cause and effect) cannot coexist in one and the same object.

The metaphysical understanding of the categories of cause and effect has been upset by the further progress of knowledge which showed that the world is not an assemblage of final things but a totality of processes, connections and relations.

Today everybody knows that in a hydroelectric station the movement of the water stream is the cause of the electric current produced by the station. And in the case of a machine tool being switched on, the electric current is the cause of its mechanical motion. In the former instance electric current is the effect of mechanical motion; in the latter, it is the cause of mechanical motion. In the diesel locomotive, heat is the cause of the mechanical motion of the locomotive's driving axles, and simultaneously the mechanical movement of its parts, their friction, causes them to become so hot as to make it necessary to install special cooling devices to prevent a fire. In other words, heat is simultaneously the cause and effect of mechanical motion. If we regard the links in the chain of causality as processes, we shall find that when process A, in acting on process B, causes a change in it, process B, in acting on process A in its turn, also causes changes in it, so that the chain looks like this:

$$A \rightleftarrows B$$

Consequently, every process, as it acts on another process, itself is acted on by the latter, which means that all relationships which exist in nature and society *interact*, and that the opposites (cause and effect) are comprised in one and the same thing or event.

On establishing the cause of a phenomenon, a scientist must necessarily find out what reverse effect the phenomenon has on its cause, which facet of the interaction is predominant and to what extent it is so, and what reasons are responsible for it.

Influence of the effect on the cause from which it sprang has a particularly significant role in organic nature. When the controlling part of an organism is informed by the part under its control about some change occurring in the surroundings (e.g., the appearance of something of possible food value), it "orders" the controlled part to respond in a specific way (e.g., to try and get hold of the thing). The result may be either fortunate or otherwise. The thing may prove to be edible or obnoxious. The controlled part at once informs the controlling part which issues the next order. In the first instance the order will be to try and consume the thing; in the second, to withdraw as quickly as possible. This process, decribed as "feedback", is widely applied in modern technology, especially in cybernetic devices. Feedback systems, whether natural or manmade, would be impossible if the effect (i.e., the system's response to the action on it of an external object) were not the cause of its own cause (i.e., if the system's response failed to cause changes in the external object which has provoked the response).

Now let us consider the example of a developing nation retarded both economically and culturally after years of colonial misrule. To raise labour efficiency from its low level, such a nation must, quite obviously, push up the cultural and living standards in the first place. An ignorant, underfed worker cannot be very efficient, of course. So, the growth of cultural and living standards is the major cause of the growth of efficiency in a former colonial country.

Still, if we view the matter from a dialectical standpoint, we shall see that here too cause and effect interact and change places. For, clearly enough, higher cultural and living standards depend above all on higher labour efficiency, or, to put it differently, higher cultural and living standards are the effect of higher efficiency. The growth of labour efficiency is both the cause and the effect of the growth of living and cultural standards, just as the growth of living and cultural standards is both the cause and the effect of higher labour efficiency. In a striving to achieve national prosperity, one should be guided by a dialectical understanding of the categories of cause and effect.

§3. Necessity and Chance

Chance is commonly taken to mean that which might or might not occur, or might occur in any way. Necessity, on the other hand, is understood as that which must occur and cannot but occur.

What is the interrelation of necessity and chance in the world around us?

One of the answers to this question may be: There is nothing that necessarily must occur and nothing that might not occur. Anything, any event, however incredible, may occur, and it may occur one way or any other way. From this standpoint, nothing is impossible. There is no such thing as necessity. Everything in the world is the outcome of chance.

The famous French author of the 16th century François Rabelais satirised this view in his book about a giant, Gargantua, who was brought into the world through his mother's ear. Anticipating that his readers will not believe such a thing possible, Rabelais says that even though such strange nativity has not a semblance of truth in it, still nobody would dispute it that there is nothing impossible to god. And if god wished so, all women would henceforth deliver their babies through their ears.

Those who deny necessity and believe that anything is possible (so-called *indeterminists*) would have to accept that although the stone on which he has just sat down is silent, it could well burst into song presently; that although the dog is a four-legged animal, it is nevertheless quite possible that a dog may have a puppy with twenty legs; that, so far, two by two is four, but it is quite possible that, by tonight, two by two will have become one....

The mere fact that indeterminists deny necessity and the laws of nature in word only but practically recognise both, is enough to show how vapid their doctrine is. Even the "fathers of the church", who repeat that, as far as god is concerned, no necessity exists, that everything is possible for him, depart from their indeterminism at every step. Thomas Aquinas, a prominent theologian of the past, nowadays regarded as the principal authority of the Catholic church, had to admit that many spheres of reality were subject to necessity against which god "the omnipotent" himself was powerless. E.g., god cannot abolish the past or alter the fact that the sum of the angles of a triangle is equal to two right angles or turn untruth into truth, and so on.

Opposing indeterminism are, among others, adherents of mechanistic determinism. Faith, they maintain, allows any violation of the laws of nature, any miracle. Science, on the other hand, demonstrates that everything is subject to the laws of nature and is ruled by inexorable necessity. Nothing can occur in any other way than it actually does occur. Assuming that an event might occur contrary to the positive law –an event that need not have happened, a chance event–that event would be uncaused, i.e., it would be a miracle. And miracles do not happen, nor can they happen. Following this train of thought, Spinoza, the materialist philosopher already referred to, came to the conclusion that *nothing occurs by chance* in nature, and *everything is predetermined.*

This point of view found corroboration in classical mechanics whose laws, which precisely determine the trajectory described by isolated bodies, enabled scientists to predict with striking accuracy where a body moving in space would be at any given point in time.

Nevertheless, when science came to face more complex things than trajectories of individual bodies, it knocked the bottom out of mechanistic determinism.

Let us turn to the following example. In a society of commodity producers, writes Marx, price is "the exponent of the magnitude of a commodity's value".[1]

That is a law. Nevertheless, this law does not predetermine the price offered by each buyer. In every business transaction price is either higher or lower than cost. To give another example, the ideology of a class is determined by the place occupied by the latter in the given system of relations of production. In feudal times, noblemen regarded serfdom as being in the nature of things. Nevertheless, this law does not predetermine the views held by every single member of a class. Alexander Radishchev, the Decembrists and Alexander Herzen were all noblemen but at the same time were opposed to serfdom.

In the plant and animal kingdoms we see that no plant or animal lives forever—such is the law of nature. There are also laws which determine the maximum life-span for different species. Oaks may live to an age of a thousand

[1] Karl Marx, *Capital*, Vol. I, p. 104.

years, but many things may happen to an individual shoot. It may perish on the second or twentieth or two thousandth day of its life. There is no law fixing the exact day and hour of the death of, let us say, the tree growing in front of your house. This holds of all plants and animals.

By accepting that every event is inexorably determined and inevitable, we arrive at fatalism. It was in this way that Vulich, from Lermontov's *A Hero of Our Time,* reasoned when, holding a pistol at his temple, he said: "If I am destined to die this moment, it will happen whether or not I fire; and if I am destined to stay alive today, then I shall stay alive whether or not I press the trigger." Fatalism so obviously runs counter to ordinary experience that it was rejected even by the most prominent adherents of mechanistic determinism.

Yet how one is to avoid becoming a fatalist after accepting that everything is inexorably predetermined was something none of them was able to explain, for fatalism necessarily follows from mechanistic determinism.

The all-important biological law of natural selection does not imply in the least that every creature less fit than others is doomed to sterility and early death or that every better-adjusted creature shall live long and have numerous progeny. A less-adjusted individual may happen to live to the utmost limit possible for its species, or it might die at birth, and so on. The law does not lay down the particular chance with which an individual is to meet.

It is much the same in inorganic nature. According to the second law of thermodynamics, already referred to, a closed system tends to proceed towards less orderly forms of motion. In the last quarter of the 19th century, it was established that the law does not hold of *every* change in such a system, whose several parts may proceed towards either greater disorder or greater order. Increased disorder is, however, much more probable than increased order or greater order. Increased disorder is general direction in which a closed system tends to proceed.

To quote another example, a soluble substance placed in a liquid at rest is diffused throughout the liquid. If we place a grain of potassium permanganate at the left wall of a vessel containing water, its molecules will begin scattering in the water. After some time, the concentration of the solution will be uniform throughout the vessel. Each molecule of permanganate is jostled by water molecules. If the impulses are sufficiently numerous, the number of impulses pushing permanganate molecules towards the place of smaller concentration (towards the right) will be roughly equal to the number of impulses tending towards the place of greater concentration (towards the left), because the water molecules are in a permanent condition of irregular motion, whereby the number of molecules moving in all directions (if sufficiently great) is approximately the same. But if each permanganate molecule receives as many impulses to the left as to the right, then what about the law of the uniform distribution of soluble substances, which is possible only provided that many more permanganate molecules move from left to right than from right to left?

Let us mentally divide the water in the vessel into sections. Within the limits of each section the permanganate molecules will be distributed more or less evenly. But the closer to the left a section is, the more permanganate molecules it contains. Each molecule moves both to the right and to the left at a different rate of probability, but since in any two adjacent sections the one on the left always contains more permanganate molecules than the one on its right, more permanganate molecules cross the line from left to right than from right to left. This will go on until the concentration of permanganate in adjacent sections becomes equal, or, rather, approximately equal, for, to obtain an absolutely uniform solution, the number of molecules of both permanganate and water must be infinite. Yet, although the vessel contains but a finite number of molecules, it is still a very great number.[1] That is why in such experiments, the law takes effect with great precision, deviations being detectable only with the aid of highly sensitive measuring instruments.

Seeing that indeterminism and mechanistic determinism lack justification, some philosophers choose the "golden mean", saying that events may be either necessary or accidental: minor events refer to chance, and major–to necessity. Chance events–since they do not spring from necessity–are subject to no laws and are, from this standpoint, nothing short of miracles. As for necessary events, they are conceived as inexorably predetermined, so that all we have to do is go fatalist and, washing our hands of it all, dumbly wait for the blows of fate to fall. This "golden mean" attitude, as we see, combines the vices of both aforementioned views and, besides, leaves it up to anyone to categorise some events as miracles and attribute others to doom.

Obviously, we can neither agree that all events occur by chance nor that all events are

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[1] There are so many molecules in a glass of water that were it possible to mark them and pour the water into the ocean and allow sufficient time for the marked molecules to diffuse through all the oceans and seas, then, scooping up a glass of water from any sea or ocean, we should not fail to find about a hundred marked molecules in the glass.

inevitable, nor that all events are divided into accidental and necessary. Adherents of these doctrines hold that every event is either absolutely necessary or absolutely fortuitous and that none may be a combination of necessity and chance. In fact, however, every event is a unity of these opposites. How does it come about?

The examples we have cited show that individual events occurring in the sphere regulated by a certain law essentially differ from one another. Then what about recurrence? And if there is no recurrence, then what happens to the law? Let us look at price formation involving hundreds of thousands of commodities over scores and hundreds of years. We shall see that, barring extraordinary cases in which regular price formation was prevented by unusual circumstances, the price of a commodity was determined, by and large, by its cost. This holds true of other economic laws as well. Each of them, as Engels pointed out, is valid merely as a tendency, an average. This applies equally to nature. Thus, the tendency for the survival of the fittest recurs in hundreds of thousands of plant and animal species.

That nothing recurs in identically the same shape either in nature or society has already been mentioned in our discussion of the laws of dialectics. Nevertheless the recurrence of some relationships—which is not absolute but approximate–necessarily takes place. That is exactly how necessity expresses itself.

Adducing the fact that there is an infinite multitude of possibilities for an isolated event, and that the realisation of one of these possibilities is a deviation from the law, indeterminists say that, so long as an event may deviate from the law to no matter what extent, i.e., contravene it, it means that there simply is no law, and anything whatever may occur. This would be difficult to counter if isolated events could indeed deviate from the law *without restriction.* The point is, however, that while a law allows numerous possibilities for an isolated event, it also sets a limit to them, drawing the line between what is possible and what is not.

Energy imparted on impact by one molecule to another may vary infinitely. But the law sets a limit beyond which this cannot go. A molecule cannot impart more than its own energy. Individual events can deviate from the law within certain limits, but no event can be in contradiction with the law. That is impossible.

Each of the vast number of events whose general result is a law constitutes a deviation from the law in one direction or degree or another, and in that sense it is an accident–but an accident by no means uncaused. In this, the law does not fail but is observed: chance is the

Moon moving round earth	CAUSE	EFFECT	Sea tide and ebb
Electrons' movement	ESSENCE	PHENOMENON	Electric light, motor rotation, heating appliances
Possibility of socialism triumphing in one single country	POSSIBILITY	ACTUALITY	Victorious 1917 socialist revolution and the building of socialism in the USSR
Dictatorship of the proletariat–working-class government	CONTENT	FORM	The Paris Commune, Soviets of Working People's Deputies, a people's democracy
Precipitation of rain, hail and snow	NECESSITY	CHANCE	Crops destroyed in a particular field

THE SINGULAR	THE PARTICULAR	THE UNIVERSAL
Oxygen	Substance	Matter (substance and field)

Categories of Materialist Dialectics

form in which necessity finds expression. It is only through chance, if anything, that a law operates, as it circumscribes the area within which straggling may occur. A law is hard to discover precisely because it expresses itself only in terms of its opposite, i.e., deviations from it, because the universal, necessary, recurrent connection it states reveals itself only in isolated contingent events with variable characteristics.

We sometimes come across the following reasoning: with respect to a mass of objects (e.g., molecules in a solution or microparticles in cosmic rays), necessity indeed manifests itself in chance, and the laws are operative on the whole, without determining all that may happen to any one molecule or particle. Yet, in the case of single objects subject to the laws of classical mechanics, pure necessity holds sway, leaving no room for chance. In this instance, the laws are absolutely definitive with respect to each single object. After all, do not the Earth, Mars and other planets repeat absolutely the same movements, exactly defined by the laws of classical mechanics, over thousands of millions of years? Yet, one could think so only as long as measurements were taken with instruments not so very precise. Applying more perfect instruments, 20th-century scientists have established that each revolution of the Earth round its axis is different from the last. The

Earth's movements round the sun are not identical either.

When examined in detail, the trajectory of any separate object is found to consist of millions of infinitesimal segments, each being a deviation from the regular course. Only their sum conforms to the law. This holds of every individual object. Each of them is the sum of numerous constituents contained in it at a deeper level. In other words, every single object amounts, at a deeper level, to a mass of objects, and the law to which it is subject is the sum of the irregularities occurring in the numerous elements constituting the object. Lenin wrote: "... social science (like science generally) usually deals with *mass* phenomena, not with individual cases."[1] So, if the distinction between individual and mass objects is relative, so is the distinction between exact laws and such as formulate a certain general tendency. As Lenin put it, "... law, every law, is narrow, incomplete, approximate".[2]

A dialectical approach to the question is essential to technology as well as science. Electrical engineers, above all, are keenly aware of this, because nothing can be achieved in electronics without a dialectical conception of necessity and chance. In fields other than electri-

[1] V. I. Lenin, *Collected Works*, Vol. 21, p. 244.
[2] Ibid., Vol. 38, p. 151.

cal engineering, too, the old mechanistic view will only do to design simple and crude mechanisms. To attempt to build a machine consisting of numerous more or less independent units and requiring a thousand times more accuracy than any high-precision lathe, in the expectation that everything will proceed in strict conformity to the laws, would be absolutely useless, for it would only need the minutest element to fail for the whole system to fail. The more precise and complex a mechanism, the less reliable it is. Thus, in 1962, the 18-million-dollar US rocket launched towards Venus had to be blown up in flight for no other reason than that a hyphen had been omitted from the computer programme. Recently developed devices are so designed that their elements may go wrong or even break down, but the total behaviour of all elements, nevertheless, ensures correct behaviour of the system as a whole. Systems of high complexity and precision can be made more reliable only given a dialectical conception of the correlation of necessity and chance.

Quantum mechanics, genetics and cybernetics, which developed in the 20th century, have yielded such strong evidence in support of this approach that the majority of leading scientists today have come to share the dialectical view on necessity and chance.

To conclude, categories, like all other concepts, are derived from experience and are mental reflections of certain characteristics of the real world. As fresh experience and knowledge are gained, the content of categories is modified and refined. A category reflects the external world correctly only when conceived as a unity of opposites.

Chapter Nine

PRACTICE, THE ROOT AND YARDSTICK OF KNOWLEDGE

§1. Is the World Cognisable?

It is now appropriate to look at the other aspect of the fundamental question of philosophy mentioned at the beginning of this book: Is consciousness capable of truthfully reflecting the material world? Is man capable of discovering the laws governing the development of nature and society, the essential properties and relations of external objects? And if he is, then is his knowledge complete, exhaustive and final or is it only partial? The sum total of the conceptions and doctrines offering answers to these questions constitutes the *theory of knowledge* or *epistemology* (Greek *episteme*, knowledge, and *logos*, theory, account).

We are all familiar with a wide variety of things and possess information the validity of which nobody would ever question. We know how to switch on electricity, solder a can, start a machine or look up a 'phone number in the directory. This store of information tested by ordinary experience seems to put it beyond all possible doubt that our knowledge is true and authentic. Yet, what may at first sight seem absolutely indisputable very often proves untrue. Relying on their experience, men used to consider the Earth to be flat and stationary and believed that the Sun travelled up and down the sky. The notion of the atoms as the ultimate, non-divisible particles of which the universe is composed had persisted in science until the close of the 19th century. Today, however, every schoolchild knows that the Earth is shaped very nearly like a globe and is rotating round the Sun, and that not only are the atoms divisible, but the atomic nuclei too are divisible, being composed of elementary particles. Such facts make us wonder if what we know is indeed true and indubitable. Suppose we wake up one day to find it was all wrong, as has happened more than once in science as well as everyday life? Is there a trustworthy method of cognition guaranteed against mistakes? Such doubts arose in philosophers' minds early in antiquity. Whereas the old Greek materialist philosophers Democritus (c. 460-370 B.C.) and Epicurus (341-270 B.C.) were sure that the world is cognisable and our knowledge gives us a true idea of things and events, Cratylus, already referred to above, asserted that the world cannot be cognised because things change too quickly to be known.

Thus, we find in the history of philosophy arguments both for and against the possibility of knowing the world. Therefore, it is not a question of filing isolated facts but rather of analysing the substance of cognition and ascertaining its main characteristics and objective laws.

Different philosophical schools exercise different approaches to the problem of the world's cognisability and offer different solutions. To understand the epistemology of dialectical materialism more thoroughly, one must have at least a general idea of the epistemological conceptions of its forerunners, as dialectical materialism did not spring out of nothing but is the result of a critical comprehension of the epistemological doctrines whose shortcomings and weak points were exposed in the course of history, thanks to the strides made by science, technology and other forms of human activity. Dialectical materialism has, at the same time, absorbed all that was valuable in the conclusions about the nature, principles and yardsticks of knowledge evolved by the preceding philosophical systems.

§2. Agnostic Epistemology

The doctrine which asserts that it is impossible to know the universe was called *agnosticism* (Greek *agnostos*, unknown, unknowable). Accepting sense-perceptions to be the source of all knowledge, agnostics reason roughly as follows: so far as our sense-perceptions are consistent with reality, our knowledge is true; but so far as they are not at all like the objects as they are by themselves, outside sense-perception, it is false. But may we compare our perceptions of an object with the object itself? The English philosopher David Hume (1711-1776) had this to say about it: "The mind has never any thing present to it but the perceptions, and cannot possibly reach any experience of their connexion with objects."[1]

Clearly, then, we have nothing with which to compare our perceptions, we have no means of verifying whether what they tell us is consistent with reality. Therefore we cannot say if they are true reflections of objects or if they are a fiction. It is possible that there are external objects endowed with the qualities such as we perceive. But it is quite possible also that nothing of the kind really exists. This, in agnostics' view, is a problem men cannot solve.

As you may remember, Hume's predecessor George Berkeley, the subjective idealist, also considered sensations to be the sole source of human knowledge. But while he held that all external objects are merely combinations of

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[1] David Hume, "An Enquiry Concerning Human Understanding" in *Essays and Treatises on Several Subjects*, Vol. II, Dublin, 1779, p. 163.

sensations, he simultaneously accepted the existence of god, whose being is independent of sensation. Berkeley was inconsistent on this point and contradicted himself as he claimed that the source of sensation (god) exists independently of the latter. Hume differs from Berkeley in following up more consistently the idea that sensations are the sole source of knowledge and denying the existence of god—although he was, of course, an idealist. This aspect of Hume's agnosticism at first appealed to some scientists because it was spearheaded against theology. Nevertheless, the more clear-sighted of them soon saw that agnosticism conflicts with science, for the chief aim of science is to know reality, and consistent agnosticism leads to a denial of the very possibility of knowing the objective world.

Ordinary experience—whether individual or general—tells us that sensations are indeed the source of our knowledge of the external world. Most of what we learn in everyday life or in experimental science is based precisely on sense-perceptions. Both materialists and agnostics agree on this point. They begin to differ when it comes to the question of the role of sensations in cognition, and of their origin. The materialists maintain that sensations transmit and process information received by the brain from the environment. The agnostics deny that the material world exists and so deny the possibility of cognition. But that is not all. As they reduce all knowledge to sense-perception, the agnostics are unable to explain how certain ideas and concepts, irreducible to sensuous images and sensations, arise in man's consciousness and especially in the system of scientific knowledge.

Agnosticism as an independent trend emerged when experimental natural sciences and mathematics made rapid strides, i.e., it is of recent origin. It coincided in particular with the period of high development of mathematical analysis, higher algebra, and so on. These branches of mathematics employ concepts like infinity, function, the infinitesimal, *n*-space vector, etc., which cannot be constructed from or reduced to sensations. They are, nonetheless, conclusively established scientific realities, of practical as well as theoretical importance. This fact spotlighted the deficiencies of agnosticism which was unable to explain the origin and significance of many basic concepts current in modern science.

§3. Rationalism and Cognition

Development of the theory of knowledge was appreciably influenced by philosophical rationalism (Lat. *ratio*, reason). Assigning a subordinate role to sense-perceptions, rationalists held that the ultimate goal of cognition, i.e., the discovery of laws and basic qualities and relationships of objects, can be attained only by reason, on the ground of logical reasoning alone. However, every discourse must have a beginning, a starting point.

Such a starting point must be provided by certain major premises, "axioms" or "principles" relating to the universe or its individual parts. But where do they spring from? Where do the laws and rules of logic spring from, which enable us gradually to deduce from the principles all valid knowledge? Adherents of religious rationalism believed that divine providence imparts them to philosophers and scientists at its will. Atheist rationalists, on the other hand, maintained that the principles, axioms and laws may be discovered by thinkers who, by continually training their minds, become capable of conceiving by intuition all the necessary initial judgements which must be clear, definite and indisputable. Human reason is the highest authority, and once it finds no discrepancies in the concepts and theories of its making, there can be no better proof of their validity. This line of reasoning unmistakably reveals the influence of mathematics, especially of geometry. It was no coincidence that Descartes (1596-1650), the French philosopher, one of the founders of rationalism, was also the father of analytic geometry.

As is known, Euclidean geometry was considered for centuries the model of logical arrangement of scientific material. What many thinkers found especially praiseworthy about Euclidean geometry was that it begins with the postulation of a limited number of axiomatic, i.e., supposedly self-evident, truths, from which, step by step, in accordance with the rules of logic and by rigorous demonstration, theorems are derived one after another. Rationalists, who put it above all that knowledge should be perfectly logical, made the axiomatic method their ideal.

But, putting divine revelation aside, where do we take axioms from? Why is our intuition capable of furnishing distinct and clear knowledge of the real world, and how can we ascertain the connection between the immediate consequences of the axioms and the material objects, if sense-perceptions should be an unreliable source of information? Rationalism could supply no answer to these questions. It received a severe blow from science in the 19th century, when three mathematicians, Lobachevsky, Riemann and Bolyai, each independently showed that Euclid's "axiom of parallels" (the fifth postulate of Euclidean geometry) was not self-evident and could be replaced. In the process, non-Euclidean geometries were developed, distinct and at the same time logically consistent. Recently, especially after the discovery of the theory of relativity and numerous experiments, including those made possible by space flights, it has been shown that non-Euclidean geometries furnish a much clearer and truthful idea of the external world, compared with Euclid's geometry. Thus the doctrine of rationalism which managed to explain some facts of scientific, above all, mathematical, knowledge, failed to grasp the connection between scientific laws and cognitive activity, on the one hand, and material phenomena, on the other.

§4. The Theory of Knowledge in Classical Idealism

As we saw, neither the agnostics nor the rationalists were able to provide a coherent theory of knowledge. By exaggerating the significance either of sense-perception or of reason and opposing them to each other, they lost sight of the fact that both sensory perception and reason are combined in the act of cognition. For example, a physicist watching (i.e., perceiving by sight) oscillations of the pointer on the scale of the measuring instrument, correlates them with changes in the electromagnetic field. He thus combines in one process logical inference and visual perception. Those, however, who divorce mind from reality and draw the line between the logical and sensuous aspects of the process of cognition oversimplify it, distorting the real, complex nature of cognitive activity.

Kant, the founder of German classical idealism, attempted to overcome the conflict of agnosticism and rationalism, bringing the theory of knowledge into line with the results of contemporary natural science and mathematics. The natural sciences rely, of course, on observation and experiments. But, knowledge thus obtained grasps merely the changing and contingent external aspect of things. Behind things as we know them, or "phenomena" in Kant's language, are concealed objectively existing material things, or "things-in-themselves". Things-in-themselves generate phenomena. But between the phenomenon and the thing-in-itself there is a gulf. We perceive the former through sensuous experience while the latter may be only apprehended by the mind. The mind itself moulds *a priori* categories, i.e., categories not derived from experience. There are twelve categories, including necessity, causality, etc. They play the main part in the formulation of scientific laws. Thus, according to Kant, sense-perception gives us no knowledge of things-in-themselves and leaves it open to question how we know that they exist.

As was already mentioned, Kant also conceived time and space as *a priori* forms of cognition. These serve to bring into a system the empirical knowledge derived from sensuous experience. Kant is, however, unable to explain how and why the categories and other *a priori* forms may generally be applied to sense materials and what information the latter supply concerning the things-in-themselves, which are unknowable in principle.

Kant's philosophy is self-contradictory. On the one hand, making a concession to natural science, Kant acknowledged the existence of objective things-in-themselves and considered them to be the source of sensations. On the other, striving to pursue consistently the principles of rationalism, he denied that sensations and sense-perceptions provide a truthful enough reflection of the objective world and assigned the decisive role to *a priori* forms of cognition. Pointing out this contradiction in Kantian epistemology, the German philosopher Jacobi wrote that there was no entering Kant's philosophy without the thing-in-itself, but to remain within that philosophy with the thing-in-itself was equally impossible.

Hegel, the noted German philosopher and exponent of the dialectical method, who strove to overcome the contradictions of Kantian philosophy and make it more consistent, finally rid the theory of knowledge of German classical idealism of the thing-in-itself, throwing out, in the process, the elements of natural-scientific materialism. According to Hegel, human knowledge is continually developing, being driven by internal contradictions. The world is cognisable, but the deeper thought penetrates into the secrets of being, the clearer it becomes that, through the process of cognition, the Absolute Idea reveals its own objective laws in the real world. It turns out that to know the world is to know its spiritual, ideal essence. Although Hegel made a great contribution to the doctrine of the active and dialectical nature of human knowledge, his theory of knowledge was thoroughly idealistic and therefore met with disapproval from experimental natural science. Besides, Hegel was not always abreast of contemporary physics and mathematics, and his conclusions on the laws governing the development of nature were often at odds with the conceptions advanced by the greatest scientists of the 19th century.

Idealist philosophers failed to evolve a theory of knowledge matching the needs and results of theoretical and experimental natural science. This was not done by the materialist philosophers either, many of whom were eminent thinkers. Despite the considerable popularity and the influence it exerted on science and culture, pre-Marxian materialism, too, was not free from some shortcomings vis-à-vis the conception of the cognitive process.

§5. Theory of Knowledge in Metaphysical Materialism

In the 17th, 18th and the beginning of the 19th centuries, natural science pursued its inquiries by mechanistic methods. It was to this that the theory of knowledge evolved by metaphysical materialists owed its main characteristics.

The crucial principle on which this theory rested was that man is capable of forming a more or less correct idea of and cognising the external world. The basis of knowledge, the means of communication, as it were, between man and reality, are sense-perceptions. The sense-perceptions are images, "copies", mirroring the external world. This view on the significance of sense-perceptions to the process of knowing was not merely expressive of the common-sense attitude naturally shared by every normal person, but was the earmark of contemporary natural science in general. It was this conception of sense-perception that subjective idealists and agnostics attacked with particular vehemence.

The weak point in the theory of knowledge of metaphysical materialism was that it overemphasised passive contemplation, i.e., observation of objects, with no attempt to change them. The contemplative character of pre-Marxian materialism was due to the generalisation of the principle current in natural science that the scientist's role is, above all, to observe nature, not to alter it. This principle fitted that comparatively early stage in the history of experimental science where it accumulated facts, systematising and classifying them. Certainly, over the 17th-19th centuries, experimental methods involving an active influence on things examined kept improving and developing. But, exponents of metaphysical materialism still failed to grasp their full significance. Passive contemplation and underestimation of the active role of cognition were also due to the fact that metaphysical materialists underrated the importance of analysing the objective laws of thought. And that, Marx noted, was the weakest point of the previous forms of materialism. Metaphysical materialists viewed cognition as passive observation of, rather than active intervention in, nature and society. The fact is, however, that genuine scientific knowledge becomes available only in the course of remaking the world.

While they acknowledged that our notions and sensations are images of material things and events, metaphysical materialists failed to explain the principles underlying the development of thought. They could not say how and why knowledge underwent change, as they believed its basic methods and forms to be stable and immutable. It was this that rendered their doctrine vulnerable and incapable of answering many of the questions posed by the development of society and science. It was therefore necessary to evolve a fundamentally different approach to the problems associated with the investigation of men's cognitive activity. This need was answered by the theory of knowledge advanced by dialectical materialism.

§6. The Cognitive Process

For centuries, men wondered how celestial bodies had originated and what directed their movement, paying particular attention to the Earth's natural satellite, the Moon. After the telescope was invented and men began to use intricate astronomical instruments, employing astrophotography, radar, etc., they learned a great deal about the Moon. All this information was the result of numerous observations. Even so, until quite recently astronomers and astrophysicists could give no adequate answers as to how the Moon originated, what its invisible side was like, whether the Moon's surface was hard or friable, and what was the origin of the lunar craters and "seas". By obtaining answers to these questions, men would be able to unravel many secrets of nature and form a clearer idea of the history of the solar system. Scientists advanced numerous hypotheses explaining more or less plausibly different facts. On every substantial point, several hypotheses were advanced, and for a long time it could not be decided which of them was correct. The French 19th-century philosopher Auguste Comte, for instance, positively asserted that the reverse side of the Moon would ever remain a mystery to men. Nevertheless, the artificial satellites which made pictures of the Moon's far side, as well as the exploration of the lunar topography by Moon robots and astronauts who brought back samples of moon rock made it possible to supply exact answers to the above questions.

In considering this, we must note the following basic points. First, that observation, whether by means of the senses or instruments, is essential to knowing an object. Second, that men can cognise the essential properties of a thing and the laws governing it only by dynamically interacting with the phenomena under investigation.

To observe external phenomena without intervening in their vital functions, without interacting with the processes examined, is to engage in passive contemplation. We can only derive some information about things and events from this but we learn nothing about their more intimate connections, basic qualities and relations. Contemplating a tree, we can describe the colour and shape of its leaves, the shape of its crown, the peculiar qualities of its bark, the kind of soil its species prefer, and so on. However, to determine how old a tree is from the number of rings visible in the cross section of its trunk, we have to saw it up. To find out how plant cells are built or how biochemical reactions proceed in them, we have to use a microscope and chemical reagents. We have to create artificial surroundings for the tree or its parts, keeping it in the dark or in an atmosphere devoid of carbon dioxide or planting it in soil artificially deprived of one or another of the nutrients usually present in the soil, and so on. We shall have to subject the tree to still more complex operations in order to find out the degree of hardness or pliability or the chemical composition of the timber; this means bending, breaking, applying chemicals to different portions of the trunk, the roots, branches and leaves dozens of times. This active interaction with the object is described as experimentation. We learn from the latter what we cannot possibly learn from passive contemplation.

We thus arrive at the following conclusion: The cognitive act includes (1) the *object of cognition;* (2) experimentation or *man's action on the object* performed with the aid of instruments, tools, etc.; and (3) *knowledge* as a reflection of the object's qualities and distinctive properties, discovered during experimentation.

We can now define the crucial difference between the theory of knowledge of dialectical materialism and those of the previous philosophical systems.

Whatever those systems were–materialist or idealist–they all described the cognitive act as a dichotomy, or two-fold relation, of the objects concerned and knowledge. Experimentation, i.e., man's active influence on the objects cognised, was disregarded. That is why both the materialist and the idealist philosophers failed to find an effective method to justify their solutions concerning the world's cognisability. In other words, the previous philosophical systems lacked a yardstick by which their philosophical positions could be verified.

Dialectical materialism approached theory of knowledge from an entirely different standpoint, shifting the emphasis to the *material basis* and *objective yardstick* of knowledge. Unlike the agnostics and the Kantians, the dialectical materialists affirmed that the world was cognisable. Rather than reason about how far sensations, representations and conceptions are consistent with the things-in-themselves they reflect, dialectical materialism concentrates on finding out how sensations, representations and conceptions appear and how knowledge contained in them enables man to act and find his bearings in the surroundings and so shape them to his needs. Engels wrote: "If we are able to prove the correctness of our conception of a natural process by making it ourselves, ... making it serve our own purposes into the bargain, then there is an end to the Kantian ungraspable 'thing-in-itself'."[1] The soft landing and recovery of the lunar probes, the long excursion of the lunar mobile laboratory, the successful manned flights to the Moon all verify our knowledge on the structure of the Moon's surface. Artificial synthesis of a gene of yeast, accomplished in 1970, substantiates our knowledge of the physicochemical structure of genes, i.e., biological units of heredity.

Thus the cardinal position of the dialectical materialist theory of knowledge is this: Cognition of the external world stems from experimentation carried out by man with the aid of tools, instruments and other devices. If our knowledge of the most essential properties of the things involved in these experiments helps us to reproduce or produce certain material objects or work certain desirable changes, then it is regarded as valid.

The experimentation in question is called *practice* (Greek *praxis,* doing, action). Let us now consider the characteristics and structure of practice, and the part it plays in cognition.

§7. The Basis and Yardstick of Knowledge

Practice is a word of many meanings. For undergraduates to have practice means to re-

[1] Karl Marx and Frederick Engels, *On Religion,* p. 204.

ceive practical training (e.g., teaching practice) in the authentic working conditions of their chosen profession. For a doctor to have a large practice means to be sought after by patients. Now the philosophical conception of practice has a particular meaning of its own.

Man is in contact with very many phenomena relating to nature, society and thought. To be able to find his bearings and act in the complex conditions of modern society, for instance, he must know the laws governing the development of society. Obviously, unlike natural objects, social formations, the class struggle, the development of culture cannot be studied with the aid of tools or instruments. Does it not mean perhaps that practice which we have only just described as the basis and yardstick of knowledge fails as soon as we come to more complex cognitive acts?

Let us not jump to conclusions. As a matter of fact, work and practice in general are social phenomena. In order to carry them out, men have to associate, maintaining some form of self-organisation, exchanging information, storing, passing on and extending experience. Therefore we shall conceive practice, or, more broadly, social and production practice, as the sum total of processes and actions arising from man's purposeful influence upon objects, and shaping the conditions for this activity and its development. In this sense, the class struggle in antagonistic class society is a crucial element of social and production practice, for it springs from the development of productive forces and relations of production, and its progress and results are decisive for the advance of social production. During the class struggle, not only are various political doctrines advanced, but we also see how faithfully they express the interests of particular classes, how far their professed goals are consistent with the society's need to develop, and to what extent their proposed forms and methods of struggle are effective.

We can now divide man's entire activity into two closely associated kinds of activity–objective and subjective. Objective activity embraces the whole of man's social and production practice, as it is carried on on the basis of laws which are independent of men's subjective intentions and will. It is impossible, for instance, to forge water with a forging press or drive in nails with a turbo-drill designed for sinking holes in the ground. It is impossible to abolish class struggle in a society which rests on private ownership. In interacting with nature in the process of his productive labour activity, man relies first of all on the objective properties of the things and implements he has to deal with. Of course, man sets himself a goal consciously and is conscious of his actions, but the main and decisive role belongs to the objective circumstances and the laws to which such actions are subject independently of man's will and consciousness. The founders of dialectical materialism pointed out that initially the subjective, i.e., cognitive, activity is intertwined with the objective, practical activity. Only at a comparatively later stage of development does it become detached from the latter. In comparing the mode of thinking of a savage and of a child it is easy to see that the simplest habits of thought, the ability to observe and establish similarity or difference result from the handling of material objects. One must not assume, however, that it is enough to appeal to practice to have all the intricate problems of cognition finally solved. The desire to get final, immutable answers to all questions that may arise in science or everyday life is characteristic of the metaphysical approach to knowledge. Some of these answers seem to us indisputable and are indeed worth following within the limited sphere of everyday life, being sound common sense. "Only," Engels remarks, "sound common sense, respectable fellow that he is, in the homely realm of his own four walls, has very wonderful adventures directly he ventures out into the wide world of research."[1]

The very way in which our knowledge un-

[1] Frederick Engels, *Anti-Dühring*, p. 32.

dergoes change depends on the forms of practice. Wherever practice is stable, certain actions tending to be repeated over decades or even centuries, knowledge derived from it similarly appears to be stable and immutable. But as soon as any serious changes occur in practical activity, knowledge associated with them begins to change rapidly. Generally speaking, practice is extremely varied, there is an element of uncertainty in it, it possesses so wide a range of qualities, characteristics and individual features that it is actually impossible for us to know them once and for all. It is this uncertainty, mutability and mobility of practice that is a crucial factor in knowledge. Practice, Lenin said, is so indefinite that it won't let our knowledge ever stand still. But can it, then, be the yardstick of knowledge? We know that by carrying to its utmost limit the assertion about the changeability and mobility of external objects some philosophers arrived at the conclusion that it is impossible to cognise the world because things change more quickly than they can be judged and described. Nevertheless, nothing disproves the idealist view on cognition better than practice, in which actions repeated scores and hundreds of times produce more or less similar results.

The fact that hundreds of artificial Earth satellites, for example, are moving round the Earth in scheduled orbits, that Moon probes land in a definite spot time and again proves best of all that practice, be it production activity or scientific experiment, serves to discover stable, recurrent characteristics and properties of material things and to derive true knowledge of them.

Thus, we can draw the following three conclusions: (1) practice is the objective basis of cognition and simultaneously the yardstick showing to what extent knowledge of this or that thing is far-reaching and true; (2) practice is mobile, indefinite and changeable enough to prevent knowledge from freezing up, and is the chief factor in the progress of knowledge; (3) practice is definite enough to separate true from false knowledge, the materialist from the idealist approach, and to affirm the truth of the materialist theory of knowledge.

§8. Knowledge and Truth

Knowing is a process in which subjective operations and procedures of thought are closely linked with objective experiments and forms of activity. Knowledge which is the product of this process bears the imprint of these interrelated aspects. Therefore, it is very important to ascertain what in our knowledge depends on objective, and what on subjective, factors. Turning to the history of science, we may trace the development, for instance, of our knowledge of the cosmic bodies comprising the solar system, and in particular, the Moon. The rudimentary knowledge preserved since hoary antiquity appears, on closer examination, to consist of two different parts. Some of it depends on the structure of man's sense-organs (e.g., the eye), on the place from which the observation is made, on the observer's skill, diligence, power of concentration, and so on. And some of it—this is the second part—depends neither on an individual person nor on mankind in general. The fact that on different days of the month the Moon appears sometimes as a disk and sometimes as a sickle, depends partly on the observer's position and partly on the objective position of the Moon and the Sun. However, the shape of the Moon and the rate at which it revolves round the Earth, or the chemical composition of Moon rocks in no way depend on the observer's position.

As the means of observation are improved, optical telescopes being replaced by radio telescopes, radars, lasers and space laboratories, our knowledge of the Moon is becoming more and more complex and varied. Simultaneously, that part of knowledge which does not depend either on the individual or on mankind in general but is determined by the objective factors accounts for a greater share of our knowledge of the Moon.

Can we claim, however, that at some stage we have either attained or will attain a level of knowledge at which it will depend a hundred per cent on the objective factors, no longer containing anything dependent on man?

The nature of the bulk of information available to modern science depends not only on the object investigated but also on the diverse instruments enabling the investigator and the object to interact. Although all such means of obtaining knowledge exist objectively, they are created by men and so must, to some extent, depend on the subjective factor. Moreover, we cannot exclude from the cognitive act the human brain, the nervous system, the observer's skill, capacity, the acuteness of his senses, and so on. Therefore, although that part of knowledge which does not depend on man tends to increase, the subjective element still remains, to a greater or lesser degree. The purpose of science is to increase continually the volume of that part of our knowledge which reflects the basic characteristics, properties and relations of objects and which does not depend on the individual man or mankind in general. Lenin defined this part of knowledge as *objective truth.*

It is easy to see from the above example one of the main characteristics of objective truth. It is that objective truth keeps changing, developing and increasing. Ancient philosophers, who gave much attention to astronomy, were fairly well informed about the planets as can be seen from the lunar calendars compiled in the remote past, records of the dark areas found on the bright lunar disk, the ability to calculate the periods of full Moon and to forecast eclipses of the Sun. All these are obvious elements of objective truth. Still, their proportion in the mass of fantastic mythological descriptions of the Moon was exceedingly small. Since the invention of the telescope three and a half centuries ago, the volume of objective information about the Earth's natural satellite has been growing incessantly.

We can say that at every single stage in the history of knowledge, objective truth ascended a step higher, ousting the subjective elements more and more. These stages in the development of objective truth are known as *relative truth* (or the relative form of objective truth).

Consequently, objective truth, influenced by practical activity which keeps developing and becoming more complex, also continually develops and cannot be final, complete and immutable. On the contrary, it appears as a succession of relative truths concerning an object, each successive stage in the development of truth being fuller and more far-reaching than the preceding one. Lenin described this process as *dialectics of knowledge.* Unlike Kant and his followers who held that the phenomena and the things-in-themselves were divided by a gulf, dialectical materialist epistemology regards cognition as a succession of interconnected acts of arriving at relative truths which contain objective information about things, their properties and internal interrelations.

Can a process like that result in exhaustive, all-embracing knowledge of objects? If we recall that the material world and even individual fragments of it possess a practically endless number of properties, connections and relations, it will be obvious to us that to attain complete and ultimate knowledge embracing every aspect of the thing we study is impossible. This is all the more true as the things round us keep developing and changing, thus taking on new properties and new connections. Living organisms consisting of thousands of millions of interacting cells, economic systems comprising hundreds of enterprises, millions of workers, hundreds of thousands of machines and other tools for manufacturing different goods, are so complex that to know everything about them is impossible.

Consequently, full, exhaustive knowledge, also described as absolute truth, may be achieved only with respect to very simple objects, with relatively few constituents and connections. We find such objects in mathematics, for example, but even there a great deal of abstraction and restriction is needed to enable one to describe something as ultimate truth.

But if we say that ultimate truth is unattainable, do we not thereby deny its objectivity? Does it mean that the agnostics, who deny that the world is cognisable, are right? Such assumptions can hardly find justification. If we approach cognition dialectically, not as something that must have an end, but as incessant extension of our knowledge of the external world, we shall have to agree that the world is cognisable, not in the sense that we may cognise it once and for all, but rather that we can keep adding to and expanding the relative truths available to us, verifying and refining upon them with the help of practical activity.

Thus, absolute truth and relative truth are, as it were, two forms of objective truth, while absolute truth itself may be regarded as the result of an endless succession of relative truths superseding one another.

This ends our brief exposition of the dialectical materialist theory of knowledge. Having surmounted the metaphysical opposition of sensuous and rational knowledge, dialectical materialism posed in a new way, and, moreover, solved in a new way, the question of the world's cognisability. Knowledge was discussed for the first time in terms of social and production practice as the basis and yardstick of the world's cognisability. It made possible a new understanding of the relationship formed by sense-perception and logical thought in the process of cognitive activity. New light was thrown on a whole range of complex problems associated with the modern forms and methods of scientific knowledge.

Chapter Ten

THE DIALECTICAL PATH TO TRUTH

§1. Origin of Sensation

We have been introduced to the principles of the dialectical materialist theory of knowledge. Now we shall examine how cognition proceeds, the stages it passes through, how these are connected and the part they play in our knowledge of the real world.

"... Suddenly ... I saw very clearly a quick and blinding black lightning...," says one of Kuprin's characters. "I still cannot understand the reason for that phenomenon. Was it an error of sight strained by the incessant play of lightning or was it an accidental disposition of the clouds, or was it some peculiarity of that nasty boggy depression?"

Similar, if not quite so extraordinary, incidents occur to everyone. Our visual, auditory, tactile and other similar impressions usually permit us to adjust, yet often we do not trust them because impressions of this kind may occasionally be deceptive. Often the weather is cold for one person and hot for another. The surface that seems perfectly smooth to one person seems rough to another. Facts of this kind were often cited as evidence that our sense organs are unreliable and the sensations for which they are responsible, far from reflecting the properties of things, generally cannot be used as proof that the real world exists.

Now what is sensation? How does it depend on the sense organs, and what produces it? In speaking of sensation we have to distinguish between two meanings of this term. Firstly, sensation may mean the interaction of the sense organs and the environment and the material process of transmission of information from one part of the nervous system to another. Secondly, this term is used to describe the result of the above-mentioned process, i.e., the image arising in the brain, which is already a fact of consciousness.

Take, for example, man's visual perceptions which supply almost 90 per cent of all the external information he receives.

Light falling on an object is partly absorbed and partly reflected and so received by the eye. Light consists of electromagnetic waves of different length, and which of them will be reflected and which absorbed by the object depends on the physicochemical nature of the object's surface. Hence, the very character of the waves that are reflected already contains unidentified information about the nature of the object. The first conversion of the light rays received by the eye occurs when they are refracted in passing through the transparent covering of the eye. Then they are focused by the lens of the eye upon the retina. There, in accordance with the laws of geometrical optics, an image of the object is formed. The geometrical image is like one we can see on the opaque glass plate at the back wall of a photographer's camera. A chemical procedure developed at the close of the 19th century has made it possible to fix the visual image formed on the retina, so that now we know that the image differs in many respects from the object. First, the image is flat (two-dimensional) while all material objects are three-dimensional. Second, it is much smaller than the object and is symmetrically inverted. Third, the image formed on the retina only shows those details of the object which are big enough. This depends on how the object is lighted, as well as on its size and the distance between it and the eye.

We can say that the image on the retina is a natural reflection which depends on the physical nature of the object, the eye and the light. How does it initiate the sensation of vision? The light waves reaching the retina start complex chemical and biochemical reactions in the cells, which serve, in fact, to code the information received by the eye. Every signal coming from without produces a definite bio-electrical impulse. When these reach the cells of a particular area in the brain, viz., the optic centre, a new transformation takes place there. It is decoding which initiates visual perception.

Thus the process whereby visual perceptions are produced is of a material nature. It results from the interaction of such material systems as light waves and man's optic system. It is a highly complex process including a range of successive transformations, whereby some kinds of energy are converted into some other kinds. Nevertheless in all such transformations the principle is observed that every species of external stimuli is attended by definite and distinctive visual images. That is not all, however. Let us recall, for instance, the fact, already referred to, that all images formed on the retina are inverted. Yet everybody knows from experience that we do not see things upside down. It appears that the brain not only perceives images but actively intervenes in the process of perception. The optic centre in the brain adjusts the images consistently with man's individual and social experience, on the basis of knowledge derived from social practice. Thus, while knowledge emerges on the basis of sensations, the latter form under the influence of knowledge previously acquired and confirmed by practice. This is corroborated by the following experiment. A person puts on a contrivance which inverts all visible objects. In a dark room, against a black background, a candle is placed on an invisible support, which the person sees inverted, with the wick at the bottom. But when the candle is lighted, it is immediately perceived as being in a normal position. Why? We know from experience that a flame always points upwards, and so the brain automatically corrects the "mistake" of the experimental apparatus.

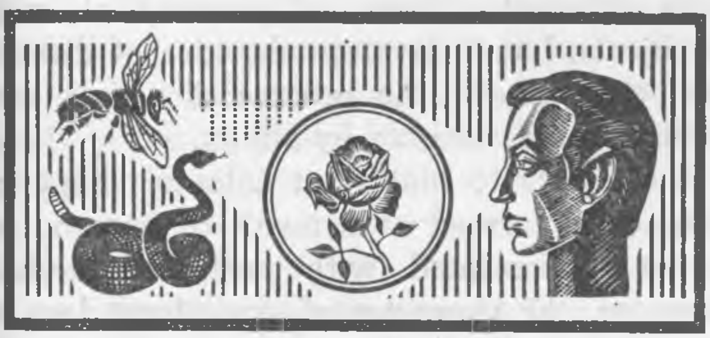
Thus we see that visual perceptions, as a fact of consciousness, are far from simple. They must be related to the external world, but they do not simply mirror it. On the one hand, we cannot do without sensations, because with their help we receive sensuous images of the objects around us. On the other hand, we cannot fully rely on sensations as they often produce illusions, erroneous representations, and images conflicting partly or completely with experience and experiment. How do we overcome this contradiction? How far are sense-perceptions to be trusted and what part do they play in cognition?

Before these questions can be answered, we must find out more exactly the extent to which sensations depend on the external object and on the percipient subject.

The organs of vision in man and animals are, of course, rather different. This tells on both visual sensations and resultant images. Under normal daylight modern man can distinguish several hundred basic colours and hues. At the same time, some animals, e.g., dogs, perceive objects only in black and white, distinguishing them by the intensity of the greys. Bees do not perceive red. They perceive only yellow, blue and violet and also ultraviolet rays. Consequently, other things being equal, one and the same object will be perceived differently by different optic systems, causing different sensations in them.

Organs of vision, like other sense organs, appeared and developed during biological evolution. They helped living organisms adjust to the environment and were important factors in the struggle for survival. As the conditions of life affecting the different organisms inhabiting the Earth vary a great deal, the sense organs are very diverse. The "ultraviolet" vision of the bee, whose active life occurs in bright sunlight, enables it to receive a maximum of biologically useful information. That kind of vision would not do for rattlesnakes which are nocturnal animals. Therefore in their evolution they developed a special kind of "heat" vision. Snakes have several thousand nerve cells, located in small indentations just below the eyes, capable of perceiving infrared rays. This enables them, in absolute darkness, to hunt warm-blooded animals whose body temperature is at least a few degrees higher than the outside temperature.

Thus sensation depends on the sense organs as well as on the nature of the object and conditions of perception. A sensation is an image of the objects which produce it. At the same time, it is a subjective image which depends not only on what is perceived and under what conditions, but also on the percipient.



Does the rose appear the same to the bee, the snake, and man?

The cognising brain and the sense organs supplying information to it are not simply objects of external influence. Recognising the active interaction of the subject and object of cognition is the cornerstone of the dialectical materialist theory of knowledge. It is in this interrelation that the sense organs supplement and correct one another making it possible to form the necessary images of the external world we are to live in.

Unlike animals, whose activity is almost entirely determined by heredity which leaves comparatively little room for the development of individual habits, men have evolved, over hundreds of thousands of years, an immense capacity for adjustment.

Outside society, the development of specifically human acts, including cognitive acts, proves to be impossible. A little child can perceive different colours and geometrical images of objects, but it develops the idea of distance, size, etc., only in the process of active movement in space, assisted by adults.

The ability to make out colours, shape and distance is formed as a result of personal experience associated with sustained activity. However, the character of sensations does not depend on individual experience alone but on culture as a whole, the level of society's development, and the social system to which the individual belongs.

Thus a comparison of modern and of some historically retarded peoples' spatial perception of things shows that the latter lack a perception of linear perspective. This fact does not depend on any national or racial characteristics but solely on the level of social production and living and cultural standards at large.

To sum up. Sensations depend on (1) the properties and particular characteristics of material objects; (2) the conditions under which they act upon the sense organs; (3) the organisation and condition of the perceiving system, including the brain; (4) previous individual experience and knowledge; (5) the cultural level of society; (6) the character of practical activity carried out during perception. Consequently, sensations are images which, besides having the qualities and characteristics of the objects perceived, also bear the imprint of numerous other factors.

Then how do sensations pass into forms of knowledge which reflect and fix, more or less "purely", the relations characteristic of real objects?

§2. The Significance of Language for Cognition

When two persons look at or touch the same object or hear the same tune they form certain sensuous images. In order to co-operate in production, in social and home life, people have to inform each other about what they have seen and heard, share their impressions and store and communicate varied knowledge.

Sensations and the visual images based on them contain a certain amount of information about the surroundings. But we cannot pass on sensations, "extracting" them from one head and putting them into another.

Then how is information transmitted in human society? What means of storing knowledge do men possess? It is language. Language is the means of transmitting and storing knowledge.

The sense organs enable us to perceive material things. Using telescopes we can look at faraway heavenly bodies. With the aid of an oscillograph or a photographic plate one can see the trace made by an elementary particle. But we cannot see or touch thought. After all thought is ideal in form. Man's thought is not only the result of social progress. Mastering the immense wealth of thought, the treasures of science and culture, is a prerequisite of the further progress of mankind and the basis of all-round development of the individual. "*Language,*" Marx and Engels wrote, "is the immediate actuality of thought."[1] They pointed out that thought, which is ideal in nature, finds its sole material expression in language, thanks to which it can be perceived by men. It is just because language is the material vehicle of thought that it is able to play a twofold role, being simultaneously the means of communication and of knowing reality.

Language is a distinct sign system. Think of what is round you, look at the ordinary household things, look at what you come across in the street and at work, and what will you see?

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[1] Karl Marx, Frederick Engels, *Collected Works,* Vol. 5, p. 446.

You will see that the world is full of signs and systems of signs.

The striped barrier by the railway crossing is not just a pole painted black and white–it is a sign telling you to stop. A wedding ring or a white smock are not just a piece of metal or an article of clothing respectively, but signs of being married or belonging to the medical profession. Insofar as things not only serve a useful function in industry or in the home but communicate information, they are signs. Any sensible material object capable of communicating information is a sign. In this sense, signs are some times described as substitutes for other objects. Things other than those created by man can also be signs. The imprint left by a prehistoric reptile in a limestone block or the smoke rising over a distant wood are instances of so-called natural signs. The former is evidence of an extinct animal and the latter of a bonfire or a forest fire. A natural sign is the result of the interaction of two or more material objects, e.g., of the prehistoric animal and calcareous rock. They have a number of disadvantages which make them inconvenient for use in communicating and producing knowledge in human society. They are often impossible to transmit or store or reproduce perfectly (cf. the smoke or the rock just referred to). Besides, the information they communicate is about a single event. To describe a class of animals with the help of natural signs would take a thousand, perhaps a million, such signs. Even so, the description would be incomplete since all impressions left by an animal are bound to leave out of account many of its characteristics, traits, and so on.

There is a certain likeness between natural and manmade signs based on a similarity between the sign and the thing it stands for, e.g., a portrait, drawing, map or the plan of a machine or a building. These signs do not result from the immediate interaction of different material objects. They are made by people with the aid of implements. They are highly conventionalised. Quite perceptible in a portrait, it becomes paramount in an architectural plan or mechanical diagram. But, however conventionalised, there is a certain similarity between the signs of the kind described (i.e., a diagram of a lathe or a map) and the objects designated. Soviet cosmonauts who circled the Earth many times confirmed that the continents' outlines were like their representations on maps. Yet as we pass from a portrait to a map and from that to a technical drawing, the measure of conventionality increases. This makes it possible to designate aggregates rather than individual objects. This reveals an important characteristic of signs, viz., the more conventionalised a sign is, the more general it becomes thus making the number of objects it can designate greater.

Nevertheless, the generalising capacity of this kind of sign is limited, because it must, to some extent at least, look like the object designated, in terms of geometrical form or colour or material or whatever.

One of the distinctive features of human language is that it has none of the limitations of all the other sign systems. In this sense, it is a special sign system. The basic elements of language are words. They are formed from sounds or their combinations and are independent language units. With the emergence of writing systems, people learned to represent words with the help of graphic signs. The sound form, however, has always been the main element in all existing languages.

Linguistic signs, or words, are material phenomena. They act on our sense organs (the ears) and arouse auditory sensations in us. Yet, unlike other material phenomena, whether natural or manmade, words have no value in themselves but only as a means of producing, communicating and storing information. Words are utterly conventional and can under no circumstances be considered images of material things or events because they reflect neither any of their characteristics nor any of their relations to one another.

But does it contradict the assertion that language serves to express and communicate knowledge which is, after all, a reflection of reality? Not at all. These notions are not the least contradictory.

To understand how language and words take part in reflecting reality (although they do not reflect it in themselves), we must consider more closely what words are. We know that the words of any language are conventional. The properties of words as special material phenomena are in no way connected with the phenomena they name. That is why identical objects or groups of objects are represented by different words in different languages. The totalities of things, events, states, mental experiences, social phenomena, etc., designated by a word, form its meaning. This meaning is not inherent in the word as such but is assigned to it depending on how it is used in practice, in human intercourse. As language develops along with society, words gradually develop new meanings which usually coexist with the old, or they may come to express entirely different notions (e.g., *sound,* healthy, *sound,* noise, and *sound,* a surgical instrument) so that it is not always possible to tell the precise meaning of a separate word.

Unlike other manmade signs, words possess an unlimited capacity for expressing general characteristics and relations between objects, just because they are not images but conventional signs (symbols).

Every word—e.g., *building, electron, revolution, progress*—refers to a larger or smaller aggregate of things, rather than to individual things. Emphasising this distinctive quality of words, Lenin wrote that "every word . . . *universalises*. . ."[1].

Natural signs (impressions or traces) convey the individual, singular characteristics of objects, and so are unsuitable to express general features and relationships. Manmade signs (maps, diagrams, etc.) are conventional and so suitable for unqualified generalisation. The words of a language are fully conventional, their capacity to generalise is infinite, yet one can express in them any information about individual objects. This shows the dialectics of the development of sign systems.

Now we must see how a finite number of words form an infinite number of linguistic expressions which fix pieces of information. Language does not just consist of words. Every language also contains special rules, i.e., grammar. These rules help people make combinations of signs, i.e., assemble words into sentences. Not every sequence of words is a sentence. So that, "The Earth Sun the round revolves" is not a sentence and carries no information. On the other hand "The Earth revolves round the Sun" is a sentence communicating an astronomical fact. People are often unconscious of grammar rules and use them automatically,

[1] V. I. Lenin, *Collected Works*, Vol. 38, p. 274.

acquiring the appropriate habits from education and speech communication.

Combinability is the thing that makes human language distinct from animal sounds. Animals also use sounds to transmit the simplest information. This ability is for the most part inherited. Even with gregarious animals like some birds, beavers and various mammals the capacity to interact through sounds does not depend on the form of communication. An incubator chicken raised in solitude reacts to the sounds made by hens no worse than the chickens hatched by a hen. Some animals, e.g., dolphins, use several dozen sound signals to express anxiety, to call for aid, indicate the presence of food, challenge an adversary, call for attack, and so on. Some investigators even talk of a dolphin language.

Nevertheless, neither the dolphins nor any other animals possess language in the sense in which we speak of human language. This is particularly clear from the absence of combinability which enables differentiated sound signals to be assembled into an infinite number of sentences. That is why all information accessible to the animals, which they are capable of passing on to each other, does not go beyond a comparatively limited assortment of sounds. For this reason, the animals cannot develop the form of intellect which we term human thinking.

Emphasising the significance of language to the progress of knowledge and thought, Lenin wrote: "The senses show reality; thought and word–the universal."[1]

Language can express the universal in two senses. In the first place, words and sentences do not designate individual objects, properties and relations, but their totalities. In the second place, language is universal. Unlike sensations, words and sentences may be passed on from one person to another without having their sense and meaning distorted. Though some of the individual, subjective points of knowledge are partly lost, everything which is general and essential, and without which community life and common effort are impossible, is retained.

§3. Abstraction and Concept Formation

The process by which we pass from sensation to verbal thinking is described as abstraction, and its results as abstractions or concepts. In ordinary life, an "abstraction" is often used to denote something hazy, vague, incoherent, detached from life. There is some reason for it, too. Some abstract notions, divorced from practical activity, are indeed recondite and of little use in everyday life. However, theory of knowledge is interested above all in far-reaching

[1] V. I. Lenin, *Collected Works*, Vol. 38, p. 274.

scientific abstractions without which one simply cannot understand the secrets of nature, bring out the true causes of social progress or formulate scientific laws.

So, what are scientific abstractions? Where do they spring from? And what distinguishes profound and true from shallow and false abstractions? Many people think abstractions emerge simply as a result of the isolation of common characteristics of things and events, which are reflected in sensations. From this standpoint, minor or dissimilar features are simply neglected, while the features common to the totality are selected and fixed in the abstraction. The process of abstraction does, indeed, imply discarding what is dissimilar and singling out what is general, but that is far from being all.

Take, for instance, the scientific abstraction "four-dimensional space", fundamental to the special theory of relativity which plays a major role in modern physics.

We already know that real material space is three-dimensional, and our sense organs, under no circumstances, permit us to discover phenomena such as occur in four-dimensional space. However, we often resort to the concepts of one-and two- as well as three-dimensional space.

It is easy to see that these concepts are abstractions which result from isolating certain properties and characteristics of real bodies. The concept of a sphere (which is three-dimensional), for instance, is formed when we disregard the differences in the size, colour and material of various spheric bodies and isolate their geometric shape alone as their common characteristic. The linear, or one-dimensional concept is also an abstraction, whereby we neglect the size, geometric shape, etc., of bodies and isolate the distance between them as the sole characteristic. The concept "two-dimensional space" is also an abstraction. Plane geometric figures (e.g., circles, ellipses, trapeziums and triangles) possess only two dimensions.

These abstractions are more or less connected with sensations–sensuous images of objective things and events. We can imagine a sphere, a quadrangular building site, the line between point A and point B, etc., but to see or touch a four-dimensional cube or sphere or imagine an event occurring in four-dimensional space is something we are unable to do. For all that, not only does multi-dimensional geometry exist but there is also a physical theory describing material events with the aid of the abstraction "four-dimensional space". From this, it follows that there is something in our concepts, in abstractions, which is not immediately present in sensations and which cannot be derived simply by omitting or selecting certain characteristics of the objective world which are fixed in sensation. Then how does correct abstraction proceed?

Knowledge is not a mirror reflection of reality. Dialectical materialism, which considers consciousness, thought as secondary, states that once it has emerged, it follows its own laws, being marked by certain specific features. One of them is that the mind is capable of connecting, arranging and unifying elements of sense-perceptions not in the way they are connected or arranged in the immediate sensuous images. Moreover, as he learned to isolate connections and relations, man improved this capacity, creating and inventing new connections and relations and bringing them together often in the most fanciful ways. That was how mythological and folk-tale monsters of half-men half-horses, ogres, and so on, appeared. Four-dimensional space is the child of scientific imagination. This abstraction was arrived at not by neglecting characteristics of reality but, contrariwise, by magnifying and projecting the old abstractions "two-" and "three-dimensional space".

From this, it follows that the process of abstraction is complex, dialectical, contradictory. Along with comparison, isolation of the general and omission of the particular, it involves imagination, the re-arrangement of real connections and constituents. It must be noted that this occurs not only with respect to complex abstractions, like "infinity", "four-dimensional space", etc., but also with respect to comparatively simple and familiar concepts, like "circle" or "red colour". We all learn at school that a circle is a plane closed curve, with all its points equidistant from a particular point in the plane, called the centre. The length of line bounding a circle is called the circumference. The abstractions "circle" and "circumference" result from the generalisation of the geometrical properties of familiar things such as a wheel, a round button, the visible disk of the full Moon, and so on. With the aid of modern grinding machines more and more precise disks can be made, with radii differing by no more than thousandths of a millimetre. The discrete structure of solids makes it, however, generally impossible to turn out a disk with absolutely equal radii. Therefore, strictly speaking, no wooden, stone or metal disk actually answers the geometrical description of a circle, and all we can do in practice is continue to improve precision standards. But if we are unable to beat the barrier erected by nature in practice, we can surmount it in imagination by projecting the process begun in practice beyond what is called the threshold and is fundamental to the formation of abstractions, though we are unconscious of it in everyday life. Comparing a poppy, a ripe tomato and blood, we can form the concept of red. Indeed, there are no real objects that are simply red–they are always a certain shade of that colour. The concept "red" isolates something general which allows us to apply one name to millions of similarly coloured objects, rather than use a million names.

Now we can isolate the main stages of abstraction. The first, the formation of the initial totality, consists in isolating a set of things, processes, phenomena, situations, etc. The second, the matching and comparison of the elements of the initial totality, includes two procedures, one to bring out similarity and the other disparity. The purpose of this stage is to isolate certain common properties, connections and relations characteristic of the elements of the given initial totality. The third stage is that of denotation and generalisation. It consists in naming the common characteristic, connection or relation selected at the preceding stage. The given characteristic is invested, so to speak, with linguistic, verbal shape. From this point on, we operate with signs, with all the consequences that this entails. A word or word combination becomes the expositor of the notion. The fourth stage is the threshold and the further determination of content. Certainly, the three last-mentioned stages are seldom divided in time and usually proceed simultaneously, interlacing, interacting and supplementing one another.

By the content of an abstraction, or concept, is meant the sum of characteristics which may be regarded as the definition of the given concept. Let us recall, for example, the definition of a circle. The sum total of all the elements forms the sense of the concept, while the elements themselves form its meaning or, to put it more precisely, its initial meaning.

In the process of abstraction, we pass from the sensuous form of knowledge to abstract, verbal thinking. This transition is always connected with loss of perceivability. It is sometimes said that concepts may be perceivable and non-perceivable, and that one of the most important distinguishing features of modern science, as compared with classical science, consists in the changeover from perceivable to non-perceivable concepts. In truth, however, all concepts are non-perceivable. It is just that some of them are more ordinary and have a rather simple connection with perceivable, sensory representations, and others are less ordinary, with a long series of intermediate abstractions between them and sensuous images. We can easily call up the image of an acquaintance but we are unable to conceive the image of man as such, who is neither a man nor a woman, neither old nor young, neither a European nor an African. Man as such is an abstraction which is no more perceivable than four-dimensional space or a mathematical infinity. Certainly, the concept "man" is closer to the sensible material phenomena than the concept "four-dimensional space". This explains why the latter is harder to comprehend. Loss of perceivability does not mean, nevertheless, that abstract notions stop being the reflections of reality. Of course, they are not its sensuous images like sensation and representation. It does not, however, follow that they are not images at all. The fact that concepts exist and are expressed by signs was repeatedly used by idealists as a reason for alleging that our notions were as conventional and symbolic as the signs themselves. But the dialectics of verbal thinking consists in the use of conventional signs, i.e., words thus representing the highest form in which reality is reflected.

Lenin said that our concepts are copies, images of reality. The proof of it is that with the aid of concepts—even the most abstract of them—we are able to recognise, interact with and remake sensible things.

Now we must answer one more question, about the difference between scientific and unscientific abstractions. After all, in the process of abstraction, men, following their fancy, recombining connections, rejecting some and introducing other elements and relations, also created such concepts as god, mermaid, personal immortality, and so on. At this point, we should recall the yardstick of truth already discussed, i.e., practice. Abstractions do not exist in isolation, unconnected with other products of the mind. A number of specifically related concepts may form another concept, new knowledge, more concrete, more exact and full, giving a more comprehensive description of a thing or event. If immediate or mediate utilisation of these concepts enables us to observe the properties and relations they express, we can say that they correctly reflect the things observed.

If on the basis of such concepts, having performed the actions prescribed by them, we attain the goal, we may be confident that our abstractions have stood the test of practice and are true and adequate.

The yardstick of practice again reveals its cognitive significance, this time as a means of appreciating how far-reaching and adequate, how objective and scientific our abstractions are. For this reason, Lenin, as he gave a brief formula of the process of cognition in general, pointed out that it proceeds from living perception to abstract thought and from that to practice which is the start and finish of the total cognitive act. However, the transition from abstractions to practice is not simple. It comprises a number of intermediate steps, the most important of them being modelling and theoretical thought.

§4. The Model in Cognitive Activity

The ultimate aim of cognition is to produce knowledge allowing man to carry on some activity conducive to the satisfaction of his material or spiritual needs. This essentially requires the use of models. Like many other terms widely used in everyday life as well as in science, "model" is a word of many meanings. One can speak of a new model of a lathe, a new dress model, an artist's model, and so on. This term acquires a special meaning in the theory of knowledge. Supposing there are two objects, A and B. Object A is the model of object B if (1) A is in some respect simpler, more convenient or easier to study than B; (2) certain features, qualities or peculiarities of A are a reflection of the qualities, peculiarities or habits of B, which are being investigated; (3) in all other respects A is distinct from B (these distinctions may concern material, shape, size, etc.); (4) knowledge derived from the investigation of A may, with some adjustments, be further applied to B to explain one or another of its peculiar features, predict its behaviour, and so on.

If A satisfies these conditions with reference to B, it is a model of B, and so we can use it in place of B with the same result. But why should we use a substitute rather than the object itself? The point is that often we either cannot use it for various reasons, or we can obtain the necessary result more quickly and cheaply with a model. In developing large hydro-engineering installations or complex assemblies, their simplified small-scale models are first made. On the bank of a small artificial pond, they build diminutive electric power stations one-hundredth or one-thousandth the normal size, reproducing all essential characteristics of the installation. Experimenting with a model, one can weed out mistakes and introduce corrections in the design at comparatively little cost.

Not all models are, however, simple copies of objects. The algebraic formula $x^2 + y^2 = z^2$ may be regarded, in a sense, as a model of the geometric circumference. Of course, a drawing on the blackboard is a more palpable representation which can also be viewed as a model, but the formula, without being representational, is, in some respects, better. Mathematical calculation, algebraic in particular, is more exact than measurement with compasses and a ruler can be. Besides, many complex processes generally cannot be visually represented. Such is the behaviour of biological and social systems with their millions and even billions of interacting elements. We cannot possibly have a visual representation of the interaction of all industrial establishments, communications, transport, shipment of raw materials and goods on a national scale, which we must know to be able to plan and scientifically manage the socialist economy. Still, all of it can be represented adequately enough by a system of mathematical equations. These equations will be models of the economic system. By putting in concrete figures instead of certain variables, we can calculate other variables very accurately. Intricate mathematical models are handled by computers.

Thus, there may be physical models, like mock-ups, simplified copies of things, or sign models, like mathematical equations, conventionalised diagrams, etc. Between these extremes, we find other types of models combining physical and symbolic features in varying proportions, e.g., the ordinary classroom globe.

One must, however, discriminate between sign models and other sign systems, e.g., language. Words are not images of objects but their significants. Nevertheless, all models (including sign models) are, in a sense, patterns of the phenomena examined.

What is the relation between abstraction and model-building? How are abstractions and models connected? As follows from the definition, models do not reproduce all characteristics of the object but only such as are essential to the research. Clearly enough, to be able to build or select a model, one should be informed about some properties and connections of the object or process concerned. This information, expressed in special concepts, precedes, therefore, the building of a model. The success of the model, its practical and scientific usefulness, depends on how correctly the abstractions underlying it had been elaborated, and how essential are the characteristics of the phenomena under investigation which they reflect. After the model is made and is used in the laboratory or in production, it helps fill up a gap in knowledge and elaborate new abstractions reflecting hitherto unknown characteristics of the structure and behaviour of the given phenomena.

The processes of abstraction and model-building are interrelated. The objectification of an abstraction in a model is described as its realisation or materialisation. Before launching the lunar probe *Lunokhod-1*, scientists collected all available information about lunar topography and the physicochemical structure of the Moon's surface. Working from these data, they built several models of the automatic laboratory and tested them under conditions closely resembling lunar conditions. After the design of the probe was corrected and improved, the real probe was built and launched to the Moon.

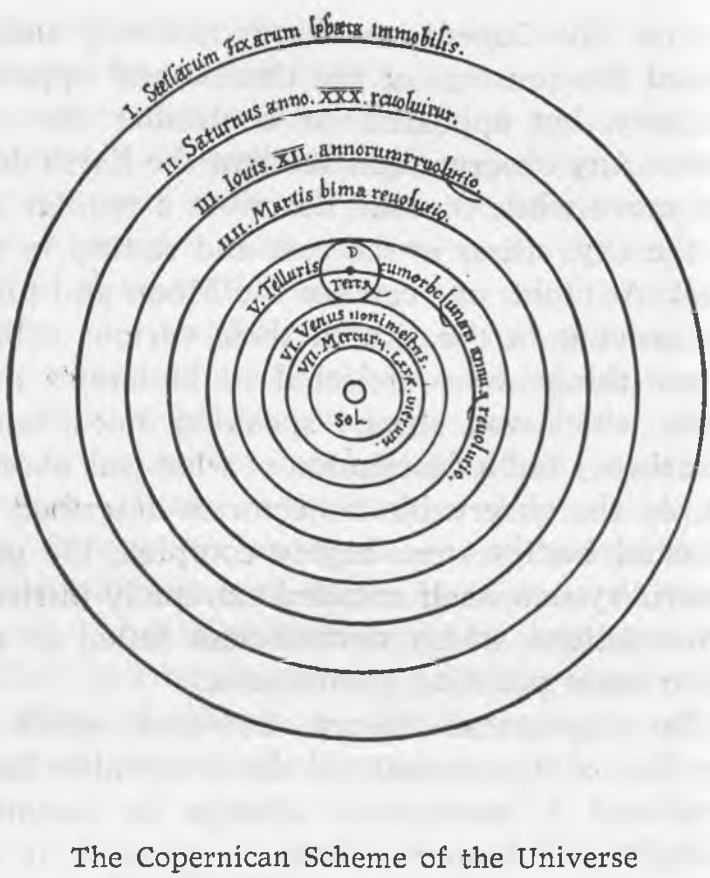
Thus model-building proceeds through several stages. At the first stage, the main abstractions are elaborated, isolating the most essential of the object's known characteristics. Simultaneously, the aim of the ensuing research is formulated. At the second stage, the model is designed and built. At the third stage, model experiments are conducted. At the fourth stage, the experimental data are applied to the object concerned. However, though important, modelling by itself does not yield the result sought. Both to build a model and to apply the experimental data to the object, we need scientific theory. The revolutionary doctrine of scientific communism created by Marx and Engels and Darwin's teaching on biological evolution, classical and quantum mechanics, all are scientific theories. Theory is the highest form of cognition, integrating observation and abstraction, model-building and experimentation. Without theory, these important stages of cognition are limited and sterile. It was this that made the founders of dialectical materialism pay such great attention to theoretical thought.

§5. The Theoretical Level of Knowledge

In 1543, Nicolaus Copernicus published a new theory on the revolution of celestial bodies, which maintained that the Earth was not the centre of the universe round which the other planets and the Sun revolved. The Copernican theory conflicted with the Earth-centred system of the ancient Greek philosopher and astronomer Ptolemy, which was supported by the church. The Copernican theory not only undermined the prestige of the church and opposed Ptolemy, but appeared to contradict the obvious. Any observer can see that the Earth does not move while the Sun describes a regular arc in the sky, rising in the east and setting in the west. At night, one can see the Moon and planets moving in the sky in their various orbits. These things were reflected in Ptolemy's doctrine, which was, strictly speaking, not a scientific theory but a description of what was observed. As the observable trajectories described by celestial bodies were highly complex, the geocentric system itself entailed extremely intricate constructions which nevertheless failed to explain some puzzling phenomena.

The Copernican theory, however, which on the face of it, contradicted the observable facts, produced a momentous change in scientific thought and human culture in general. It explained, simply and accurately, the phenomena under observation, made it possible to predict new phenomena, and broke the ground for modern astronomic research.

Explanation, prediction and definition of the character of scientific research, experimentation and observation are three cardinal functions of every scientific theory. This is brilliantly illustrated by Marx's economic theory. Many facts on which Marx based himself in his *Capital* had been described by other investigators. Bourgeois



The Copernican Scheme of the Universe

thinkers were not ignorant of the class struggle, economic and political inequality, exploitation, pauperisation of working people, and so on. Yet they were unable to explain them from a consistent viewpoint, predict from them the future course of history and define the main direction of revolutionary effort. Marx's economic theory based on the law of the development of capitalist society formulated by him, alone explained the available facts and, moreover, accurately predicted the main stages and objective laws of the transition from capitalism to the new communist formation, which was subsequently affirmed by the entire process of the world revolutionary movement.

What, then, makes a theory capable of performing its principal functions? Why can they not be performed merely on the basis of observation, of men's immediate practical activity?

We call a theory not just any totality of views but a specifically organised system of correlated scientific laws. Scientific laws, as we know, are reflections of objective laws to which the phenomena under investigation are subject. These phenomena comprise what is often called the substantive part of a theory. Scientific laws reflecting fundamental, stable, recurring and necessary connections prevailing in the given substantive area, which are logically correlated, form a theory. Thus, Kepler's laws are a theory of planetary motion because they express stable necessary connections inherent in the planets. Marx's economic doctrine expounded in *Capital* also is a theory in the strict sense of the word, as the laws contained in it reflect necessary economic relations and are connected according to the principles of dialectical logic.

The basic, primary laws of a theory are often called principles or postulates, while in theories expressed in mathematical terms they are called axioms. These primary laws are not logically proved within the given theory, but all other laws are logically deduced from them, and so are considered proved. From this it does not, however, follow that the principles and postulates of a theory are indemonstrable. Nothing is taken on trust in science. The laws which are accepted without logical demonstration within a theory may be demonstrated within another, more general theory. Kepler's laws, which appeared at first as postulates of the planetary motion theory, were subsequently demonstrated, i.e., deduced from the more general principles of Newton's celestial mechanics.

The primary laws of every theory, if they are not deduced from more general principles, are accepted either because their truth immediately follows from practice or experiment or because the final consequences of these laws are consistent with experiment and observation. The latter is decisive to the evaluation of a theory.

One should not think that the laws of any science are always obtained by generalising the results of observation. Should it be so, it would be relatively easy to discover new laws. Any trained expert could do it. What makes genuine scientific creative work so difficult is that formulation of a new law or principle often requires ingenuity, imagination and even a departure from the phenomena observed.

Many recent scientific theories were formulated not in laboratories but at the writing desk in the scientist's study because the development of new principles calls for complex abstractions and abstract theoretical thinking. Thus, the law of value which states that commodities possessing different useful qualities are exchangeable provided that equal amounts of socially necessary labour went into their making, could not be discovered from simple observation of the market, of isolated transactions. After all, the actual exchange of commodities is influenced by demand, supply and other factors which make the price either higher or lower than the average cost. Marx has to evolve a range of abstract notions, e.g., abstract labour, the amount of socially necessary labour, etc., to be able to rise above the chaotic commodity-money relations prevailing in capitalist society and formulate the law of value. This law, which at first glance appears to contradict obvious facts, made it possible to formulate and deduce a range of other laws of capitalist political economy, such as the laws of surplus value, capitalist profit, primitive accumulation of capital, and so on, which provided the basis for predicting the future of capitalism.

A scientific theory therefore enables objective phenomena to be explained and predicted because it is a system of laws, not a description of isolated events or fragments of the material world. Laws, therefore, perform a twin function. On the one hand, they are the most far-reaching reflections of the objective, stable connections existing in the substantive part of a science; on the other hand, they appear as logical forms, essential for deducing other laws and so-called final consequences, i.e., statements containing information about individual events and phenomena. A law possesses a high degree of generalisation, being a concentrated reflection of the essential characteristics, basic properties and behaviour of the objects studied. This is what ensures its particular role in cognition.

Purposeful human activity of any kind is all the more successful, if it rests firmly on scientific theory. This is of particular significance to the communist transformation of society. It is for this reason that the Soviet Communist Party pays such great attention to developing the theory of scientific communism.

Starting from the distinctive characteristics of theory and the part it plays in scientific cognition, we can now view the role of abstraction in a new light.

The laws of every scientific theory are always formulated by abstraction. They do not usually contain evidence of sensible things, as they do not have recourse to sensory representations and images but to the more general and abstract concepts. This poses before every scientist the problem of interpreting abstract laws in terms of observation. In other words, so that the laws and their corollaries should be applicable to sensible things and events and verifiable by experiment and observation, they must be translated, so to speak, from the language of abstractions into the language of sensuous images which we use in describing our sensations and notions. This is the focal point for the problems of the link between conception and sensation, of thought proceeding at different verbal levels, and of the interaction between theoretical and practical activity.

We have already mentioned several times that the emphasis on practice as the principal source of knowledge and the yardstick of truth is the basis of Marxist epistemology. Nevertheless, the general philosophical question of the connection between thought and practical human activity acquires a particular form with reference to scientific cognition. It is, in fact, the relationship between theory and experiment, between the theoretical and empirical levels of cognition because, whereas scientific theory is the highest form of knowing reality, scientific experiment is an essential part of social and production practice, indissolubly linked with the development and improvement of theory.

§6. The Empirical Level of Cognition

The wide use of experiment as a major means of cognition is the main distinguishing mark of modern natural science.

The scientists and philosophers of the past, drawing on everyday experience, common sense and observation, accumulated, classified and passed on to us many valuable facts touching on diverse aspects of nature. The conjectures and hypotheses put forward by them, e.g., the atomistic hypothesis, continue to surprise us by their depth and keen insight. And yet, the spirit of experimental research was perfectly strange to science both in antiquity and the middle ages. That was due, on the one hand, to the relatively low level and growth rate of the productive forces and to the widespread predominance (especially in medieval Europe) of philosophical idealism and utmost deference to the church, on the other.

Rapid development of technology associated with the emergence of the capitalist mode of production, gave a strong impetus to the new trend in scientific research and provided the material conditions and prerequisites for it. The change to experimental science, marking a turn from a passive, contemplative approach to nature to active intervention in its secrets, took place first of all in those branches of science which were more closely related to industry, navigation and weapons production.

To cross the oceans steering by the stars, build steam-engines and railways, and produce synthetic materials, man had to learn to see nature with his own eyes, not as the Bible saw it. But to be able to do that, he had to revolutionise the very philosophical basis of his view on the world, to surmount idealism which held experiment in contempt and saw the ultimate proof of truth in the dogmas of the church, rather than in scientific evidence. That is why modern natural science was ushered in not only by mathematicians and other scientists but also by materialist philosophers who, following Francis Bacon, proclaimed observation and experiment to be the decisive factors in the cognition of nature.

The main principle of philosophical materialism in general consists in the recognition of the objective world existing independently of the human mind. Directly following from this is the demand that cognition should concentrate on studying the characteristics and objective laws of this world. Materialists have always held observation, furnishing immediate sensory data, to be the chief method of cognising matter. Nevertheless, as we know, it is not always possible to explain complex phenomena from observation alone.

Cognition of the essential properties of the objects investigated and of the laws they obey is often made easier by placing the objects in unusual, often artificial, conditions, by refashioning the surrounding medium with the aid of special devices.

Experimental natural science emerged in the 17th century. In three centuries it achieved much more than science had achieved previously in almost two millennia. The success was due above all to extensive experimentation. The chief goal of classical experimental scientists was to cognise, to study the properties and laws concealed from the passive observer. Their efforts were a practical refutation of the Kantian thesis that there is an impassable gulf between the thing-in-itself and knowledge. Kant required that the investigator should proceed without introducing any changes in the object, so that it could be cognised in its pure, pristine state, undistorted by the investigator's interference.

But is this not a contradiction of the very idea of experiment? Do we not demolish the natural integrity and qualities of things and processes as we pass high-tension current through them, subject them to monstrous pressures, place them in a vacuum and bring their temperature down to almost absolute zero? Certainly, such apprehensions are not altogether groundless. However, as they used instruments which extended the limits of our natural sensitivity and applied complex apparatus, experimental scientists always tried to reduce to a minimum the researcher's influence on the object.

Historically, this was due to the fact that experimental science could not, right away, undertake complex experiments taking into account the role of the subjective factor. Another reason was that experimental methods developed in natural science in complete isolation from social life. Thirdly, it was determined by the philosophical standpoint shared by the majority of scientists.

Research was conducted on the lines of spontaneous scientific materialism which—like pre-Marxian metaphysical materialism—viewed cognition of the world merely as its explanation. That approach ignores man's active, transforming, practical activity which dialectical materialism considers to be the heart of the theory of knowledge.

The demand for the interaction between the cognising subject and the object to be considered and their interdependence and mutual influence to be reflected in the theoretical picture of the world was formulated by Marx in his *Theses on Feuerbach* and was later realised in the experimental practice of the recent natural sciences, technology and the social sciences. As quantum mechanics has demonstrated, the nature of the motion of micro-objects is such that the instruments we use in studying them appreciably affect some of their characteristics. Therefore, in quantum mechanics, the condition of the objects of experiment must be described, taking into account the instruments and the conditions of the experiment.

In the subjective idealists' view, this proves that the object does not exist without the subject, the latter playing the decisive part in the relationship. In point of fact, however, every level of the motion of matter obeys its own objective laws, calling for specific methods of experimental and theoretical research. The probable, statistical motion of elementary particles is objectively marked by uncertainty. Experimenters always have to bear that in mind. As they act on some of the characteristics of the micro-object, they also produce changes in other characteristics, so that a comprehensive picture of the process can be obtained only by taking into consideration the interaction of the experimental apparatus and the micro-objects under investigation. This indicates a deep insight into the objective laws of nature, rather than a subjective caprice.

In modern technology, the need to examine objects together with the subject acting upon them and cognising their work is associated with the development of supercomplex machines, automatic systems, high-speed electronic computers, space laboratories, complex control systems, and so on. Take, for instance, the experiments connected with Soviet space flights. The aim of the experiments was not merely to study the parameters of the spaceship and the effect of weightlessness, etc., on the cosmonauts. The main thing was that these and many other parameters and characteristics were studied in the light of their interaction and interconnection.

The new type of experiments, where the object is cognised in its interaction with the subject, are extensively conducted on a sociological level as well. Thus, in the course of building communism, we encounter at every step diverse social experiments whereby various forms of organising production and management, education and upbringing, service and city planning are cognised and appreciated. In each case, the cognising individual appears both as the subject and the object of the experiment as he simultaneously acts on and is affected by diverse experimental factors.

Thus, scientific experiment is a special kind of cognitive activity aimed at acquiring more knowledge of objects and processes in nature and society. It is realised with the aid of special apparatus, instruments and devices, under controlled conditions. The most essential requirements an experiment must satisfy are (1) that the apparatus should ensure the highest standard of precision of measurement and observation possible for the given class of appliances; (2) that the experiment can be repeated (this is essential because obtaining reliable results mostly requires a mass of experimental data allowing for statistical processing, which eliminates the influence of chance occurrences and disturbances); (3) that the experiment should be conducted in conformity with a set of methods worked out beforehand and ensuring control at every stage of the experiment.

All experiments satisfying the aforementioned requirements and implying not only material objects but also material facilities and conditions are often called material experiments. Besides these, speculative experiments play a considerable role in modern science. A speculative experiment differs from a material experiment in that its objects and apparatus exist solely in the experimenter's imagination. A speculative experiment is a sort of a model of a material experiment, meeting all requirements the latter should satisfy, the only difference being that for some reason it cannot technically be carried out in practice.

According to their purpose, experiments are categorised under the three general headings of *discovery, verification* and *realisation.*

Experiments seeking to *discover* something new are exemplified by Edison's search for a material suitable for the filament of the incandescent lamp. Almost six thousand experiments were made before the right material was found. Research of this kind is sometimes described as the trial-and-error method which boils down to trying out a number of variants, the unsuccessful attempts being discarded. However, scientists usually prefer to conduct such experiments not at random but on the basis of a theory or hypothesis, thereby reducing the number of trials and errors to a minimum. The laws established as a result of generalising the data yielded by such experiments are called empirical.

The second kind of experiments aimed at *verification* of something are made with a view to verifying a hypothesis. A hypothesis affirmed by experiment becomes a valid scientific theory while the one refuted by it is discarded and replaced by another. Such tests are of particular importance in choosing one out of a number of hypotheses. We have an example of it in the experimental discovery of new chemical elements. The Russian scientist D. I. Mendeleyev (1834-1907), having discovered that the elements show a periodic variation in most of their properties (the periodic law), hypothetically described some chemical elements not yet discovered in his day. His prediction was justified by subsequent investigation.

Finally, the third kind of experiments seeking to *realise* something are made in order to produce new objects which are then investigated or applied in practice. A few years ago, a group of Soviet scientists led by Academician Flerov synthesised a transuranium element which was named *Kurchatovium* in honour of the Soviet physicist Kurchatov. This element exists only in laboratory conditions and disintegrates very quickly. Nevertheless, its production, as well as the synthesis of other transuranium elements, is an important experimental achievement, facilitating a deeper study into the structure of substances.

Thus, experiments may serve as the groundwork of new laws, hypotheses or theories or they may serve to verify them. However, experiments often play both parts simultaneously. For this reason, our classification is only tentative and should not be regarded as absolute and final.

Considering the significance of experiment to cognition, Lenin emphasised that experiment is a variety, a part of social and production practice. "An experiment," he said, "is already practice". Comparing the structure of experimentation and labour, it is easy to establish their similarity. In both there is an object of practical activity, implements and means whereby this activity is carried out, and, lastly, man. The difference is that the main purpose of labour is to produce material values, objects and conditions to satisfy various needs, whereas knowledge, acquired and accumulated in the process of production, plays a subordinate, albeit significant, part. The main purpose of experiment is, on the other hand, to produce new knowledge. Even so, there is no fundamental difference between scientific experimentation and production activities.

The foregoing clearly shows the intimate connection between the two levels of knowledge—theoretical and empirical. Higher, theoretical knowledge is embodied in scientific principles, postulates and laws. Empirical knowledge results from immediate observation and experimental evidence.

Both levels of knowledge supplement each other, and it is only in close unity that they produce a picture of the external world satisfying the requirements of objective truth. Lenin's formula, "From living perception to abstract thought, and from this to practice", brings out the thoroughly dialectical character of the process of cognition, showing that it develops in a spiral. Empirical knowledge which arises out of living perception, out of scientific experiment, poses to us fresh problems, leading the mind to draw general theoretical conclusions. A scientific hypothesis derived from theoretical research requires experimental verification in the course of which new properties of the objects examined may be discovered. Every loop of the spiral not only reveals fresh relative truths but also provides the prerequisites for further advance. At the same time, the appearance of new forms and types of experimental research puts forward complex epistemological problems concerning the peculiarities of different varieties of theoretical and empirical knowledge. This interconnection of philosophical and scientific problems provides the basis for the fruitful co-operation of scientists and philosophers urged by Lenin fifty years ago.

Investigation of the main problems and principles of the theory of knowledge of dialectical materialism not only reveals its essential difference from all other philosophical systems and demonstrates its perfect agreement with the results and methods of modern science, but also proves that study of this theory is a major condition of mastering Marxism-Leninism.

HISTORICAL MATERIALISM

Chapter One

THE SCIENCE OF HISTORICAL MATERIALISM

§1. What Is Historical Materialism?

Mankind has existed for many millennia. It has travelled a long and arduous road, full of struggle with the primordial forces of nature, with want, hunger, oppression, devastating epidemics and bloody wars. Thrones crumbled, and mighty kingdoms fell. Civilisations came and went. Some of them vanished utterly, but others left an indelible mark on history. Famous war lords, mighty kings, heroic popular leaders left their names to posterity. But there were millions who remained nameless. They were the ones who made armies strong and kings mighty, whose blood flowed in times of popular unrest. What part did they play in history? What can guide us through the tangled maze of events that form the body of history?

Regimes that were, to all appearances, unshakable, were often shaken by popular revolutions. What are these revolutions? Are they disastrous accidents disrupting the regular march of history? Or are they the legitimate outcome of previous history, determining the future course of events? What impels people to rise against powerful forces? Where is the theory able to explain these things in keeping with the authentic historical facts?

The current age is one of victorious popular revolutions, one in which peoples choose the path they would follow. What scientific theory explains the successes scored by the socialist countries, the mounting working-class movement in the capitalist countries, the liberation of many African, Asian and Latin American countries from colonial oppression, the rapid progress of science and technology, the active involvement of the masses in every part of the world in the making of history? What scientific theory explains, in a word, the very substance of the current epoch?

No doubt, both present and past history may be explained in various ways. Or it may be left unexplained, and one may simply drift along, from day to day, ignoring theoretical problems. Yet it is getting harder and harder to live like that, because every person's life, irrespective of his wishes, is becoming more closely linked with the general course of world history. This being so, everyone should obviously be aware of his place in the world and of the relationship between a person's activities and the processes developing in the modern world.

Theories seeking to explain society have never been lacking. Many of them are long forgotten. Others sprang up quite recently and time alone will show if they will stay.

The Marxist-Leninist science of society, historical materialism, is the only social theory which although founded over 125 years ago, has lost none of its vitality and continues to win support.

Why is it so? It is so because historical materialism answers the questions posed by social history and meets the hopes of the millions. It is so because historical materialism is not a mass of frozen dogmas but a living, creative theory, capable of developing and enriching itself by general conclusions drawn from historical experience.

Not only does historical materialism explain the past and the present, but it enables us to foresee the future and take an active part in the process of history.

§2. The Subject Matter of Historical Materialism

What sort of science is historical materialism? What is its subject matter, what does it seek to learn about society? How does it relate to philosophy and the social sciences? Has it already explained every law of history? What does it say about the meaning of history and about man's destination?

Let us first see what is the proper subject of historical materialism. Society is investigated by many sciences, which is only natural, for society has diverse aspects. All social sciences study one object, viz., the life of society, but they each regard society from a particular angle, e.g., from the angle of economics, population, history, culture, and so on. The subject of a social science is thus one facet of society's life, isolated for the purpose of investigation from the close-knit unity of interrelated social phenomena. What distinguishes historical materialism from other social sciences in that respect?

Compared with economic history, economic statistics, industrial economics, the economics of supply and distribution, the theory and history of finance, etc., political economy is a more general science as it elucidates more general characteristics of the economic life of society.

Civil history is also a general social science, more general, for instance, than demography, the science of population. It seeks to explain particular features of the historical development of individual nations. Historians thus study the most concrete and specific manifestations of the general historical tendency of a nation. The tendency, which comes to light when the historical events are related, obeys the laws of society's development. But how can we discover these laws?

The principles of dialectical materialism refer to society as well as to nature. But as it deals with knowledge generalised to the maximum degree, i.e., with the most general laws of nature, society and thought, dialectical materialism has no special reference to society as distinct from nature.

Historical materialism is a philosophical science concerned with the specific laws of social development as distinct from the universal laws of being. The laws of historical materialism do not operate in nature but only in society. And as society is inseparable from men, social laws can manifest themselves only through human activity.

Historical materialism as a philosophical science considers the general aspects, tendencies and laws of social development. It always keeps in sight the relation of social being and social consciousness, of the object and subject of history. In historical materialism, every problem is examined and explained, taking account of the correlation of the objective and the subjective, of the circumstances and man, conditions and intentions, i.e., of the correlation of social being and social consciousness.

Now we can state more specifically what historical materialism investigates and why it differs from the other social sciences.

Firstly, historical materialism studies the general objective laws governing the development of any human society. As these general laws of world history operate variously in different historical epochs or phases of mankind's development, historical materialism investigates the most general phases of world history, socio-economic formations and the objective causes of their appearance and disappearance.

Secondly, historical materialism always considers the relations between social being and social consciousness. This enables it to explain the laws of history not as the effect of some mysterious forces lording it over men but as the effect of historical laws manifesting themselves through men's activity, through their struggle to attain their goals which often have nothing in common with the general course of history but which nevertheless stand in organic relation to it. In a word, historical laws appear to the student as the real motive forces of and factors in history, i.e., they appear to him in the shape of the masses and specific historical figures.

As a philosophical science, historical materialism has no pretensions to being an absolute theory able to explain every puzzle and turn of history, such as the old philosophical science was wont to assume. Every fact and turn of history require all-round scientific explanation while the philosophical elucidation of every fact consists in exercising a correct approach to its investigation, employing correct methods of research, comparing it with the general historical laws and tendencies, and applying to it the criteria of historical progress. Historical materialism provides such a method for investigating and evaluating diverse social phenomena.

However, historical materialism is more than a method of investigating social phenomena. It has a theory of its own, i.e., a theoretical substance of its own which explains the more general of historical tendencies.

Historical materialism has found that history proceeds from lower to higher forms of social organisation and that the change to higher forms is inevitable because the old forms become outmoded and stand in the way of further progress. Historical materialism, basing itself on historical evidence, on the long experience of mankind, has proved that a society without exploitation and oppression, based on free labour, is not a dream or utopia, but the result of its intrinsic development, that the transition to such society, i.e., communist society, is as inevitable as transitions of society to higher forms were in the past. This crucial conclusion is supported by historical evidence, economic analysis and the experience of the class struggle.

The successes scored by the revolutionary working-class movement demonstrate in practice how the progressive historical tendency presses forward.

The October Revolution in Russia and socialist revolutions in other countries have given this tendency a global dimension and shown the peoples of the world where their future lies.

Historical materialism does not deal with all questions of the building of socialism and communism. Such questions are the field of *scientific communism.* Being a philosophical science, historical materialism is the method of scientific communism, furnishing, in addition to historical and economic justification, also the most general, philosophic, justification of the inevitable change to communism and showing the revolutionary path of society's transition from capitalism to communism. For this reason, historical materialism is inseparable from the theory of scientific communism.

The organic relation between historical materialism and the theory and practice of the struggle for communism is the expression of the *partisanship of historical materialism* which is the theoretical reflection of the needs and goals of the working class.

Bourgeois critics of Marxism strive to show that the connection of historical materialism and the interests of the working class and the communist ideas, which is openly proclaimed by Marxist philosophers, presumably indicates the class limitations of the Marxist-Leninist social science. They allege that to produce an authentic scientific theory one must rise above classes since, they insist, a class approach to science results in biased and narrow thinking.

Is this really so? Can a person living in a class society rise above class interest? In a class society, no one is above class. To live in society and be free from it is impossible. An individual may imagine himself to be free in that sense, but in reality one cannot, in modern society, be free of class interest. The idea of such freedom is a bourgeois illusion, nothing more.

Every philosopher, artist or writer, whether he intends it or not, always defends and expresses in his work the interests of a particular class. In this sense everyone shares a party viewpoint whether or not he belongs to a party. This does not mean that the interests of a class can only be supported by its own members. An ideologist's partisanship depends on what class he supports, rather than on what class he belongs to.

Louis Blanc, Ledru-Rollin and Proudhon were most indignant when Marx concluded that they were ideologists of the French petty bourgeoisie, which in their minds was tantamount to calling them "Paris shopkeepers". Marx explained then that he had not referred to their calling, for that was quite beside the point. What he had meant was who they actually represented, whose interests they objectively reflected and supported.

Lastly, it must be borne in mind that in an exploitative society, where there is an impassable gulf between mental and manual labour, the classes whose lot is manual labour (workers and peasants) are unable, as a rule, to advance ideologists from their own midst. Their ideologists most often are members of other classes, who have enough time and money to get an education and at the same time are capable of understanding whether history is moving so that they go over from their own class to the progressive social classes. E.g., the 19th-century Revolutionary Democrats in Russia were ideologists of the revolutionary peasantry. None of them, however, was a peasant himself. Herzen was a nobleman by birth, and Chernyshevsky, Belinsky and Dobrolyubov were of the lower middle class. The ideologists of the working class, Marx and Engels were not workingmen themselves, but that did not prevent them from writing consistently on behalf of the working class and promoting its struggle, the aims and methods of which they elaborated scientifically.

Hence, every thinker is a spokesman of a definite class. Does it make him narrow-minded? The answer cannot be a simple yes or no, for that depends entirely on the class. The bourgeoisie, as a class, has long been brought into conflict with the advancement of history. Today its interests do not merely clash with those of other classes but with the development of society at large. Therefore, a modern bourgeois ideologist, being true to the interests of his class, can't help giving a garbled picture of society's development, nor is he capable of producing an authentic scientific theory of society.

It is fundamentally different with the ideologists of the working class, for the interests of the working class, unlike those of the bourgeoisie, reflect the historical tendency. The working class is a consistently revolutionary class. It has a stake in social progress and so has no need to falsify social history. Moreover, only from the standpoint of the working class, the exponent of social progress, could a genuine scientific theory of social development be produced. Nor was it by chance that such a theory was evolved by the ideologists of the working class, Karl Marx and Frederick Engels.

Thus, the partisanship of Marxist-Leninist philosophy does not imply that it is limited but that it is scientifically objective.

Historical materialism is a theoretical generalisation of real human history, a generalisation of the evidence supplied by other social sciences. The scientific dialectical method by which historical materialism investigates the life of society, considering society in the process of its continuous development, implies that historical materialism itself keeps developing as it draws general conclusions from fresh historical experience and the findings of the social sciences.

Chapter Two

MATERIALIST CONCEPT OF HISTORY

§1. Emergence of Historical Materialism—a Revolution in the View of Society

Men began to ask themselves long ago what force governed the development of society. Religion and the church told them that they, miserable sinners, were to turn their thoughts to god and hope for his kindness and forgiveness. God the almighty held their destiny in his hands. "Man proposes, and God disposes", the church taught. "Be humble, be meek, and trust in the divine providence."

Some thinkers rebelled against the authority of the church and appealed to reason. They saw in man's rational creative activity the mainspring of the historical process.

You will remember that at the beginning of this book it was mentioned that philosophers, depending on their answer to the fundamental question of philosophy–i.e., what is primary, matter or consciousness–divided into two camps in explaining the world in general and elucidating the relation of spirit and nature–materialists and idealists. However, as soon as the pre-Marxian philosophers came to consider society, all of them, materialists and idealists alike, took an idealist attitude. That this attitude should have been shared by Hegel was not surprising, for Hegel was an objective idealist to whom society was a stage in the development of the absolute spirit. But then, the idealist attitude was also shared by philosophers who were part and parcel of the history of materialism.

Ideologists of the French revolutionary bourgeoisie, the great 18th-century materialists Diderot, Holbach, Helvetius and others, seeking to understand the essence of society's development, maintained that men's opinions were determined in every age by the predominant social conditions which themselves depended entirely on men's own volition.

The last great materialist philosopher before Marx, Ludwig Feuerbach, who passionately criticised idealism and religion, simultaneously held that religion was the groundwork of social history, that its forms determined the face of an age. In Feuerbach's view, if society was bad, it was because its religion was bad. To make society good, its bad religion (e.g., Christianity) should be replaced by a good religion. With this end in mind, Feuerbach invented a new "perfect religion of love" in the belief that a society founded on such a religion should itself become perfect.

The idea that society is the outcome of the spirit, or a result of men's spiritual (religious, political, legal, etc.) activity, held undivided sway in pre-Marxian philosophical, sociological and historical literature. The viewpoint had become a tradition. It pervaded fiction and was generally taken for granted.

He had to be courageous indeed who not only called the idea in doubt but scientifically proved that it was untenable. It took a combination of scientific genius and supreme personal courage to do it. Karl Marx had both. For the first time in history he showed that before man could indulge in thought, science, philosophy, politics, religion, and so on, he had to eat, drink, to have shelter, and so on. In other words, man had to satisfy his material needs first. This idea, which now, many years after the emergence of Marxism, is considered to be self-evident, worked a revolution in views on society, signifying the birth of a new, materialist conception of history. Although apparently simple, Marx's idea has far-reaching implications. If, to be able to think, man must satisfy his material needs, it means, first of all, that at the basis of history is the production of all those things which go to satisfy man's material needs, i.e., the production of food, clothing, houses, and so on. Therefore the *production of material goods is the basis of history.*

The next conclusion: if history is based on the production of material goods, then the decisive role in history belongs to the producers of the material goods, i.e., the working people.

The significance of the change Marx worked in ideas on society will become clearer if we consider the fact that sociologists before Marx examined at best only the ideological motives of human activity, usually neglecting the economic circumstances, which they treated as a side issue, inessential to history. Before Marx, all thinkers reduced history entirely to the doings of individual personalities, paying no attention to the masses. In their view, history was made not by the people but by heroes towering above the crowd.

The materialist conception of history formulated by Marx and Engels showed that the people were the history-makers and producers of all material and spiritual values available to society. That was why Lenin wrote: "The discovery of the materialistic conception of history, or more correctly, the consistent continuation and extension of materialism into the domain of social phenomena, removed the two chief shortcomings in earlier historical theories."[1] Marx proved, first, that history is based not on ideas but on material production; and, second, that it is made not by isolated heroes

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[1] V. I. Lenin, *Collected Works*, Vol. 21, p. 56.

and military leaders but by the masses, the working people above all.

Human society is a highly complex phenomenon comprising a maze of diverse relations and connections. People work or exploit others, they love, suffer, fight their enemies and die, they pray to god or damn him, and in doing all this they form widely varied relations with each other.

But history does not boil down to individual actions. It also embraces group and mass action. Classes and nations fight one another fiercely, to the death; peoples rise against their oppressors; destructive wars and horrible epidemics devastate whole countries.

This tangled maze of facts and events was extremely puzzling. For thousands of years eminent thinkers who took a keen interest in the destinies of mankind were unable to understand what governed history—this chaos of events and facts. Was it god? Was it the conflict of good and evil? A hero's or an emperor's will? Were there, after all, any laws that determined social development? Idealism which dominated the views on society, failed to supply a scientific answer to these questions.

The materialist conception of history was able to supply such an answer. The conclusion that material production was primary with relation to intellectual activity was in itself enough to suggest that pre-eminent among all complex social relations–family, religious, class, national, political, legal and others–were those formed by people engaged in material production or directly associated with it, which were primary and definitive.

Past thinkers were unable to extricate themselves from the tangle of events and facts because they had no yardstick to help them tell the substantial from the unsubstantial, the principal from the secondary things. Marx was the first to discover such a yardstick. Having selected the relations emerging among people in the process of production, i.e., *relations of production,* as principal and crucial to the life of society, Marx was able to apply to social phenomena the common scientific *yardstick of recurrence,* without which the laws of social development cannot be discerned.

As is known, no two countries are the same. Every country has a different economic level and staple industries, different history, language, national culture, different customs, political institutions, and so on. But does this imply that different countries may have nothing in common? No, it does not. Having formulated the conception of the relations of production and examined them in different countries, each with its own conditions, Marx was able to find that which was common to all countries at the same stage of development (e.g., at the capitalist stage), and to evolve the concept "socio-economic formation" which expressed in a highly generalised form the prevailing situation in all such countries.

In the preface to the first edition of *Capital* Marx, addressing German readers, wrote that if, upon reading *Capital*, which dwells for the most part on the development of capitalism in England, they would say that it had no reference to Germany, they would be quite wrong, as a more developed country merely presented a less developed one with the picture of its immediate future.

§2. History as an Objective Process

By entertaining a materialist conception of history and applying the yardstick of recurrence to society, Marx and Engels were able to discover the laws of social development and interpret human history not as the result of arbitrary individual action, nor as the result of divine activity, but as an objective natural process developing, like nature, independently of men's intentions.

Marx and Engels conclusively proved that society proceeds from lower to higher forms, through class contradictions and class struggle, to a classless communist society; and that communism was not a utopia but the necessary product of social development. The founders of Marxism not only showed why communism was inevitable but discovered in the working class the force which was to destroy capitalism and build a communist society. It was proved from the operation of the objective laws governing society's development.

Some bourgeois philosophers attempted to show that no such thing as social laws generally existed. With this purpose in mind, they advanced a theory to the effect that in society, unlike nature, nothing ever was or could be repeated because every historical occurrence was unique and without parallel.

Indeed, no historical event occurs twice. Every social phenomenon, as a sum of individual characteristics, is unique. Let us compare the French bourgeois revolution of the 18th century and the English bourgeois revolution of the 17th century. The French revolution is associated with the storming of the Bastille, the guillotining of the French king and queen, with the names of Robespierre, Danton and Marat, with the common people thronging the streets of Paris, singing the *Marseillaise* and *Carmagnole.*

The English bourgeois revolution involved the beheading of the king, Cromwell's dictatorship, and at the end of it all, the bourgeois "glorious revolution", the compromise between the bourgeoisie and the nobility, and the restoration of monarchy.

The two events are apparently rather dissimilar. The countries are unlike, and so are the peoples, with their different customs and habits. But what is the most essential thing about these two events? Is it the songs they sang then in London and Paris? Most probably not. Is it the method by which the respective kings lost their heads? Hardly so. What then is the principal meaning of the two events?

The English bourgeois revolution set out, above all, to abolish the old feudal system and establish a new, capitalist system. And even though, owing to the compromise between the bourgeoisie and the nobility, this revolution failed to carry out its tasks consistently, it nevertheless cleared the path for capitalism.

The principal aim of the French bourgeois revolution was to abolish the old feudal regime and establish new, capitalist relations. Hence, these two events have something in common, they have recurring characteristics. Besides, these characteristics were fundamental to both events, while the characteristics that did not recur were inessential to the course of history. That common factor of the two events was reflected in the concept "bourgeois revolution".

Thus, historical events present a unity of the recurrent and the unique. It is usually their most substantial features that recur, while it is the inessential, minor features that are unique and particular and do not recur. But if there is regularity in social phenomena it means that society and history in general obey objective laws.

An adult member of society finds in it fully formed social relations, relations of production, a state structure, etc. Although he may influence the circumstances to some extent by his activity, he cannot choose them. The laws operating in society are as objective and independent of individual will as are the laws of nature.

Yet there are some distinctions between the laws of nature and the laws of history. The chief of these distinctions is that the laws of nature not only operate independently of human will and consciousness but are altogether independent of men. For them, man might simply not exist. They were just as effective when there were no people as they are now. Of course, having knowledge of natural laws, man can often accelerate their action or channel it in a direction useful to society.

Knowing the laws of species formation, man learned to hasten it by artificial selection, producing new strains or races of useful plants and animals in a comparatively short time. But the laws of species formation, by themselves, operate independently of man. Natural selection was effective ever since living creatures had appeared, before man evolved at all. Moreover, man also, as a biological species, is the product of natural selection. Thus, the operation of laws of nature does not in the least require man's participation.

It is altogether different with the *laws of social development.* Although they operate independently of man's will and mind, they are always realised through men, through human activity. Therefore history is entirely the product of human activity. History is made by men, but they have to make it in accordance with the objective circumstances prevailing during the lifetime of each generation, and not just as their fancy takes them. Thus, human activity is one of the conditions necessary for the laws of history to operate. In fact, it is the main condition.

Rudolf Stammler, a bourgeois philosopher and one of the early critics of Marxism, maintained, as he tried to prove the "unsoundness" of Marxism, that if under the laws of nature an eclipse of the Sun were to occur, nobody would ever think of setting up a party for the promotion of the eclipse. Then why organise a "party for the promotion of revolution", if one regards the proletarian revolution as the inevitable effect of the laws of history? Since an eclipse of the Sun occurs without men's participation, then the revolution, if it is inevitable, will also occur without their participation.

An eclipse of the Sun, indeed, occurs without men's intervention. That is true. But human activity is not found among the conditions which lead to an eclipse. Therefore the idea of setting up a "party for the promotion of the eclipse of the Sun", as Plekhanov justly observed, could only originate in a lunatic asylum.

A revolution, however, is quite another thing. It is performed by men, there can be no revolution without them. Their activity is the main condition out of the whole sum of circumstances which make the revolution possible. And this being so, then it depends on people, on the degree of their organisation and political understanding and their eagerness to fight for their rights, whether or not the revolution will take place, and how soon. That is why the creation of a party that would purposely and methodically prepare the masses to perform a revolution is necessary and justified.

So, the laws of social development manifest themselves in men's activity. Nevertheless, even a fleeting glance at history shows us that as their activity developed people usually pursued goals which did not flow from these laws. The laws of social development were discovered by Marx and Engels only in the mid-19th century, and the masses became familiar with them later still, and not in every country at that. What were people guided by, then? After all, they are not animals but rational beings endowed with the faculty of thought. They consciously pursue certain ends and consciously select the means towards them. That, however, does not yet imply that people co-ordinate their individual goals with the mainstream of history. This explains why they used to conceive history as a chaotic tangle of human strivings. Somewhere, opposing strivings clashed and cancelled each other out, somewhere else, strivings running in the same direction converged, and somewhere else again more complex combinations of forces emerged. And the overall historic tendency pressed on through this chaos of chance occurrences, just as necessity in general presses through mass of chance events.

But this means that history develops spontaneously, that people made history unconsciously, and that produced the false impression that history is made apart from people, without their participation. Under such conditions, human effort was wasted on a vast scale. This, among other things, explains the extremely slow pace of history in the past.

With the emergence of Marxism and the discovery of the laws governing the development of history, the character of society's development changes. For the first time, the broadest sections of the people are able to take part consciously in the making of history. As a result of the proletarian revolution, this possibility becomes a reality. Under the new conditions, the squandering of human effort is reduced to a minimum, as the chaotic clashes of individual intentions are superseded by the people's single collective will directed at the building of a new, communist society. This single will is expressed in the Communist Party which organises the masses and directs their aspirations towards one goal. This makes social development proceed faster than ever before.

The profound social changes which occurred in the Soviet Union after the victorious socialist revolution of October 1917 are a case in point. In his speech "The Great October Revolution and Mankind's Progress", L. I. Brezhnev said: "Within a historically short period of time, a huge backward country was transformed into a country with a highly developed industry and collectivized agriculture. It now takes only two and a half working days for our industry to produce as much as was produced in the whole of 1913. . . . Within the lifetime of a single generation, the Soviet land liberated itself completely and for ever from the onerous burden of illiteracy."[1]

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[1] *New Times*, No. 45, November 1977, p. 5.

§3. Historical Necessity and Human Activity

The following questions may be asked: if social development is governed by laws which are objective but are implemented through men's activity, what role do men play in history? Are they not slaves of objective necessity? Can man be free? What is implied here is not political freedom, nor so-called civil liberties, but freedom in terms of the relation between man and the objective laws of history. This question was often pondered by eminent thinkers of the past.

Many of them believed that man's will was capable of making history. We had seen, however, that this view is unsound, as history proceeds according to objective laws. Others held that man is powerless in the face of historical necessity, being its slave. But is it true that nothing depends on men? Was it not men who produced society's entire wealth? Was it not men who staged revolutions, sweeping away regimes believed to be unshakable? Inquisitive human thought kept seeking the answers to such questions. The great Dutch materialist philosopher, Spinoza, was the first to approach the correct conception of the relation of necessity and freedom, while Hegel produced its profound definition when he said that *freedom was apprehended necessity.* This definition, confining freedom to the domain of knowledge, may be satisfactory to Hegel but not to one who has a materialist conception of history.

For the first time in the history of science, Marxism approached this question from a standpoint fundamentally different from Hegel's. We are concerned not only with the problem of freedom with respect to knowledge but, above all, with the problem of the freedom of human activity, of man's practical freedom. Is it enough for one to apprehend necessity to become free? If one knows that, for certain reasons, an undesirable event is bound to occur and, being able to counteract it, still does nothing but is content with just the knowledge of it, will such knowledge be worth much, and can one be considered free under such circumstances?

Let us assume that under capitalism all workers know the laws of capitalism's emergence, development and decay and realise that capitalism must be superseded by socialism. Will it be enough to end capitalism? Not likely. The apprehension of necessity is certainly needed to make men really free. Necessity is blind and man is its slave as long as he fails to apprehend it. But even after he has apprehended it, man cannot be free. The knowledge of necessity is but the first requisite of actual freedom. The second is to translate knowledge into action, necessity into practical activity.

When workers have realised the historical necessity of the destruction of capitalism and the building of communism and proceed to act on this knowledge, capitalism will inevitably collapse and give way to communist society. The Marxist definition of freedom, therefore, is: "Freedom ... consists in the control over ourselves and over external nature, a control founded on knowledge of natural necessity. . . ."[1]

As we see, Hegel's idea is not rejected but thoroughly refashioned. Let us look into the Marxist definition of freedom given by Engels. In its context, "control" should on no account be understood to mean man's arbitrary power over the external world. What it means in fact is that if necessity is not apprehended, man is its slave, but once it has been apprehended, man is its master.

At the dawn of history, man was controlled by nature and was its slave. As man gained knowledge of the laws of nature and built strong productive forces, he released himself more and more from the grip of natural necessity. We mean man not as an individual but as a member of society. Man's freedom both with respect to historical and to natural necessity depends on the kind of society he lives in. A

[1] Frederick Engels, *Anti-Dühring*, p. 141.

wrongly organised society, founded on exploitation, makes its members slaves to historical necessity, and simultaneously prevents them from devoting sufficient effort to the remaking of nature. It is entirely different in the case of modern socialist society, rationally organised and developing in a planned fashion. Under socialism, historical necessity has been apprehended and the laws of history are applied in practice.

Thus the problem of human freedom is a social problem. People can enjoy a full measure of freedom only in a society in which the exploiting classes have been abolished and the productive forces serve to enrich the whole of society rather than a handful of capitalists, and are used for gaining and increasing control over nature. That was why the transition from capitalism to socialism may be described as a leap from the realm of necessity to that of freedom.

Freedom implies no annihilation of objective necessity. The latter can never disappear. Once man has apprehended objective necessity, it stops being *external* to him. It becomes the *intrinsic* content of his convictions. This being so, man can act freely, i.e., in accordance with his own convictions. At the same time, he becomes an instrument of historal necessity. A fettered revolutionary, driven on foot to forced labour in Siberia, was free with relation to historical necessity, while the armed gendarmes escorting him were its slaves.

Thus, man becomes actually free once he has gained knowledge of objective necessity and learned to act in full consciousness of what he is doing. The question of men's practical activity, of their conscious, active, free involvement in the making of history, is not an abstract theoretical problem. It is a practical problem. In a society building socialism and communism, the activity of every person, his creative participation in the effort of the whole people, has a particular meaning. The new society may be built only provided free participation of all members of society. For this reason, it is of paramount importance that every member of society should be informed about the laws of history and should act accordingly.

Another side of this important question is that history must not be regarded as a fatalistic process whereby people carry out the one and only possible course of events, dictated by historical necessity. Historical necessity manifests itself in different ways, and not necessarily at once.

History is governed by laws, but its ways are not fatally determined. Their choice is decided in the struggle of social forces, as a result of which one of the possible variants of historical development is determined. And, certainly, reaction may temporarily triumph, the forces of progress may temporarily be defeated. But in the end, the forces of progress get the upper hand. That was what happened in People's Hungary after World War II. In this concrete case, historical necessity manifested its ultimate irresistible force.

§4. Material Conditions of Society

The history of every nation develops in a definite place, under definite natural conditions. These natural conditions (otherwise called the *geographical environment*) vary. The area inhabited by a people may be covered with mountains and forests or it may be a desert or the tundra or it may be fertile. It may be situated in the cold Far North or in the hot South. And of course, the country's nearness to trade routes and centres of civilisation is crucial. Availability of fertile soil, a mild climate, abundant mineral resources and neighbours who contribute to its historical progress by trade and cultural exchanges give advantages to a country, whereas their shortage puts it in a disadvantageous position.

Favourable natural conditions may speed up the progress of society while unfavourable conditions may retard it. To get a concrete idea of the role played by natural conditions in the life of society, they must be divided into two groups, viz., the *natural resources of the means of subsistence* and the *natural resources of the means of production.* The presence or absence of the reserves of wild edible plants, game, fish, etc., belong to the first-mentioned group, and minerals, natural communications, natural resources of energy, etc., belong to the second. At the early stages, when material production was utterly primitive, the natural means of subsistence were of paramount importance, and the natural means of production had no role in the development of society, nor could they have any. At the modern stage, of course, the latter play a decisive part in the life of society.

Nevertheless, the influence of the geographical environment on society does not boil down to the natural means of subsistence and production. Great significance is also attached to the climate, availability of impassable terrain or an insular situation, all of which hinders links with other peoples. Geographical location facilitates or handicaps the protection of national frontiers from enemy attacks. For a long time, natural trade routes played a particularly important part. Large cities and towns were usually built on the banks of navigable rivers. Convenient sea routes were also vital. Running close to different countries, they promoted the development of crafts and trade in coastal areas, and later on of manufactures as well. When the sea routes connecting Europe with Africa and the East lay mainly across the Mediterranean, it promoted the rapid economic growth of Italian sea ports. Afterwards, when the sea routes shifted to the north of Europe and passed through the English Channel, it promoted the economic growth of the Netherlands, Flanders and England.

Does this mean that the geographical environment determines historical development, as some people used to believe?

No, the geographical environment cannot determine the development of society, if only because it remains relatively constant over millions of years, while social changes occur within much shorter periods. The natural conditions in France, for example, changed imperceptibly over thousands of years while French society underwent momentous change. The whole of French history, so rich in events, coincides with a period during which the geographical environment hardly changed at all. This holds true of the history of any other country.

At the dawn of human society, when the productive forces were puny, nature held sway over man, who had neither knowledge nor any means of protection against the blind forces of nature, and who was her slave. Obviously, in those circumstances the influence of the geographical environment on the development of human society was far greater than later on. As society developed, the productive forces grew and knowledge increased, man gradually escaped from his bondage to the elements. Consequently, with the progress of science and technology, the role of the geographical environment constantly decreases. Moreover, using the results of scientific and technological progress, man has gained the ability to influence nature on an ever-increasing scale. In the circumstances of private ownership and capitalist production in some countries, man's impact on nature often entails irreparable harm to the environment and is fraught with grave dangers. For nature is a finely balanced system capable of self-regulation, and depredation of the natural resources upsets it and impairs this capacity for self-regulation.

Whatever the successes of scientific and technological progress, the effect of the natural environment on society will always be a positive quantity because, no matter how advanced, society will always exist in a specific geographical environment, in a definite set of natural conditions which influence, and will continue to influence, the life of society.

Well-considered, methodical use of the natural resources under the planned socialist economy and the socialist system based on common ownership open up great possibilities for conserving the environment. In the Soviet Union, for example, there are special laws and agencies concerned with preserving natural resources and protecting the environment.

Even so, at the present rate of production growth and with increasing urbanisation, individual countries or even groups of countries can do little to prevent irreparable damage to nature. There is an urgent need for an international system of conservation measures involving all, or at least all the industrially advanced, countries.

In his speech "The Great October Revolution and Mankind's Progress" L. I. Brezhnev said that among the problems facing mankind "there is the problem of protecting man from the many dangers with which further uncontrolled technological development threatens him, in other words, the conservation of nature".[1]

The size and density of *population* is another standard factor in society's existence and development. This is obvious since history is made by people, who are its primary requisite.

The size, growth rate, density and other characteristics of population are essential to society's development. Without a minimum number of people, society cannot function. Nevertheless, although different demographic characteristics can influence society's development for better or worse, the population growth,

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[1] *New Times*, No. 45, November 1977, p. 12.

density and composition are not what determines the development of society. For example, the succession of socio-economic formations cannot be explained by population growth.

Today, when the Earth's population is increasing at an ever faster rate, and is expected to mount, at the very least, to 6,000 million in the year 2000, bourgeois sociologists and economists are making much of the theory that the population grows in geometrical progression and the means of subsistence increase in arithmetical progression. Hence they view population growth as an eternal evil threatening innumerable calamities, such as famine, wars and so on.

However, overpopulation is not a law of nature. It does not appear because there are too many people but is due to the conditions of production under capitalism. Capitalism constantly produces a surplus-population. Economic crises, chronic unemployment, destitution are not at all the effects of overpopulation, but are, indeed, its causes. Bourgeois overpopulation theories are wrong because their authors regard the conditions, which are merely produced by capitalism, as absolute and eternal.

In reality, the growth of labour productivity, made especially rapid by the technological revolution, provides for an abundance of goods unthought of in the past. However, the progress of science and technology encounters obstacles created by capitalism, whose interests have long come in conflict with the interest of the working people, of the bulk of world population.

The economic lag in many countries which only recently rid themselves of colonialist exploitation is also due to capitalism which plundered the natural wealth of the colonial countries and so held back their economic progress. It is because of this capitalist-bred economic lag that in some Asian and African countries, population grows faster than the productive forces. But that will not last. As they develop their economy and adjust birth rates to economic growth, the young independent nations shall achieve economic prosperity.

Thus, the character of society and its progress, the change from one social system to another, do not depend–nor can they depend–on either the geographical environment or the growth of population. The latter can only further or hamper social development, being themselves dependent on the mode of material production.

History develops on the basis of *material production* which is its determining factor.

Chapter Three

MATERIAL PRODUCTION AS THE BASIS OF SOCIETY'S EXISTENCE AND DEVELOPMENT

§1. The Mode of Production of the Material Goods

To ensure his subsistence man must provide himself with food, clothing, shelter and so on. He cannot get all these things ready-made from nature. Ever since man raised himself from the animal world, he has used more and more products of nature that need to be processed. Man cannot eat meat raw, it must be cooked first. Even primitive man, before he could wrap himself in an animal's skin, first had to kill the animal, skin it and cure the skin.

Thus, to subsist, man has to produce material goods from objects found in nature. Material production has always been–and still is–the basis of human existence. As history marches on, production undergoes change and develops its forms and means. It makes up the basis of history. People produced food and clothing, built houses, and so on, in every age. Stages of social history are differentiated not by *what* men produce but by *how*, i.e., *by what means*, they produce the material goods necessary for subsistence. In other words, historical periods are differentiated, above all, by the modes of material production on which they are founded.

Thus, at the basis of history are successive *modes of material production.*

Every mode of production has two aspects. One of them expresses man's relation to nature, i.e., the degree to which he controls it. This aspect of the mode of production constitutes the *productive forces* of society. The more advanced the productive forces, the greater man's control over nature, and vice versa. In primitive society, in which the productive forces were hardly developed, nature had control over man. The further progress of productive forces through the ages has caused this relation to change. In socialist society, which has at its disposal up-to-date technology and is rapidly moving forward along the path of scientific and technological progress, man increasingly controls nature, subjugating its blind forces to the benefit of society.

The other aspect of the mode of production consists in the *relations of production.* These express the relations among people, arising in the process of the production of material goods and determined by the level and character of the development of productive forces.

Both aspects of the mode of production form an indissoluble unity and cannot exist separately since people, in processing various objects, i.e., interacting with nature, associate with other people taking part in the process of production, i.e., interact with one another.

Besides the production of material goods, another area of material production is the production of man himself. It is performed by the family, whose forms also underwent changes in the course of history, while its influence on the historical process diminished as society developed further.

Certainly, it would be a mistake to regard the family merely as a link in the system of material production; it also plays a vital role in ethical, legal and other spiritual relations. The family does not simply carry out the physical reproduction of man. It is a highly important sphere of the education of the new generation.

For all that, the material functions of the family, associated with the reproduction of man, always were and continue to be essential to society.

The productive forces of society are the foundation of the historical process.

§2. Society's Productive Forces

The productive forces include people and the means of labour, i.e., the objects and instruments of labour. But objects of labour themselves must be either obtained or produced by man, and instruments are also results of man's labour activity. Thus, the productive forces consist of living human labour or of labour already performed and embodied in the objects and instruments of labour.

All these things become productive forces only if they are part of the process of production. Prospected mineral deposits which are not developed are not a productive force, although they may become one in future. The most up-to-date machine tools, kept under lock and key in the storeroom, are not a productive force; they become one only after being made part of the process of production. This holds of people as well. An able-bodied person who does not work cannot be considered as a productive force. Men and the instruments of labour belong to the productive forces only when associated in the production of material goods.

It would be a mistake to reduce the productive forces to production technology alone, as some Western scholars do when they give their own, somewhat biased interpretation to Marx's social doctrine. The instruments of labour by themselves, without man, cannot function productively. Therefore, the productive forces must include man who creates or operates the instruments of labour.

Thus, society's productive forces comprise two integral elements, viz., the implements of labour and people possessing industrial skills.

As a rule, the productive forces develop progressively. The capacity of the instruments of production, such as energy sources, transmission mechanisms, tools, etc., keeps increasing. As a result, the working man also undergoes change: his production experience grows and new occupations appear and develop. In this way, man's control over the natural properties of things, over the forces of nature, gradually extends. Man produces new objects with new properties not existing in nature. Thus, the level of the productive forces changes. But that is not all, for their character also changes.

The character of the productive forces coincides, by and large, with the character of labour, and may be individual (private) or collective (social). This differentiation depends on how men employ the implements of labour, whether they do it single-handed or in a group where effort is shared and co-ordinated. The process of labour–whether individual or social–*does not depend* on man's choice. It is determined by the character of the implements of labour and, more specifically, by the instruments of production, the bone and muscle of the production process.

Indeed, some instruments (practically all handicraftsman's tools) may and must be employed individually while others can be used only by a group of workers. A machine, for instance, is an instrument of production which can be used only collectively for it requires raw materials, energy, half-finished products, and so on. Besides those who run the machine, it takes dozens, if not thousands, more workers to make it function productively. Ownership has nothing to do with it. Regardless of property relations, labour in mechanised production is collective, social. The steam-engine revolutionised capitalist production just because, by making production a social process, it created the major material precondition of socialism.

As long as man employed ready-made or primitively worked tools in production, he accumulated elementary knowledge in diverse fields of activity. The progress of production caused science to emerge and develop. Thus, astronomy emerged because people had to determine from the position of the stars and planets the seasons of the year, which was essential to agriculture and animal husbandry. Geometry arose from the needs of land surveying and construction. Geography owes its origin to the development of high-seas navigation and trade. Production does more to promote science than dozens of universities, wrote Engels. Hypotheses advanced on the strength of accumulated knowledge are tested by practice and, if confirmed, become scientific truths.

When primitive instruments of labour are superseded by machines, science as a system of knowledge of the external world begins to play a far more important part in the development of production. That is but natural. Mechanised production requires detailed knowledge of the properties of things, of the forces of nature and of how they can be utilised. In turn, such knowledge is applied and embodied in instruments, mechanisms and production technologies. In this way science begins to turn into a direct production force.

In the 19th century, owing to numerous important scientific discoveries, science played a much greater role in production than ever before. But its role today in the development of productive forces is even greater. As a result of the revolution in science and technology, applied sciences have become part and parcel of the productive forces. More and more scientific discoveries are being made, some of them directly contributing to material production. Scientific information is produced on a vast scale, doubling its volume approximately every ten years. The revolution in science and technology has brought about a situation where production is increasingly becoming a field of the technological application of science, the latter itself appearing as a direct productive force.

Whereas under capitalism, production as a whole, including the latest results of science, serves to enrich a handful of capitalists, while increasing automation breeds unemployment and causes much misery among working people, under socialism, the progress of science and technology is made to serve the whole of society, all working people. Under socialism, scientific and technological progress has practically no limits and can freely bear its fruits: larger and better-quality output, lighter work, more leisure, and so on.

The role of science as an immediate productive force is determined not only by its direct effect on the technological standards of production, on the progress of technology. Science also makes an immense contribution to the development of the producers of material goods, to improving their cultural standards and skills, and to perfecting the organisation of production.

The CPSU takes all necessary measures to promote the revolution in science and technology. As a result, L. I. Brezhnev pointed out in his report "The Great October Revolution and Mankind's Progress", "never before has our country possessed such a huge economic, scientific and technical potential as today".[1]

Speaking at the 25th CPSU Congress, L. I. Brezhnev said: "The priority task is still to speed up scientific and technical progress. Its significance, you will recall, was strongly emphasised at the 24th Congress of the CPSU. We Communists proceed from the belief that the scientific and technical revolution acquires

[1] *New Times*, No. 45, November 1977, p. 6.

a true orientation consistent with the interests of man and society only under socialism.

In turn, the end objectives of the social revolution, the building of a communist society, can only be attained on the basis of accelerated scientific and technical progress."[1]

The Soviet people is solving the task of combining the technological revolution with socialism, i.e., utilising socialism's advantages over capitalism in order to ensure the growth of material production and an improvement in the people's living standards.

§3. Relations of Production

Not every relation formed by people in the process of production is a production relation. Human relations are complex and many-sided. Production relations are, above all, economic relations among people who get together for the purpose of producing material values. These relations are of a material character. This is not to say that they are material in the same way as a thing may be material (for they can be neither measured nor weighed), but that they are objective, that is, independent of man's mind and will. Thus, production relations are

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[1] *Documents and Resolutions. XXVth Congress of the CPSU*, Moscow, 1976, pp. 56-57.

economic relations of people engaged in material production, which shape and change independently of people's consciousness and intentions.

What are these relations in more specific terms? Basically, all production relations depend on who owns the means of production. In fact, the form of ownership of the means of production underlies all economic relations in any kind of society. Property is not a thing, nor is it a relation between man and a thing. It is, in the last resort, an economic relationship established through men's relation to things, particularly to the means of production.

Another essential aspect of production relations is the exchange of activities between men engaged in material production. People participate in production in various ways. They "exchange" the results of their efforts. Thus the capitalists, who own the means of production, play the part of organisers of production while the workers, who sell their labour, are the immediate producers.

Exchange of the results of human effort is not confined to capitalist society. It occurs in any society because there is always a division of labour, even under the primitive-communal system, where it was, of course, of the simplest kind. In socialist society, too, the results of labour are exchanged between two classes of working people (i.e., workers and farmers), different social strata and groups of professional workers.

Lastly, production relations are characterised by the *distribution of output.* Every class receives a part of the national income in a manner and quantity rigidly determined by the prevailing relations of property.

The chief characteristics of production relations that we have enumerated are inseparably combined in material production. The unity of the three aspects of production relations is as objective as production relations themselves. It means that production relations can change only as a system of three aspects, none of which can undergo serious qualitative change separately.

There are several *types of production relations* known in history: primitive-communal, slavery, feudal, capitalist and communist. Mankind is marching along a road which ascends from lower to higher forms of production relations. This road may wind or zigzag, for historical development does not proceed in a straight line. In some cases reactionaries managed to halt history. So, after the French bourgeois revolution an attempt was made to restore not only monarchy but feudalism as well. That attempt slowed down the development of France, but it failed all the same. It shows us the objective character of historical development. Despite all obstacles, society still arrives where it should under the objective laws of history. These laws cannot be repealed. History may at times develop more slowly but sooner or later it will make headway.

Progressive development of society from lower to higher forms is called *social progress.* It can be of two types. The first, progress in an exploiting, antagonistic society, is achieved at immense sacrifice, which is out of all proportion to the strides actually made. Marx figuratively described this type of historical development as an abominable idol that would drink nectar only from the skulls of the slain.

The second, progress under socialism, is of an entirely different character, as all classes and sections of society have a stake in it. The development of socialist society proceeds in a planned manner. It is guided and directed by a Communist or a workers' party. Having cognised the laws to which society is subject, it leads the masses, directing the efforts of all working people towards a single goal and ensuring the best possible results of social development.

The unity of productive forces and relations of production constitutes the mode of material production. In every historical epoch a particular mode of production was predominant, the primitive-communal, slavery, feudal and capitalist modes of production succeeding one another.

Nevertheless, in studying history it is easy to observe that at no time did a mode of production exist all by itself. The picture was always complicated because while a new mode of production took shape, some elements of the old mode persisted.

The current epoch has seen the emergence of the socialist mode of production which is steadily advancing on the capitalist mode of production in the world economy. Socialist integration within the framework of the socialist world economic system, the steady and rapid economic growth of the socialist countries, all foretell the inevitable triumph of the socialist world system in the economic race with capitalism.

§4. Succession of Modes of Production Is a Law-Governed Process

Having discussed what a mode of production is, we can look at how they function and why they supersede one another.

In the main, we can single out three principal laws to which the mode of production is subject. They are the *law of unity*, the *law of correspondence*, and the *law of contradiction* between various aspects of the mode of production. These laws expose the workings and development of the modes of material production. And since production activity, in the final analysis, is the foundation on which every other social human activity rests, these laws are of immense social significance.

The law of the unity of the productive forces and production relations expresses the organic connection between various aspects of the mode of production. Every mode of production, at any period in its history, necessarily involves a complex interaction of the productive forces and relations of production. The productive forces are the content of material production, and the relations of production are its economic form. The mode of production exists and functions in society as an integral whole, an active socio-economic system in which material production, in any of its phases, is embodied in economic phenomena and cannot exist without them. E.g., the capitalist productive forces exist as constant and variable capital, i.e., as the means of production owned by the capitalist, and as labour which is a commodity bought by the capitalist. The productive forces of capitalism form and function only as long as the economic interaction of labour power and the instruments of labour (which are the major component of the means of production) takes place. Therefore, in society, the productive forces do not exist in a "pure" form but only in their economic form. They can only be separated from their economic form, i.e., from the relations of production, in the imagination, as a theoretical abstraction, to make their analysis more convenient.

The consequences of the law of unity of the productive forces and relations of production are of great significance to economic practice and development, as well as to the life and development of society in general. If the mode of production exists and functions as an integral whole, then clearly, every appreciable variation of any of its aspects will affect the entire mode of production. Thus, the more social the process of production becomes in modern capitalist enterprise, the more the material prerequisites of the socialist economic system mature in the womb of capitalism. Also, the higher the concentration of production and the centralisation of capital in the modern capitalist economy, the more manifest the economic need for replacing private by common ownership of the means of production. Therefore, it is a matter of replacing the mode of production as a whole.

Then how do the different aspects of the mode of production interact? For an answer, we must look to the law of correspondence and the law of contradiction between the aspects of the mode of production.

The law of correspondence between production relations and the level and character of the productive forces was discovered by Marx, who drew general conclusions from numerous facts bearing on the economic history of society. To substantiate this law, Marx looked into the history of the division of labour and of the emergence and development of co-operative association, manufacturing and mechanised production. The results of his research are stated in the first volume of his *Capital.* Here are some of Marx's judgements on the matter.

The history of European economic development shows that the need for mass production destroyed the craft guild in which the master workman and his apprentices made a commodity entirely on their own, from beginning to end. The strong point of this method is that the article bears the stamp of the craftsman's skill. The craftsman's work in this case is creative, and he himself enjoys a respectable place in the social scale. Yet the craft guilds, typically medieval and preserved nowadays almost exclusively by the goldsmiths, crumbled under the impact of expanding commerce. A craftsman cannot, after all, produce artistically finished articles on a mass scale. Besides, the jealousy with which craftsmen guarded the secrets of the trade greatly hindered the progress of production.

Division of labour and the introduction of machines ruined the medieval craft guilds. They were replaced first by co-operative association in which craftsmen's work was shared and co-ordinated. Even this simple innovation was enough to boost enormously labour productivity and profit. On the other hand, the artisan's work lost its creative quality. Now it was no longer an expression of the craftsman's art, and the craftsman himself was no longer an artist. Creative work was replaced by monotonous drudgery, each worker performing some elementary operation over and over again. That spelled the birth of what Marx called "partial man": the worker contributes only a part of the article, and his whole life becomes tied to this part, which, incidentally, cannot be marketed as such. Thus, through economic pressures, the craftsman whose art and its secrets had been a source of personal pride started in the co-operative association his slide into totally dependent production that later ended in the factory.

What happens next? Again, under economic pressures, viz., a growing demand for goods and a growing thirst for profit with a view to further investment in profitable enterprise, the machine finds its way into the co-operative association. Inventors of machines had in mind technical improvement of production as well as economic considerations. They sought to make work less arduous, increase labour efficiency and ensure a higher rate of profit. What effect it would have on the economy and society was something the inventors and organisers of production did not trouble their heads about.

Having penetrated the co-operative association, the machine at once alters the character of economic relations among the co-operative artisans. Their former independence, already somewhat curtailed by division of labour, now completely disappears. The machine is not, as a rule, owned by the individual artisan; it is the property of the workshop owner and a means of exploiting the workers. The workers are no longer able to launch production on their own because the instruments of production have become very costly.

There then appears a system of machines in the workshop and it becomes a real factory. Yesterday's artisan and workers in the workshop become today's proletarians. They possess no instruments of production; the sole commodity they own is their labour power and this they sell by hiring themselves out to a private employer. They have to do this in order to make a living for themselves and their families. By his work, the worker not only covers the production costs but produces surplus value besides. And the capitalist appropriates this surplus value as profit.

Detailed examination of capitalist production led Marx to the conclusion that every change in production starts with the instruments of labour as men improve them, as they increase the speed of the machines and build up the capacity of the energy sources. New machines require new skills, and this causes change in the worker who handles the instruments of labour or controls machines. Besides mechanising production, men improve the latter by breaking it down into separate operations permanently assigned to separate workers or mechanisms.

Technical improvements, the further division of labour, development of new skills–in a word, the modification of the productive forces –induce economic change, i.e., an adjustment in the production relations. This is the relationship expressed by the law of the correspondence of production relations with the productive forces, which operates as an economic tendency. The law imposes no rigid mechanical dependence of production relations on the productive forces. It would therefore be inexact to describe it as a *"law of obligatory correspondence"*. The law of correspondence operates as an economic tendency in the modern capitalist economic system as well. But the demands of the law of correspondence run up against the selfish economic ends of the monopolies and cannot be satisfied unless monopoly power is overcome.

At this point, we inescapably come to the third law regulating material production, the *law of conflict between different aspects of the mode of production.* Production relations, which correspond to the productive forces only by tendency, are usually in conflict with them. This conflict, inherent in the mode of production, is exactly what makes it develop.

Where does the conflict spring from and what is it about? How does it develop and how is it resolved? These questions remained a puzzle to social scientists and economists before Marx. And no wonder. For to answer them one had to get to the bottom of society's economic development and be a revolutionary as well, i.e., to combine an exact economic analysis with a social analysis of the interplay of the class forces and the way social revolutions tend to develop.

The law of conflict between different aspects of the mode of production is manifested in three main ways. Firstly, the productive forces, as the most mobile element of the mode of production, outstrip (and this is the main tendency in world history) production relations which are usually more conservative and lag behind. This is obvious because the relations of production change objectively according to the change undergone by the productive forces. This shows once again that the conflict between different aspects of the mode of production is a fundamental attribute of economic development.

Secondly, at a certain stage, the internal conflict in the mode of production, under the private ownership of the means of production, develops into an antagonism, the productive forces and production relations being embodied in antagonistic social classes. For example, in the capitalist economy, the proletariat is the most important part and the living embodiment of the productive forces while the relations of production (capital, above all) are personified by the capitalists. Therefore the conflict in the mode of production must sooner or later, depending on the maturity of the economic system, be expressed as antagonism and conflict between these classes. The growth of such antagonism in the economic and social spheres inevitably brings about social revolution in bourgeois society.

The conflict in the mode of production as it develops into antagonism, expressed in class conflict, is the socio-economic precondition of social revolution. The relations of production, having come in conflict with their productive forces, become a drag on economic and social progress. They twist it out of shape and slow down its growth rate. An obvious instance of this is modern state-monopoly capitalism which has distorted the development of material production in favour of militarism, promoting the war industries at the expense of culture and health. Militarisation of the economy is pushing the capitalist world into the abyss of another economic crisis. The capitalist relations of production hamper the development of the productive forces, retarding its growth. Comparison of the economic growth rates in the socialist and the capitalist countries dramatically demonstrates the advantages of the socialist economic system. Economic integration of the socialist countries further enhances these advantages and provides favourable conditions for their realisation.

Outmoded production relations act as a brake on social and economic progress. Imperialism brings with it unemployment, racial hatred and police outrages, neocolonialism and suppression of democratic freedoms. The headlong chase for profit, attempts to prolong the life of capitalism—which is doomed by history—by aggressive wars and similar means, continuing plunder of the developing countries in the guise of aid, are all expressions of the current capitalist relations of production, of state-monopoly capitalism.

Lastly, the conflict in the mode of production comes out in the fact that, even after becoming a brake on the progress of industry and society, the relations of production still remain the prime mover of production. We may ask ourselves: What makes material production function in the United States and other state-monopoly countries? It is still the headlong pursuit of profit. Under state-monopoly capitalism the big capitalist corporations can reap, with governments' assistance, high monopoly profits, instead of average profits.

As we see, the modern capitalist relations of production have become self-contradictory. While they are a stupendous roadblock to social progress, these relations of production—of which profit is part—still provide for the further development of the capitalist economic system. This bears out the conclusion, made by Marxist-Leninists long ago, that capitalism will not collapse of itself. Only united action by all anti-monopoly forces will clear the road for the further progress of history.

§5. What Is a Socio-Economic Formation

The laws of material production operate throughout human history. But world history has gone through a succession of phases, viz., the primitive-communal, slavery, feudal and capitalist systems, and has now entered a socialist and communist phase of development. These phases, signifying stages in the progress of world history, are called *socio-economic formations.*

The concept "socio-economic formation" was introduced by Marx and was widely employed by Engels and Lenin. According to Lenin's definition, a socio-economic formation is an integral social organism.

The skeleton or economic basis of each formation consists of the relations of production which are predominant in it. They determine the economic tendencies and the character of the classes common to a particular formation, determining, in the long run, its social system, ideas and institutions.

The flesh or body of a formation consists of the social classes existing within it, and the institutions they set up to protect their own vital interests. These are not merely the institutions of the ruling class, rooted in and serving the predominant relations of production, but also all other essential social institutions, many of which derive from the inner contradictions of the mode of production. Thus, socialist ideas under capitalism spring from the conflict between the social character of production and private appropriation. The same conflict is ultimately responsible for the emergence of the communist parties of the working class.

Of key significance to the definition of a socio-economic formation is, however, the relation between its *economic basis*, i.e., the predominant relations of production, and the *superstructure*, i.e., the predominant ideas and institutions. Formations may be rather similar as to their productive forces, but they are always distinguished by the specific character of the basis and superstructure which not only determine the pattern of a formation but, more important still, functionally depend on each other. The basis produces the superstructure, and the superstructure ministers to the basis. But their functional connection is even more far-reaching. This connection alone makes it possible to see whether a social phenomenon belongs to the basis or to the superstructure. Let us take the state for example. Should we always refer to it as a superstructure? It depends. It cannot properly be called a superstructure in relation to the church, for instance. The state is a superstructure only relative to the predominant relations of production.

Is the state to be regarded as a superstructure with respect to the productive forces? By no means. There are countries now that achieved more or less similar levels of the productive forces but differ greatly in bases and superstructures. This difference expresses the main contradiction between moribund capitalism, on the one hand, and socialism, which has become the decisive force of progress, on the other.

All this holds true for the economic phenomena as well. They are of basic character only in case they are related to the ideas and institutions that are determined by these economic phenomena and work for them. But can we call production relations the basis from the point of view of their economic role in relation to the productive forces? The answer is no, because in that case the relations of production do not—nor can they—play the part of the basis with reference to the development of the productive forces.

There are numerous things in society which have too many functions to be referred either to the basis or to the superstructure. Thus, language, the family, machines and the productive forces in general, the natural and technological sciences, the nation, and so on, should be referred neither to the basis nor to the superstructure. Certainly the basis and superstructure influence them a great deal and often turn them to account. But that does not alter the essential fact that they are social phenomena of a particular kind, not to be referred wholly either to the basis or to the superstructure.

Therefore, although these social phenomena are part of the formation as an integral social organism, they do not serve to distinguish one formation from another. They may be—and they usually are—similar or even identical in entirely different formations. Consequently, only phenomena which can be definitely referred to the basis or to the superstructure as belonging distinctly to a formation and stemming ultimately from the mode of production are the distinguishing marks of a formation.

§6. The Specific Laws of Socio-Economic Formations

Then what are the laws whereby the social organism called the socio-economic formation springs forth, develops, matures and decays? The laws of material production operate during the existence of a formation. They provide for the continuity of world history, investing it with a progressive general tendency and binding together widely different and even opposite phases of historical development and types of social structures. But do they provide for the emergence, development and collapse of specific social organisms such as socio-economic formations? Certainly not. Nor is it fortuitously that Lenin mentions that each socio-economic formation develops in conformity with certain laws specific to it.

The *economic laws* specific to each formation are the subject of political economy. For example, Marx's *Capital* is a detailed exposition of the economic laws governing every stage in the development of capitalism. The chief one is the *law of the production of surplus value,* the latter being seized by the capitalist as average or monopoly profit. Marx thoroughly investigated the operation of this law, tracing its immediate and indirect consequences and the way it interacted with other economic laws, and outlined the social development tendency resulting from this law. Thus, this law has a broad social meaning expressed in the tendency which social development has to pursue under the impact of the economic forces. The law of surplus value shows the position and role of the proletariat in the capitalist economic system, which, in fact, render the proletariat the grave-diggers of capitalism and builders of a new, socialist system. Hence, the proletariat's world-historic revolutionary role is more profoundly substantiated if viewed from the standpoint of capitalism's chief economic law. It was for this very reason that Marx said that his *Capital* was a shell fired at the head of the world bourgeoisie.

However great the social significance of the economic laws of each particular formation, specific *social laws*, not immediately invested with economic content, are also essential to the life of a formation. For example, as he summed up historical experience, Marx established the general tendency of the class struggle throughout the period of capitalism. The class struggle between the proletariat and the capitalists inevitably results in the dictatorship of the proletariat. Marx's *law of the class struggle under capitalism* has, of course, economic antecedents, yet it does not itself refer to the economic sphere. It is a social law specific to a concrete formation.

Interaction of the economic and social laws specific to each formation and the common laws of human history determines the destiny of each formation. An all-round examination of the complex interaction of all social and economic forces with reference to the history and maturity of capitalism enabled Marx to arrive at the scientifically-founded conclusion on the communist tendency of world history in the epoch of the capitalist social formation, namely, that, as it goes onward, history must pass from moribund capitalism to communism.

§7. The Communist Socio-Economic Formation

Socialism and communism are two phases or large periods in the life of a society resting on collective ownership of the basic means of production, in which the exploitation of man by man has been abolished. Socialism is the first phase of such a society. It comes into being as a result of the socialist revolution, handing over political power and the national wealth to the working people and giving them access to culture. The toilers become genuine masters of society. As this society moves closer to communism, its development takes new forms.

Socialism emerges from capitalism or even from some pre-capitalist social system. It cannot build its social and economic framework in the womb of the old society which rests on private ownership of the means of production. The foundations of the old exploiting society must be destroyed by a social revolution. Communism, on the other hand, develops on its own social and economic base and does not need a social and political revolution or the class struggle to bring it into the world.

Progress of socialist society to communism is subject to certain objective social laws which extend to the main areas of the life of society comprising men's economic, social, political, and intellectual activities. As a result of the operation of these laws, the material and technical base of communism is created, socialist relations are transformed into communist social relations, and people attain all-round development. The complex nature of the process of transition from socialism to communism follows from the very numerousness of the objective social laws involved in it. In the economic sphere, for instance, one can single out the high and stable growth rates of production development which is free from crises and unemployment and sufficient for the building of the material and technical base of communism; the growing role of progress in science and technology; integration of the scientific and technological revolution with the advantages of full-fledged socialism; development of socialist into communist labour, work becoming the prime vital requirement of everyone; a steady growth of efficiency; the drawing together of co-operative and public property, and their eventual transformation into communist property; growth of social consumption.

The laws operating in the socio-political sphere in that period are, to name but a few: the gradual levelling out of living standards in town and country; the steady drawing together of the working class, collective farmers and intellectuals, and obliteration of class and social distinctions; integration of mental and physical work; the greatest possible growth of the social unity of society, the peoples thriving and drawing together still more; the gradual emergence of social uniformity and full social equality of all members of society; development of the socialist state of the whole people into communist public self-administration; the greatest possible unfoldment of socialist democracy; and the gradual refashioning of everyday life on communist principles.

The changes which the intellectual life of society undergoes in the period of transition from socialism to communism are equally complex. We shall name merely a few, viz., the inculcation of a new attitude to work; getting rid of private-owner mentality and hangovers of the past; the further growth of socialist culture; all-round development of the individual; and the increasing dependence of the character and rate of social development on the spiritual qualities and constructive efforts of every man and woman.

Chapter Four

CLASSES AND CLASS RELATIONS

§1. What Is a Class?

The word "class" derives from the Latin *classis*, a group called to arms, a division of the people. Tradition ascribes to Servius Tullius, a legendary Roman king (578-534 B.C.), a new division of Roman society into classes or orders. At that time there appeared in ancient Rome an army into which all free citizens able to carry arms were enrolled. Servius Tullius divided the soldiers into five classes or orders according to their wealth, i.e., their ability to provide their own horses, armour, etc.

Subsequently, the word "class" was applied to large groups of people into which human society came to be divided. But can any large group of people be regarded as a class? We are accustomed to apply this term to such large groups as the bourgeoisie, the working class, the peasants. Yet in modern society doctors also form a large group. There are almost 700,000 of them in the Soviet Union alone. Steel workers form a large group too, but are they a class?

Many scholars tried in vain to define the concept "class", although the fact that society was divided into classes and that a struggle was going on between them was observed long ago. So, even at the time of the Restoration in France there were historians (Thierry, Guizot, Mignet) who saw in the class struggle the key to French history. Nevertheless, the question what is a class, on what grounds people may be referred to one class or another, was still left open.

Some investigators claimed that the division into classes rested on the difference in intellectual standards: the more gifted and active, the more apt to command formed the ruling classes; the dull and stolid formed the oppressed classes. Life and history demonstrated, however, that this was not so at all. There were too many ignorant fools and dolts among the ruling classes, while the oppressed classes advanced from their midst many people of undoubted talent.

Other people attempted to explain class division by income and property. Indeed, examination of the class structure of any society reveals a glaring disparity in the incomes of those of the ruling and the oppressed class. But the question is why—why this disparity, why is it that the ruling classes are rich and the oppressed poor?

Lastly, it was said that classes were distinguished by their position in society. Some classes were privileged, others, on the contrary, were underprivileged. But again, the question why it was so was left unanswered.

The great contribution of the Marxist-Leninist theory is that it has managed to solve this complex problem. Marx and Engels furnished brilliant examples of materialist study of the position of every class and each stratum within it, showing that the class struggle is entirely political. The most comprehensive, profound and complete definition of classes in Marxist-Leninist theory was given by Lenin in his work *The Great Beginning.* Lenin writes: "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 dimensions of the share of social wealth of which they dispose and the mode of acquiring it."[1]

In this definition Lenin points out four distinctive marks differentiating classes, viz., (1) their place in a historically determined system of social production; (2) their relation to the means of production; (3) their role in the social organisation of labour, and (4) the share of social wealth they get and the methods by which they get it.

[1] V. I. Lenin, *Collected Works,* Vol. 29, p. 421.

The main indication was, in Lenin's view, the relation of a class to the means of production that establishes a social group as a ruling class enjoying every privilege. Estrangement from the means of production turns a social group into an oppressed class whose lot is destitution and deprivation of rights.

Lenin's definition of classes, which sets forth the objective characteristics of a class, cut the ground from under the feet of those who defined classes from an idealist point of view, arbitrarily combining people into classes or, equally arbitrarily, excluding certain groups from concrete classes.

Secondly, Lenin isolated the fundamental, most typical features of all classes, thus furnishing the guide and key to the class structure of a socio-economic formation, which greatly facilitated the study of class society. In other words, Lenin's definition of classes is of great theoretical significance to a correct understanding of society.

Thirdly, Lenin defined classes in an exploiting society as groups of people one of which can appropriate the labour of another.

§2. Why Society Split Into Classes

Now that we know what a class is, we must look at how classes came about. They emerged long ago, when systems of writing either did not yet exist or were only beginning to develop, so that we have scanty sources on those times.

Still, numerous scholars who painstakingly collected evidence about the life of ancient peoples in different parts of the world, have gathered enough information for us to trace the general outlines of the historical processes developing in the remote past.

Excavations of ancient settlements and burial places and the implements, utensils, ornaments, bones of the animals which primitive men hunted, and other relics found by archaeologists help to reconstruct a picture of our remote ancestors, community life, their activities and way of life.

Although the instruments of labour were very primitive at that time (they were usually made of stone or wood), men got food for themselves with their aid and successfully hunted big, strong beasts. How did they manage to do it? Men lived in large communities, hunting animals and gathering wild plants together. Without mutual assistance, they could never have survived because they would have been helpless against predators lying in wait for them at every turn.

Primitive society knew no division into classes, no subjection and oppression, no exploitation. People provided the means of subsistence for themselves by common effort and consumed them also in common.

Drawing general conclusions from concrete research, Marxism supplies the general picture of society's division into classes. The first class division occurred when the primitive-communal system disintegrated.

Disintegration of the primitive-communal system and the emergence of class society was a lengthy process which did not occur simultaneously everywhere. According to historical evidence, class society emerged in ancient Egypt, Assyria and Babylonia at the end of the fourth and the beginning of the 3rd millennia B.C.; in India and China, in the 3rd-2nd millennia B.C.; and in Greece and Rome, in the first millennium B.C.

Economically, class division of society was based on the surplus product which turned, with the passage of time, into private property.

Under the primitive-communal system, the productive forces–and so labour productivity–were at an extremely low level. What little was produced was almost immediately consumed.

In those circumstances there was no basis for social inequality. When, as a result of quarrels between clans or their individual members, prisoners were taken, it was a problem what to do with them. To keep them in the community was usually impossible as there was not enough food to go round as it was. Nor could the prisoners be made to work for the community as there were no implements to spare.

So prisoners of war were either eaten up (while cannibalism was still practised) or allowed to return to their own clans after hostilities were over, or, circumstances permitting, were retained on an equal footing with the rest.

This continued as long as society did not produce much. But as time went on, implements were improved and labour became more efficient. Finally, production reached a level where man began to produce more than merely his sustenance. There appeared the surplus product, something over and above bare necessity, which had momentous social consequences for mankind, bringing about social inequality.

The surplus product meant that means had become available for maintaining and employing extra labour. Whereas prisoners of war had earlier been killed, they now came to be prized as a source of wealth.

Although all this happened very long ago, similar facts are still observable in our own time among some peoples whose development has been retarded for concrete historical reasons. Thus there is ethnological evidence that the nomad tribe of Masai in East Africa killed their prisoners for want of means to maintain them. However their neighbours, the Wakamba, who engaged in agriculture, were able to use slave labour. As they disposed of the surplus product, they had food and implements to spare for extra labour. Therefore the Wakamba did not kill their prisoners but turned them into slaves.

War prisoners were not the only source of slave labour. Besides them, the class of slaves was formed of debtors who failed to pay their debts.

Why, one may ask, did they not share out the surplus product equally among the clan or tribe? Why did social inequality replace the equal distribution of products which had been the rule for millennia? The point is that products are distributed and consumed depending on the way in which they are obtained. The old hunting and fishing peoples procured food for themselves in large groups. Their primitive implements did not allow them to get enough to keep body and soul together single-handed, without their kinsmen's assistance. Thus, at the early stages of society's development, social production took shape, and its necessary consequence was social consumption, when the bag was at once equally divided among the members of the group. That was determined in the first place by the economic mode of life of ancient peoples and tribes.

They had no conception of storing supplies because it was hardly practicable. The meat from the animals they killed spoiled quickly. Of course, if sold, it could fetch money that could be saved. But at that stage money did not yet exist. Hence, the economic circumstances did not encourage thrift.

Another reason why they could not accumulate supplies was that as very little was produced, nothing was left over, and there was nothing left to save. Besides, hunting depends on luck. A hunter may kill a large beast today and share with the others, or he may come home empty-handed tomorrow and be given a share of the others' kill. Plekhanov observed that the custom of sharing is a sort of mutual insurance without which hunting tribes could not possibly go on.

Thus the collectivist rules of behaviour, customs and traditions of the primitive-communal system stem from the predominance of common ownership.

Nevertheless, even in the context of this primeval collectivism, as more and better implements were made, individual production gradually made headway. In primitive society, weapons, clothing, food, ornaments, etc., had already become personal property. These articles are fitted for personal consumption by their very nature. To handle a spear, a bow or a boomerang with adequate skill, the primitive huntsman had to adapt himself to the individual article, as well as adjust it to himself.

The growing use of individual implements told on the standards and customs of social consumption. It may be assumed that by custom the bag was divided depending on each member's contribution to the success of the hunt.

Similar customs have been observed among peoples whose development has been retarded. If the quarry is killed by two men, the skin goes to the man whose arrow struck nearer the heart; the one who strikes the last blow receives the best cut, and so on.

With the spread of individual-type implements and individual production, the primitive commune began to disintegrate and social inequality set in. As the social division of labour progressed, the primitive commune finally disintegrated and the tribal system was destroyed.

The first major division of labour was associated with the *separation of cattle-breeding (pastoral) tribes.* At that stage, the cattle-breeders, provided they had large enough herds, already enjoyed a surplus over their own consumption. Exchange, which was earlier merely accidental and concerned only what was left over by chance, now became regular between pastoral and agricultural tribes. As a result, social wealth increased and more slave labour was used.

The second major social division of labour occurred when the *handicrafts separated off from agriculture.* Exchange thus penetrated into the community. Economic inequality increased, and, besides the division into free men and slaves, there appeared distinctions between the rich and the poor.

As more products were made specially for exchange, the latter became a vital social necessity, rather than a practice among individual producers.

The next major social division of labour was the *separation of mental from manual work,* whereby mental work was monopolised by a tiny minority, by the ruling classes which took the management of production and public affairs entirely into their own hands. And hard physical work became the lot of the vast majority.

Those were the main causes and circumstances underlying the division of human society into large social groups, into hostile classes. How did the classes form?

They formed in two ways. Firstly, they formed as there emerged in the clan an exploiting elite initially consisting of the aristocracy, and as impoverished members of the clan were turned into slaves for their debts. Secondly, they derived from the enslavement of war prisoners.

Let us begin with the first way. How did the exploiting elite come to stand apart from the more or less uniform commune? Primitive men enjoyed approximately equal living conditions while heads of families and communities enjoyed equal social status.

Common interests were looked after by functionaries under the supervision of society. They were concerned with settling disputes, superintending water reservoirs and religious practice. The functionaries were invested with certain rudimentary powers of government, but by and large they were merely the servants of the community.

As the productive forces increased and communities joined into larger groupings, the division of labour proceeded further, and special bodies were set up to take care of common interests and settle disputes. These bodies, which acted on behalf of the society as a whole, were isolated from, and might even be hostile to, individual communities, and they gradually became more independent. Eventually, this independence of public offices with relation to society evolved into domination over it. The former servant became master. Individuals who had risen to power merged into whole ruling classes.

The second way in which classes formed was thus. As production developed, extra labour was required. At first, neither the individual community nor the larger society could provide it. The source of extra labour was found in war.

Conquerors became aware that it was more expedient to spare the prisoners and make them produce the surplus product. With time, however, community leaders, who had the surplus product in their control, began to enslave their fellow-tribesmen by legal means which they devised.

Such are the two principal ways in which classes formed. Their common result was slavery which was the first form of exploitation, typical of antiquity. Slave-owning society comprised three classes. The first class–the slave-owners–included the ruling aristocratic elite and later, a larger section of the rich. The second class was composed of freemen–farmers, cattle-breeders and artisans who usually became dependent on slave-owners. The third class was composed of a heterogeneous mass of slaves of different nationalities and languages.

Thus was society divided into the classes of the exploited and exploiters, the oppressed and their rulers.

§3. Class Antagonism

The history of all antagonistic class societies since the disintegration of the primitive-communal system has been one of the struggle between classes. Freeman and slave, patrician and plebeian, nobleman and serf, capitalist and workman, in short, oppressor and the oppressed, were forever in opposition to each other, waging an incessant struggle, now secretly, now openly, which ended either in the revolutionary remaking of society or in the destruction of the warring classes.

It is important in this respect to note the *role of the working classes in social progress.* The question has often been posed in the history of social sciences as to the relative worth or even necessity of different classes in society. This question has no single answer for all ages. There was a time when the landed aristocracy was a useful and indispensable element of society. Then the bourgeoisie, inexorably produced by history, launched out against the landed aristocracy, smashing its political rule and itself gaining political and economic supremacy. Yet never, ever since classes emerged, has there been a time when society could dispense with the working classes. The names and social position of these classes changed, the slave gave place to the serf, and he to the proletarian, who, although not a bondman, had nothing except his labour power. The history of all antagonistic class formations shows that whatever modifications the leisure classes may undergo, society cannot go on without the class of producers.

As antagonistic class formations succeeded one another, the forms of exploitation were modified, but the labouring classes ever remained oppressed. The crudest forms of exploitation were practised under slavery. The slave was treated no better than a draught animal. He was deprived of every right, he could not have a family, and in ancient Greece he could not have a human name, only a nickname.

In his treatise on agriculture, Varro, the Roman writer living in the 1st century B.C., mentions in a most natural way that agricultural implements are divided into three kinds, namely, the talking kind, i.e., the slaves, the kind making inarticulate noises, e.g., oxen, and the mute kind, such as vehicles.

The class structure of feudal society stems from the following features of the latter. Firstly, the feudal economy was natural, tending to be self-sufficient. Secondly, the means of exploitation under feudalism was binding the peasants to the soil. The feudal lord who owned the land allowed plots of land to the peasants so that they should work for him. To get the surplus product, he had to have on his land peasants who had plots, implements and animals. A peasant who has no plot, no horse, no farm, is not a suitable object of exploitation. Thirdly, the peasant was personally dependent on the lord. As he had land, he only worked for the landlord under compulsion. The feudal economic system rests on extra-economic compulsion, serfdom, the peasants' legal dependence on the landlord, and their underprivileged position.

Under capitalism, society's class structure underwent a change. The feudal lord and the serf were replaced by the capitalist and the worker. Compared with the slave, who was wholly dependent on the slave-owner, or with the underprivileged serf, the worker is legally free. Nevertheless, his dependence on the capitalist is as great, only its form is different. The worker is deprived of the means of production. All he has is his labour power, and he may make his living by selling it. The only one who can buy and employ labour in capitalist society is the capitalist. So the worker has nothing for it but to sell himself into bondage to the capitalist.

Slaves and slave-owners, serfs and landowners, workers and capitalists—these are the *principal classes of three antagonistic class formations,* viz., slavery, feudalism and capitalism. It would, however, be a gross oversimplification to view the class pattern of a formation merely as the relationship of the basic classes, i.e., the classes which express the essence of the dominant relations of production. No "pure" socio-economic formation ever existed, for every formation included some elements of the previous stages of social development, as well as seeds of the future socio-economic formations. Classes which are associated either with vestiges of earlier production relations or with those which are just beginning to develop are called *non-basic.*

Thus in slave-owning society there were non-basic classes of free citizens preserved from the primitive-communal system, i.e., small peasants and handicraftsmen. As the slave-owning system developed, these social groups disintegrated and joined the ranks of the lumpen proletariat. Under feudalism there were the social strata of artisans and traders organised in guilds and companies. In the later middle ages there began to form the bourgeoisie and the working class which were to become the basic classes of the next socio-economic formation. In many capitalist countries landlords and peasants continued for a long time as non-basic classes. Prominent among the non-basic classes of capitalist society is the petty bourgeoisie. Non-basic classes and other social groups join the class struggle on the side of opposite basic classes.

How irreconcilable the basic interests of the antagonistic classes are is witnessed by countless and incessant class battles, armed revolts and other sharp conflicts which abound in history.

Slave-owning society was shaken to its foundations by gigantic slave rebellions. The uprisings under Aristonicus in Asia Minor and Spartacus in Rome have gone down in the history of liberation struggles as major landmarks symbolising the slaves' splendid courage and dedication.

Many peasant revolts under feudalism also have gone down in the history of liberation struggles. Let us recall the famous Jacquerie in 14th-century France, when Jacques Bonhomme–the contemptuous name by which French seigneurs called peasants–got the feudal lords, from the South of France to Paris, trembling in their boots. We may also recall the German peasants' uprising in 1525, which Engels regarded as the cornerstone of German history, the famous Russian peasants' uprisings under Ivan Bolotnikov, Stepan Razin und Yemelian Pugachev.

Proletarian movements have also left a deep mark on history. The uprising of workers in Lyons (France) in 1830, the weavers' uprising in Silesia (Germany) in the 1840s, workers' active participation in the revolutions of 1848, and the Paris Commune, the first socialist revolution–such were the stages of the proletariat's struggle in the 19th century. These movements showed that the proletariat had become an independent force in society capable of becoming the vanguard of social progress.

As the class struggle pervades all of the most substantial aspects of social life, it naturally develops in its every major sphere, such as economic, social and intellectual spheres. Having studied vast historical material, Marx and Engels established that in all antagonistic class societies the class struggle develops along three main lines, taking the form of *economic, political and ideological* struggle. Each is waged by different classes to protect and defend their interests, but the methods of such defence are, of course, different.

In the course of the *economic struggle*, the capitalists guard their profits, going to all lengths to multiply them, while the workers fight for human working conditions and social security in illness, disability and old age. Even in this struggle workers develop a sense of solidarity, an awareness of the unity of class interests, and the rudiments of internationalism.

The workers' economic struggle, even if it should develop spontaneously, can grow into *political struggle*. This occurs where the state with its instruments of power joins the struggle on the side of the ruling class. Dealing with the workers by legal and extra-legal means, unleashing police reprisals and sending regular troops to put down industrial or student unrest and "riots", the exploiters' state introduces violence into the struggle, which is, as a rule, armed violence. Then the revolutionary proletariat is obliged to spearhead its struggle against the political machinery of the exploiters' power, i.e., against the bourgeois state. The first step in the direction of political struggle is the political strike. Let us recall, for instance, the Obukhov defence in Russia in 1901. Such instances of workers' economic action turning into political struggle are not infrequent in our own times.

Yet political struggle may be of different kinds, depending on its general line and goals that are being fought for. Policy in the workers' movement may be of a *reformist* (or trade-unionist, as Lenin referred to it) or *revolutionary* kind. Reformist policy does not aim at taking society beyond capitalism. It does not affect the basis of property but confines itself to a struggle for improving workers' living standards and extending their rights within the existing social system. Revolutionary policy, on the contrary, is aimed precisely at overthrowing this system through the proletariat's struggle. That is why revolutionary policy alone furthers the political maturity of the proletariat and the masses led by it. Whereas the workers' movement arrives at a reformist policy on its own or under trade union guidance, it must be brought to a revolutionary policy by the party of the working class. Only such a party can raise the political understanding of the proletariat and its allies enough to make them aware that the abolition of the private ownership of the means of production and the conquest of power by the proletariat are urgent goals of the day-to-day political struggle.

Efforts to elevate the workers' movement to the level of conscious and well-organised revolutionary political struggle encounter obstacles put up by the right wing of social-democratic parties and within communist parties, by opportunists and revisionists who would revise the fundamental ideas of Marxism-Leninism. Petty bourgeois and nationalist revolutionists (the leftists in the workers' movement) are only good at revolutionary phrases, but are useless when it comes to consistent revolutionary policy. True to their adventuristic spirit, they sooner or later lose contact with the masses and either substitute provocations for the revolutionary struggle or swing it towards nationalism, running counter to proletarian internationalism. Therefore, in guiding the workers' political struggle, Marxist-Leninist parties have to fight on two fronts, both against right-wing opportunism and left "revolutionism".

At present, the chief danger the international workers' movement has to cope with is that of the "left" deviation of which the policy pursued by the leadership of the Communist Party of China is the most notorious expression. Having embarked on nationalism, richly flavoured with Chinese racialism, the CPC leaders have long broken off with Marxism-Leninism.

It was pointed out at the 25th Congress of the CPSU: "Now it is far too little to say that the Maoist ideology and policy are incompatible with the Marxist-Leninist teaching; they are directly hostile to it."[1] Maoists are seeking to bring about a split in the world communist movement and undermine the unity of the world socialist system.

Our discussion of the proletariat's political struggle naturally brings us to *ideological* problems. The political and ideological forms of the class struggle are closely interrelated. Through their ideologists, classes justify their policies, i.e., their aims and goals. Ultimately, any policy stems from material interests, but its theoretical justification (the justification of class aims, goals, strategy and tactics) rests with ideology. Ideology is a sort of political compass. It may contain illusory ideas, fallacious goals, groundless "grounds", pipe dreams and vain hopes. All such things are characteristic of the ideology of classes doomed by history and leaving the historical arena.

There is only one ideology which does not deal in illusions. It is the scientific Marxist-Leninist ideology of the working class. It combines the highest level of scientific objectivity with the maximum proletarian revolutionism. This is the source of its strength and ever-increasing prestige.

Scientific socialist ideology is opposed by bourgeois ideology, which springs from capital-

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[1] *Documents and Resolutions. XXVth Congress of the CPSU,* Moscow, 1976, p. 14.

ism. Some elements of bourgeois ideology persist even under socialism, especially at its initial stages, owing to the fact that consciousness lags behind being, whereby some vestiges of the old linger in the economy, everyday life and social relations, and also owing to the influence of alien views penetrating from the capitalist world.

For these reasons the 25th Congress of the CPSU stated: "The positive changes in world affairs and the detente create favourable opportunities for the broad spread of socialist ideas. But, on the other hand, the ideological contest between the two systems is becoming ever more acute, and imperialist propaganda ever more subtle.

"There is no room for neutralism or compromise in the struggle between the two ideologies. Here there is a need for constant political vigilance, active, efficient and convincing propaganda, and timely rebuffs to hostile ideological subversion."[1] Under capitalism, a law operates, according to which all the three forms of the class struggle are objectively bound to grow.

In every antagonistic formation, the class struggle–whether economic, political or ideological–is the driving force of social progress.

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[1] *Documents and Resolutions. XXVth Congress of the CPSU*, pp. 89-90.

Its significance increases considerably after the political struggle is joined by the working class, the most revolutionary class in history. It takes part in the revolutionary movement as the exponent of the interests of society at large. This puts the working class in the van of all working people exploited by capitalism.

§4. Historical Destinies of Classes

The Great October Socialist Revolution in Russia, and also the socialist revolutions which took place in some countries after World War II, have dramatically confirmed the proletariat's capacity to realise its ideals and become the ruling class.

The overthrow of bourgeois domination can be effected only by the working class because its very economic circumstances prepare it for the overthrow, giving it the opportunity and sufficient strength to do it. Capitalist society splits up and scatters the peasantry and other petty-bourgeois strata, whereas it consolidates and organises the proletariat. The proletariat is the only class whose economic role in large-scale production qualifies it for the leadership of all working people, *exploited* and oppressed by the bourgeoisie.

The bourgeoisie can be overthrown only when the proletariat becomes the ruling class, capable of suppressing the bourgeoisie's inevitable resistance and organising all working people to build socialism. That was what made Marx insist that the class struggle necessarily results in the *dictatorship of the proletariat.*

Marx, Engels and Lenin were always highly ironic about sundry projects for equalising the classes, bringing about a "harmony of capital and labour". Exploding these castles in the air, Marx wrote that it was not the logically impossible *equalisation of classes* but the historically necessary *abolition of classes* which was the true secret of the proletarian movement.[1]

What does "abolition of classes" mean? How can classes be abolished? Have they not continued for millennia?

Lenin associated the abolition of classes with the elimination of class distinctions. He wrote: "The abolition of classes means placing *all* citizens on an *equal* footing with regard to the *means of production* belonging to society as a whole. It means giving all citizens equal opportunities of working on the publicly-owned means of production, on the publicly-owned land, at the publicly-owned factories, and so forth."[2]

Abolition of classes is a lengthy process which occupies a whole historical epoch following a socialist revolution. It passes through a whole

[1] See *The General Council of the First International 1868-1870,* Moscow, 1966, p. 311.

[2] V. I. Lenin, *Collected Works,* Vol. 20, p. 146.

range of stages ending in the disappearance of classes. The socialist revolution overthrows the government of the exploiters, which paves the way to the abolition of classes. But however necessary, it is still, in Lenin's view, not the most difficult task involved in the abolition of classes.

The next important stage in the process is the period of transition from capitalism to socialism. According to Lenin, two important problems are solved in this period. Firstly, private property is abolished, which puts an end to the capitalist class. Secondly, the individual petty economy based on peasants and artisans is reorganised into a large-scale social economy. On the basis of socialist co-operation, the main class distinctions between workers and peasants are obliterated.

In the first phase of communist society, socialism, immense efforts are made to overcome the remaining class distinctions. How this proceeds is clear from the recent changes undergone by the class structure of Soviet socialist society. In 1939, wage and salary workers and their families accounted for 52.5 per cent, collective farmers–44.9, and individual farmers and artisans–2.6 per cent. Twenty years later, in 1959, wage and salary workers accounted for 68.3 per cent, collective farmers–31.4 per cent, and individual peasants and artisans–0.3 per cent. In 1976, wage and salary workers accounted for almost 83.6 per cent and collective farmers for about 16.4 per cent.

In future, as the material and technical base of communism is built and essential distinctions between physical work and brainwork are obliterated, the boundaries between the working class, farmers and intellectuals will vanish. All will become members of a classless communist society in which everybody will enjoy full social equality and an equal relation to the means of production, and there will be equal conditions of work and distribution and an equal opportunity for everyone to take part in managing public affairs.

Chapter Five

THE STATE

§1. The State and the Division of Society Into Classes

Bourgeois ideologists would always depict the state as a body responsible for maintaining public order and safeguarding the interests of all classes and social groups alike.

This point of view is also current in modern bourgeois sociological literature. It is often expressed by the ideologists of the petty-bourgeois strata who seek to represent the modern capitalist state as a body extending equal protection to the rights of capitalists, factory, office and professional workers, farmers, students, and so on. They allege that laws enacted by the modern bourgeois state are equally acceptable to capitalists and workers, to the well-to-do and the poor. This state allegedly makes no distinction between the poor and the rich, between employers and wage workers. They describe it as the "welfare state" providing for "social harmony," "universal well-being," and so forth. Advocates of welfarism try to bolster up their theory with examples.

Let us suppose, they say, that the workers of a factory have gone on strike. The trade union has put forward reasonable demands for higher wages, better conditions and other improvements. However, should these demands be granted, the employers' profits will suffer. For this reason, the negotiations between the strike committee and the employers run into difficulties. Neither side will make concessions, blaming and abusing each other.

Let us further suppose that in the heat of the quarrel, a management representative loses control of himself, snatches a revolver from his desk and starts shooting at the workers.

What will happen then? Quite obviously, say the "welfare state" theorists, police will be summoned to the factory. The capitalist who fired at the workers will be arrested and put on trial. The court will sentence him under the laws of the country to whatever he should get for manslaughter or armed assault.

The description is usually followed by a list of countries and addresses at which similar incidents occurred. The readers are invited to check the facts and make absolutely sure that every word of it is true. The suggestion is that if the state were to safeguard the interests of the employers alone, it would not have punished employers for killing workers–it would have paid no attention. But the facts prove that the bourgeois state protects both the employers and the workers, and that it is committed to class reconciliation and class harmony. So say the advocates of the "welfare state".

Some acquaintance with concrete facts showing how the state has evolved will be enough to blow their arguments sky-high.

First, we must note that the state has not always existed. It did not exist at the primitive-communal stage. Peoples whose development was retarded by concrete historical circumstances and who knew no division into classes had no state either. From this it follows that the state appears when society becomes divided into classes, i.e., with the appearance of exploiters and the exploited.

In primitive society, people lived in clans, dominated by tradition, customs, the prestige, respect and authority of the elders. At times, authority belonged to women, whose position then was not subordinate and oppressed as it is in antagonistic formations. Yet never under the primitive-communal system do we observe a particular order of people setting themselves over the rest of society as its rulers equipped with a machinery of coercion, such as armed forces, prisons and other enforcement organs. In a word, under the primitive-communal system, the state proper did not exist.

Nevertheless, its absence did not disturb the social routine nor result in conflicts upsetting public order or the social system. The primitive-communal system was not threatened with chaos. Although there was no state, there were strong communal links among people, and society functioned normally. The force of custom and the elders' prestige were quite enough to keep society going without any special enforcement machinery.

Under the primitive-communal system all people were equal, nobody had any privileges, and the elders received no remuneration for their services. Their reward was universal respect and obedience. Primitive society knew nothing of class conflict and therefore needed no organ of coercion.

History demonstrates that the state emerged only with society's division into classes, i.e, into groups of people one of which can systematically appropriate the labour of another or, in other words, exploit it.

The main and decisive characteristic of a state is public, or political, authority, which is always the dictatorship of the ruling class. And dictatorship is a form of government relying on force, i.e., producing the legal basis of its own activity.

Next come the tools or organs of political power, which include the army, the courts, prisons, the police, intelligence and counter-intelligence. The government which controls them is itself an organ of political power.

Like power itself, its tools are unmistakably of a class nature. Take, for instance, the bourgeois army. So that an army recruited from the people (as it must be, for the time of regular mercenary armies has gone–although, of course, mercenaries are still used by imperialists) could be set over against the people and should, if need be, shoot at the people, soldiers are deprived of political rights, isolated from the people and inculcated with anti-popular ideas.

For the organs of power to be able to carry out the will of the ruling class, there must be well-trained officials appreciative of their jobs in the government apparatus. Top government positions are filled exclusively by members of the ruling class. To maintain its apparatus, the state imposes all sorts of taxes on the population. Taxation in the bourgeois state is naturally geared to the interests of the capitalists. The working people have to bear the brunt of it.

Lastly, another characteristic of the state is division of the population over territorial units, which has superseded the division into tribes and clans. However, neither territory nor population separately are characteristics of the state. This is obvious since the state is not eternal. It emerged at a certain point in history, and it will inevitably wither away. Population and territory, on the other hand, were there before the state appeared and will be there after it has withered away. Only all characteristics taken together enable us to tell whether or not a social formation is a state.

So, the state arose because some classes felt the need to keep other classes under their own control. It arose from the conflict of these classes and is the tool wielded by the economically dominant class which, with the aid of the state, becomes also dominant politically and acquires, therefore, more means to suppress and exploit the oppressed classes. When society was first divided into classes, special machinery was required to safeguard the privileges of the ruling class. Such machinery for oppressing working people was first found in the *slave-owning state.*

It gave the slave-owners the power to exploit the slaves. At that time, the communication service maintained by the society and state was undoubtedly poor, and mountains, rivers and seas were enormous obstacles to intercourse. States therefore often formed within narrow geographical bounds. The state machinery was comparatively primitive, but sufficed to keep slaves in slavery and maintain the foundations of the exploiting social system.

The state has ever been the organ of oppression of one class by another. Thus, the ancient slave-owning state was the state of slave-owners, serving to keep the slaves in subjection, the feudal state was the nobility's organ for oppressing serfs and villeins, and the modern bourgeois state is the instrument of exploitation of wage labour by capital. This regularity is clearly traceable throughout human history ever since society split into the antagonistic classes of exploiters and the exploited.

Were there no states which were above society and relatively independent of the opposing classes? Were there no exceptions from the general rule?

An example of such an exception is provided by 17th-18th century absolute monarchy which kept the nobility and the bourgeoisie balanced against each other. Another instance is Bonapartism under the first and especially second French empires which set the proletariat against the bourgeoisie and the bourgeoisie against the proletariat. It must be noted, however, that a situation of this kind emerges during particular historical periods when the warring classes reach an equilibrium which allows the state to become relatively independent of both classes and to act, to all appearances, as a go-between for them.

However, such a situation prevails but for a short time. As the alignment of the class forces becomes more definite and one class triumphs over the other which has to yield its leadership of society, the state machinery must also make its choice. More correctly, it does not choose but is chosen by the class which has established its own domination. E.g., the French absolute monarchy of the 17th-18th centuries manoeuvred long enough between the bourgeoisie and the nobility, making concessions alternately to the one or the other. Finally, however, the victorious bourgeoisie took the state machinery into its own hands. Engels wrote: "...The state is nothing but a machine for the oppression of one class by another, and indeed in the democratic republic no less than in the monarchy; and at best an evil inherited by the proletariat after its victorious struggle for class supremacy, whose worst sides the victorious proletariat, just like the Commune, cannot avoid having to lop off at once as much as possible until such time as a generation reared in new, free social conditions is able to throw the entire lumber of the state on the scrap heap."[1]

§2. Historical Forms of the State

We learn from history that the state took numerous forms. Even in the epoch of slavery, in ancient Greece and Rome, advanced countries of their day, we encounter different forms of state. There appeared at that time *monarchy*, *republic*, *aristocracy* and *democracy*. Monarchy is rule by a single person. In a republic,

[1] Karl Marx and Frederick Engels, *Selected Works* in three volumes, Vol. 2, Moscow, 1973, p. 189.

all organs of power are elected by the citizens. Aristocracy is government by a small privileged class. Democracy is people's power (from the Greek *demos*–the people, *kratos*–strength). Contemporary politicians clearly differentiated between these forms of state. Supporters of one or another of them engaged in a tense political struggle. Yet, whether they were monarchy, republic, aristocracy or democracy, they were all slave-owners' states.

As we look at the history of slave-owning society, we see that, for all their different forms of government, the common denominator of a monarchy and a republic was that slaves were not considered citizens enjoying civil rights and duties and, moreover, were regarded as less than human. The state and its law were for the slave-owners who alone were recognised as citizens enjoying full rights.

Slave-owning republics were organised on different lines. Some republics were aristocratic, some democratic. In an aristocracy, only a small number of privileged slave-owners took part in political life. In a democracy, on the other hand, all citizens (i.e., all barring slaves) played a part. These facts are essential, for only by bearing them in mind can we understand what the state is.

The slave-owning system was superseded by feudalism, which was also of great significance to the history of the state. Under feudalism, the state began to serve a new ruling class, the nobility. The peasants, then the largest class, were bound to the soil. Only lords and gentlemen enjoyed certain rights, but the peasants had none at all. Their position was little different from that of slaves. Still, the serf had a cottage, in which he lived with his family, and a plot of land on which he was allowed to work part of the time.

In the middle ages, serfdom predominated. But even then the state assumed numerous forms and both monarchies and republics could be found, although the latter were less numerous than in the previous period. However, the feudal lords who owned land and serfs controlled the state no matter what form it took. Clearly, neither the slave-owning nor the feudal system, where the majority was ruled by a tiny minority, could do without coercion.

As under slavery so under feudalism the oppressed classes rose against their exploiters time and again. In medieval Germany, numerous peasant revolts finally developed into a real civil war against the landlords.

Nevertheless both slaves and serfs were crushed by the state machine for neither had a historical future and so was incapable of setting up a social system under its own control. The famous Leyden papyrus describes a victorious slaves' rebellion in ancient Egypt. But what was the result? The slaves partly replaced the slave-owners, seizing their wealth and turning them into slaves in turn. Thus the foundations of slave-owning society remained just as they had been.

To maintain and preserve their rule, the landlords had to have a machine for keeping great numbers of people in submission. When a feudal state was a monarchy, it was ruled by a single person; when it was a republic, it was ruled by elected representatives of the nobility. That did not change the essence of the state.

The next important stage in the development of the state was capitalism. It began to emerge towards the end of the middle ages when, after the discovery of America, world trade expanded, extraction of precious metals increased, gold and silver became means of exchange, and the turnover of money helped to build enormous fortunes.

Society was reorganised. Its division into lords and serfs was ended. The laws were proclaimed to be the same for everyone. They extended equal protection to all and protected property from those who had none.

Yet, despite the change, the state continued as a machine helping the capitalists to subjugate the workers and poorest peasants, who were, however, nominally free. The capitalist state promulgated universal suffrage while bourgeois ideologists loudly denied that the state had anything to do with classes, contending that it expressed the will of the people. All such doctrines merely glossed over the essence of the capitalist state.

Whatever the shape, so long as it is a bourgeois state, so long as it preserves private ownership of the land, factories and private capital and upholds wage slavery, it remains a tool of the ruling classes for oppressing the masses. The working class has a very clear idea what it must do with this state machine. It must wrench it from the bourgeoisie, break it and replace it with new machinery serving the working class and its allies.

Thus, our examination of concrete facts bearing on the state's development through the ages enables us to draw some important conclusions. Firstly, we have seen that the state arises with the appearance of classes. Secondly, the state has always expressed the will and interests of the ruling class. It is a machine for the oppression of one class by another. Lastly, every form of state–and they are rather numerous–must be judged above all in a class context. We must find out which class uses the state to ensure its domination and which classes the state suppresses.

§3. The Bourgeois State

Now, what can we make of the example cited at the beginning of this chapter? The incident during negotiations between the strikers and the employers clearly shows that we are dealing, in this case, with a situation in which the bourgeois state takes the workers' part. After all, who was punished? A capitalist, a member of the ruling class. Does it not prove that the state can be above classes, reconcile them, smooth over class conflicts?

The fact is that in this case, the ideologists of the bourgeoisie and advocates of reformism quote the example of an individual capitalist. The thing to do, however, is to find out the real essence of the bourgeois state, to see whether it serves society as a whole or merely the bourgeoisie. Supposing we assume, for example, that the workers do not negotiate with the employers. The strike committee declares that the factory now belongs to the workers, and the employers are simply told they are no longer wanted. What will happen then?

Police will arrive in force to deal with the situation. Should the workers prove too much for them, troops will be sent too. The bourgeois state will do everything to show the workers that the principle of private property is unshakable. In practice, the state will defend the interests of the capitalist class as a whole.

The bourgeois state defends the interests of an individual capitalist insofar as he belongs to the capitalist class. But should an individual employer commit actions detrimental to the capitalist class as a whole, he may be sacrificed.

In this case, we are dealing with a situation where an individual employer commits actions which may harm the capitalist class as a whole. One can also imagine the following possibility. The employer's firing and shooting to death a strike committee member could provoke a storm of indignation among the workers, a spontaneous workers' rebellion. Such a spontaneous outburst could well infect other factories in the neighbourhood. To suppress the disturbances, troops and police would have to be sent, and, naturally, the capitalists will incur damage as many factories come to a standstill and property is destroyed during clashes between workers and police.

Lastly, the capitalists would also sustain great moral damage, as the bloody clash with the people would shatter the faith in the "popular" character of the bourgeois state, the belief that the capitalist system, as its ideologists argue, most closely corresponds to "human nature". Therefore the capitalist class as a whole and its state may, and often do, sacrifice individual employers and capitalists, if it pays the class as a whole.

Our everyday experience proves the truth of the Marxist doctrine which regards the bourgeois state as a machine of subjugation used by one class against another, as an instrument of class domination.

§4. The Dictatorship of the Proletariat. Its Forms and Development

Marx considered his idea that the class struggle inevitably results in the *dictatorship of the proletariat* to be one of his major contributions to the doctrine of classes and class struggle.

The idea of the dictatorship of the proletariat was advanced for the first time by Marx and Engels in 1848 in the *Communist Manifesto,* which mentions the "proletariat organised into a ruling class". As a term, the dictatorship of the proletariat was first used by Marx in his letter to J. Weidemeier of March 5, 1852.

When they expressed the idea of the historical necessity of the dictatorship of the proletariat, Marx and Engels could not yet answer the question as to what forms the dictatorship of the proletariat might assume and what was to be done with the old state machinery, for history had as yet supplied no answers. The 1848 revolutions in France, Germany and Austro-Hungary made it clear that the proletariat could hardly use the old, bourgeois state machinery. Moreover, the old state, geared to the exploitation and oppression of the masses, is a strong weapon in the hands of counter-revolutionary forces. Therefore, as they generalised the experience of the 1848 revolutions in Europe, Marx and Engels arrived at the conclusion that the old bourgeois state machine must be smashed in the course of the proletarian revolution and replaced by a state of the dictatorship of the proletariat. It was still not clear what concrete forms the dictatorship of the proletariat could assume. The answer was supplied by the *Paris Commune,* which was the first state form of the dictatorship of the proletariat.

Another form of the dictatorship of the proletariat, *Soviets* appeared in Russia during the revolutionary battles of 1905-1907, and triumphed in 1917.

Subsequently, world history produced yet another form of the dictatorship of the proletariat—the *people's democracy,* which triumphed in some countries after World War II.

There is no doubt that as the masses in capitalist countries fight for the triumph of the proletarian revolution they will create more forms of the dictatorship of the proletariat which will subsequently be established.

Demonstrating the historical necessity of the dictatorship of the proletariat, Marx emphasised that without it the working class could not hold power, suppress bourgeois counterrevolution, reorganise the economy and alter people's psychology, or go over to communist formation.

In the *Critique of the Gotha Programme*, Marx showed that between capitalism and socialism (the first phase of communism) there is a *transitional period* which cannot be circumvented. The purpose of this period is to extend and complete the socialist revolution and build an entirely different economic system, alter the social structure of society, ridding it of the exploiting classes, rear a new force of intelligentsia, work a revolution in people's minds, and ensure the triumph of communist ideology. The political organisation of society during the period of transition to communism must necessarily be the dictatorship of the proletariat.

How did history bear out the truth of the Marxist-Leninist doctrine of the inevitable nature of the dictatorship of the proletariat? It is safe to say that the truth of this doctrine has been conclusively confirmed not only by the 1917 Great October Socialist Revolution in Russia but by the experience of all other socialist revolutions of the 20th century. The sole path leading from capitalism to communism lies through a transitional period, through an epoch of the dictatorship of the proletariat.

The tasks of the dictatorship of the proletariat as a weapon of the socialist revolution are many. They include sustaining and consolidating the political power of the working class; ensuring political guidance of society by the working class and its Marxist political party;

suppressing the resistance of the exploiting classes, overthrown but not yet completely abolished; putting an end to economic anarchy; nationalising the principal means of production and organising the economy on socialist lines in keeping with the chief aim of building a communist society; carrying out a cultural revolution.

Naturally, these tasks have to be carried out in the context of the class struggle against the international bourgeoisie and against the remnants of the overthrown exploiting classes.

The leading and guiding force of the entire system of the dictatorship of the proletariat is the party of the working class.

Guided by the experience of the young Soviet Republic, Lenin named following five forms of class struggle: (1) suppression of the overthrown exploiters; (2) civil war; (3) neutralisation of the petty bourgeoisie; (4) utilisation of bourgeois experts; (5) inculcation of a new labour discipline.

With the exception of civil war which need not necessarily accompany socialist revolution, these forms of class struggle proceeding under the dictatorship of the proletariat have universal significance.

Suppressing the resistance of the overthrown exploiters is indispensable to the triumph of the socialist revolution. The bourgeoisie will not surrender its power without a struggle but will persistently try to use its political experience against the socialist government of workers and peasants. For this reason, the triumphant march of the socialist revolution is always accompanied by subversion, sabotage and political conspiracies by its enemies. The dictatorship of the proletariat suppresses resistance from the remnants of the overthrown exploiters, providing the requisites of a complete moral and political unity of society. Once it is achieved, the dictatorship of the proletariat need no longer suppress these remnants. Lenin repeatedly pointed out that, important as it was, suppression was not the chief function of the dictatorship of the proletariat.

A socialist society is one in which there are no irreconcilable differences and no struggle is waged between the workers and the peasants, and between these two classes and the people's intelligentsia.

Lenin named *civil war* as a form of class struggle in the transitional period. In the case of the young Soviet Republic, it was imposed on working people by the exploiting classes and was a terrible calamity and a great handicap to the people's progress to socialism. The peoples of China also suffered under the heavy burden of civil war. Bur there was no civil war in the European countries which took the socialist path. Civil war, therefore, is a form of class struggle which need not necessarily occur in all countries.

Now let us consider the *neutralisation of the petty bourgeoisie.* This mainly implies the peasantry. It would be a mistake to consider such neutralisation as a line for isolating the petty bourgeoisie politically from the revolution. Actually, it is a question of skilfully paralysing the possible wavering of the broad sections of the petty bourgeoisie (particularly the peasantry) towards counter-revolution, with a view to enlisting the peasants' participation in the building of socialism. All slogans moved by the Party on the peasant question served this purpose. It was no accident that the triumphant advance of Soviet power was given overwhelming support by the middle peasants everywhere.

The experience derived by the CPSU from its successful effort in winning the peasants' support for the socialist revolution is of immense international significance. It is of special importance today to the developing countries and the national liberation movement with its emphasis on the agrarian question.

The problem of *utilisation of bourgeois experts* in the interests of the revolution and socialism was a controversial issue in the young Soviet Republic. Many "left" revolutionaries would not hear of it, being morbidly suspicious of all such experts. Nevertheless, life soon proved them wrong. Today, all socialist countries employ old experts. It only has to be ensured that they do not obstruct the country's political course or serve any anti-socialist ends.

Last but not least comes the *inculcation of a new labour discipline.* Lenin considered this form of class struggle particularly significant. And no wonder, for it has to do with millions summoned by the revolution to smash the old way of life. It is therefore extremely important to direct the revolutionary enthusiasm of the masses towards building the new society and to inculcate a new attitude to labour, the state, and discipline.

A line must be drawn between the expressions of the last-mentioned form of struggle in the period of transition to socialism and that under socialism. Whereas in the transitional period, the ideological struggle inside the country is an acute form of the class struggle, under socialism, when society has attained moral and political unity, the social basis of such acute struggle disappears. There remains, as Lenin wrote, the systematic *guidance* of *all* working people. That, according to Lenin, also is a struggle, but a struggle of a particular sort, the overcoming of definite, albeit entirely different, resistance, and a quite different sort of overcoming.

Now the struggle is waged no longer between classes or social groups but between integral society and individual exponents of survivals of the past among its members.

The dictatorship of the proletariat develops along with the whole of society. In conditions of full-fledged socialism it transforms into a *state of the whole people.*

Soviet history may be divided into three periods: (1) the period of the dictatorship of the proletariat during the transition from capitalism to socialism; (2) the period of development from the state of the dictatorship of the proletariat to the state of the whole people (1934-1960); and (3) the state of the whole people which is developing, as the building of communism advances, into communist public self-government.

Concerning the first-mentioned period, one must take note of Lenin's idea that the *essence of the dictatorship of the proletariat* lies in constructive, educational and organising activity of the state building socialism for the first time in history.

The state of proletarian dictatorship begins its transformation into a state of the whole people as soon as the building of socialism is completed. The best documentary proof of this process as it developed in the USSR was the adoption of the 1936 Constitution—the Constitution of triumphant socialism. It gave expression to new principles of democracy, embracing the whole people. Unequal election quotas for workers and peasants were abolished, and universal, equal and direct suffrage by secret ballot was introduced. Development of democracy under socialism is an objective process. Socialism cannot advance unless it extends and improves its democracy.

The process whereby the state of the dictatorship of the proletariat has developed into the state of the whole people was completed in the early 1960s as the result of the complete and final triumph of socialism in the Soviet Union. The working-class dictatorship in the USSR was not abolished but gradually developed, as socialism advanced, into a state of the whole people. The leading role played by the working class in Soviet society and the state is further developed in the process.

As the building of communism advances, the state of the whole people undergoes a good deal of change. Article 48 of the Soviet Constitution, adopted in 1977, to give legal expression to the establishment of the state of the whole people in the Soviet Union, proclaims the right of citizens to take part in the administration of the state and society, and in the discussion and adoption of laws and the decisions of national as well as local significance.

This article is of special importance in that it gives tangibility to the provisions of the Constitution on who has the plenitude of political power, and the right to participate in administering the state and society in the USSR. To declare that political power in a country is vested in the people is not enough. All constitutions have proclaimed it, ever since the time of the Greek city-states. Yet, the fact remains that through the ages it was just as Jean-Jacques Rousseau observed: "Man is born free, and everywhere he is in chains." The purpose of Article 48 of the Soviet Constitution is to name the concrete things which make it possible for the people to take part in administering the state and society. What are these things?

First of all, it is the people's right to wield political power. Political power in the USSR is exercised through Soviets of the People's Deputies which are to be found at every level, from the Supreme Soviet at the head of the country down to the local Soviet of the smallest settlement. What does it look like in terms of numbers? In 1977, there were altogether over two million elected Soviet deputies. Furthermore, every Soviet sets up some standing committees which enlist the assistance of public-minded citizens in carrying out their work. To quote 1977 figures again, there were almost thirty million such activists involved in the Soviets.

In order to administer effectively the state and society, the working people should not only take part in political decision-making, but also see how decisions are carried out. In the Soviet Union, this is done through a major social institute known as People's Control. Its bodies, elected by citizens, are to be found at every factory and office, supervising the work of the management. In 1977, the elected bodies of People's Control comprised nine million citizens.

Lastly, the people cannot be said to have all political power, unless women take part in administering the state and society. In the Soviet Union, women currently account for 31 and 35 per cent respectively of the deputies of the Supreme Soviet of the USSR and Supreme Soviets of the Union Republics, and for 48 per cent of the deputies of the territorial, regional, district, city, town, and village Soviets.

Chapter Six

SOCIAL REVOLUTION

§1. Types of Social Revolution

When discussing the material life of society we mentioned that one socio-economic formation usually passes into another only via a social revolution. That does not mean, of course, that we must search history for a "slaves' revolution" which ruined and shattered the slave-owning system. No such revolution actually occurred. Nor did slavery perish at the hands of the slaves, although its foundations had been thoroughly shaken by slaves' rebellions. Slavery became a blind alley in mankind's road to progress. It owed its downfall to its disgust for labour which wasted it away. A society which has no respect for labour, has no future. It was because the slave-owning Rome was rotten to its core that the warlike barbarians conquered it so easily.

Social revolutions were performed when feudalism had to give way to capitalism, and in the current epoch of people's transition to socialism; they are accordingly of two types, viz., *bourgeois* or *socialist.* In the first-mentioned case social and political revolutions are spaced in time. As the capitalist economic system forms in the womb of fully-developed feudalism, it comes into conflict with the old feudal superstructure, thus necessitating a political revolution which will crown the social change–already accomplished under feudalism–with a bourgeois superstructure. For this very reason, there is no special period of transition between feudalism and capitalism for it proceeds, as it were, in the bowels of feudal society, so that the bourgeois revolution merely has to put the finishing touches to it by changing authority. This is why purely political bourgeois revolutions are possible, leaving intact the economic and social patterns of society.

The *proletarian revolution* is quite a different thing. In this case, the social revolution does not precede the political revolution but, on the contrary, begins unfolding only after the political revolution has been performed by the proletariat. Whereas the bourgeois revolution ends in seizure of power, the proletarian revolution merely starts with it. Whereas the bourgeois revolution usually has no comprehensive social and economic programme to offer, the proletarian revolution has one, and terminates in the construction of socialism. Whereas progress towards capitalism requires no transitional period, it is indispensable in the changeover to socialism. Lastly, whereas the bourgeois revolution merely substitutes a different form of exploitation, the socialist revolution sets out to rid mankind of all exploitation. That is why the bourgeois revolution does not even mention scrapping the feudal state machinery—the bourgeoisie takes control of the old state machinery and makes it serve its own interests. To the socialist revolution, on the other hand, demolishing the bourgeois state machinery is the key task essential for establishing the dictatorship of the proletariat.

Thorough analysis of the history of revolutions enabled the founders of Marxism-Leninism to discover the objective laws governing the progress and consummation of social revolutions. First of all, let it be noted that the fundamental question arising in any revolution—the conquest of power—is resolved by revolutionary violence alone. This is a law of social revolution, particularly effective with respect to the socialist revolution. No ruling class was ever willing, or moved by compunction, to surrender its power to another class. As regards the bourgeoisie, there is ample historical evidence to show that it fights the revolutionary proletariat tooth and nail.

The founders of Marxism-Leninism have discovered the *principal law of the social revolution.* As a general rule, a revolution cannot take place in the absence of a *revolutionary situation,* i.e., without a national revolutionary crisis which breaks out when the lower classes can no longer bear the old way of life and are ready to overthrow the hateful system even at the cost of their lives, while the upper classes are no longer able to rule in the old way. In a revolutionary situation, no class or group remains neutral. All social forces join in the struggle either on behalf of or in opposition to the revolution.

Even so, not every revolutionary situation resolves itself in a revolution. That was what happened in Russia in the early 1860s, when the revolution was baulked by the tsarist reform of 1861. There was another revolutionary situation in Russia in 1914, but its development was interrupted by the outbreak of world war. Consequently, a revolutionary situation is not enough for a revolution to occur. Besides objective social changes, which are the essence of a revolutionary situation, subjective factors must also be present, viz., the revolution needs a leader in the shape of a political party, and it needs a real force in the shape of an alliance of the classes comprising the revolutionary people. Only given these conditions can a revolution be born out of a revolutionary situation and succeed under true and wise leadership.

Here is Lenin's classical formulation of the principal law of revolution: "... For a revolution to take place it is not enough for the exploited and oppressed masses to realise the impossibility of living in the old way, and demand changes; for a revolution to take place it is essential that the exploiters should not be able to live and rule in the old way. It is only when the *'lower classes' do not want* to live in the old way and the 'upper classes' *cannot carry on in the old way* that the revolution can triumph. This truth can be expressed in other words: revolution is impossible without a nation-wide crisis (affecting both the exploited and the exploiters). It follows that, for a revolution to take place, it is essential, first, that the majority of the workers (or at least a majority of the class-conscious, thinking, and politically active workers) should fully realise that revolution is necessary, and that they should be prepared to die for it; second, that the ruling classes should be going through a governmental crisis, which draws even the most backward masses into politics (symptomatic of any genuine revolution is a rapid, tenfold and hundredfold increase in the size of the working and oppressed masses—hitherto apathetic—who are capable of waging the political struggle), weakens the government, and makes it possible for the revolutionaries to rapidly overthrow it."[1]

§2. How the Dictatorship of the Proletariat Is Established

We now come to another important question: Can the dictatorship of the proletariat be

[1] V. I. Lenin, *Collected Works*, Vol. 31, pp. 84-85.

established peacefully? This question was posed long ago by the founders of Marxism-Leninism. Marx accepted the possibility of the proletariat taking power in a peaceful way in Britain, the United States and the Scandinavian countries where no strong military or police state apparatus existed in the middle of the 19th century. It must be noted that such a peaceful way of taking power would still be a revolution, and in such a peaceful revolution the conquest of power would still have to be effected by force.

It is no less important to draw a line between revolutionary violence and the armed method of carrying out a revolution. The former is a necessary attribute of any proletarian revolution while the latter depends on concrete circumstances. Power does not have to be won by the proletariat by force of arms any more than a proletarian revolution needs to be accompanied by civil war. Neither is unavoidable. The dictatorship of the proletariat can, as history attests, be established peacefully, i.e., a *socialist revolution can proceed by peaceful methods.*

A theoretical account of this possibility was given by Lenin in 1917, in his *April Theses.* Lenin wrote that under dual power which emerged after the February Bourgeois-Democratic Revolution in Russia not only could the socialist revolution advance peacefully under the slogan "All Power to the Soviets", but it was the only possible path towards the dictatorship of the proletariat under the circumstances. Lenin indignantly criticised those who, in April 1917, called for an armed insurrection against the Provisional Government, describing them as irresponsible adventurers.

Some may object that peaceful development of the socialist revolution in Russia was interrupted in July 1917, and the proletariat had, after all, to seize power by arms.

That is quite true. But, firstly, the socialist revolution in Russia had indeed developed peacefully until July 1917. Secondly, Lenin's theory on the establishment of the dictatorship of the proletariat by peaceful means was dramatically confirmed by the 1919 revolution in Hungary, where a people's government was established by peaceful means.

It may further be argued that peaceful development of the revolution in Russia was due to the unique circumstances of dual power that prevailed in the spring and summer of 1917, and that the Hungarian revolution, too, was performed in singular historical circumstances. That is true. Even so, who can warrant that circumstances favourable to the establishment of the dictatorship of the proletariat may not occur in future?

Today, the programmes of most communist parties in the capitalist world state that in contemporary conditions the peaceful performance of a socialist revolution is a real possibility. This certainly does not imply any renunciation or revision of the problem of seizing power by force or by military means: the latter may become necessary just as it happened in Russia in 1917.

Thus, there are two ways of solving the problem of power involved in a socialist revolution, an armed way and a peaceful way. Both imply the use of the people's revolutionary force. Which of them a revolution will take will depend on the circumstances prevailing in the country concerned. Communists consider it their sacred duty to prepare the masses for either contingency. The military path calls for special preparation. The peaceful path is not easy either, the communist party having to help the masses to acquire sufficient political understanding and experience to tackle problems arising in a socialist revolution. Both methods were brilliantly mastered by Lenin's Communist Party in Russia. Both stood the test of history.

Which method is preferable? The choice depends entirely on the situation. If the possibilities of the peaceful method have been exhausted or, perhaps, are altogether absent, nothing remains but the armed way, which becomes a necessity.

Should the revolution develop peacefully, does it mean that the bourgeois state machinery need not be demolished? As we mentioned, in the mid-19th century Marx considered that, as an exception from the general rule, that might be the case in Britain, Scandinavia and the United States in which the army and police were not greatly developed. In the epoch of imperialism, Lenin came to the conclusion that in all capitalist countries, the military and police machinery had attained full development. Therefore, no exceptions should be made, and the rule–i.e., the scrapping of the bourgeois state machine–should become universal. It should even be smashed in the case of a peaceful revolution.

Does the peaceful performance of a socialist revolution imply that the parliament and all parliamentary institutions should be retained? That too is determined by the concrete circumstances. Evidently, in traditionally parliamentary countries there is no pressing need to abolish the parliament either during or after the revolution. The dictatorship of the proletariat can exist and develop quite well as a parliamentary democratic republic as it can now rely on the world socialist system to safeguard it from bourgeois counter-revolution and restoration of capitalism.

"The Chilean tragedy," the 25th Congress of the CPSU stated, "has by no means invalidated the communist thesis about the possibility of different ways of revolution, including the peaceful way, if the necessary conditions for it exist. But it has been a forceful reminder that a revolution must know how to defend itself. It is a lesson in vigilance against present-day fascism and the intrigues of foreign reaction, and a call for greater international solidarity with all those who take the road of freedom and progress".[1]

Recognition that the socialist revolution and the dictatorship of the proletariat can be effected peacefully is of immense tactical significance in current conditions, serving to extend the scope of the labour and communist movements, increase the political understanding of the masses, and refute the bourgeois slander about the revolutionary movement and revolutionary theory. This thesis, now adopted by the communist parties of bourgeois countries, is a reliable weapon in their ideological struggle against leftist, adventurist trends in the labour movement seeking to push the working class and its party onto the path of adventurism and sectarianism.

Combined experience in the development of the world socialist system, said L. I. Brezhnev, proves that today the power is still the central problem the revolution has to solve. Transition to socialism is only possible if the working class and its allies use political power to abolish the

[1] *Documents and Resolutions. XXVth Congress of the CPSU*, pp. 35-36.

rule of exploiters. Socialism can be victorious only if the working class, led by its Party, organises the masses for the building of socialism. It can consolidate its position only where people's government succeeds in defending the revolution from the internal and external class enemies.

The significance of social revolutions to human history cannot be overestimated. It was not for nothing that Marx called them *locomotives of history.* Revolutions immensely speed up the march of history. They make new social and political forces essential to society's progressive development mature faster, resolve the contradictions that have been accumulating over the ages, and thereby clear the way for the progress of history. Socialist revolutions play an especially prominent role. They carry out the historic mission of liberating mankind from exploitation, abolishing social antagonism, ending the previously inevitable anarchy of social development, and eliminating all forms of the individual's estrangement from society and culture. It must be noted in this connection that Marxist-Leninist theory emphasises a key point in revolutionary practice, viz., the creative and constructive nature of socialist revolutions. They close the prehistory of mankind and inaugurate the history of emancipated mankind consciously building a communist society and an entirely different type of civilisation.

Chapter Seven

THE ROLE OF THE MASSES AND INDIVIDUALS IN HISTORY

§1. What Is the People?

Society is a complex formation usually comprising diverse classes and social groups, each playing a different role in society's development. Under feudalism, for example, the peasants and artisans have to do the hardest jobs–they cultivate the soil, tend the cattle, produce food and clothing, build houses and provide luxuries too. The nobles, on the other hand, engage in court intrigues, manage political affairs, vie for power among themselves, declare war and conclude peace, shine at balls. Which plays a more important part in history?

We already know that human history is based on the production of material goods, in which the decisive role belongs to those who are engaged in it, i.e., to working people.

All material values available to society are created by their work. No doubt, their daily labours are less conspicuous than the doings of kings or generals; nevertheless, they are the real foundation of history.

A logical materialist view on history consists in recognising the decisive role of material production in society's development and, consequently, the working people's key role as the makers of history and the chief force of social development.

The working people, who are the overwhelming majority, are the *people*, the *masses*. However, at different stages in history, a people does not comprise toilers alone. Generally speaking, the social strata constituting the people vary from one age to another. Therefore, to form a correct idea of what a people is, one must examine concrete stages of history.

In *primitive society*, which knew no division into classes and in which everybody had to work, all members of society represented the people. This pattern changes with the division of society into classes and the appearance of toilers and exploiters. The people comes to consist mainly of toilers, but at different historical periods it also includes the exploiting classes. One may say that the conception of the people denotes the social classes and groups jointly tackling progressive tasks facing society. That was why during the transition from feudalism to capitalism the people included the bourgeoisie, which had an interest in the destruction of feudalism, as well as the toilers, i.e., the peasants, artisans and workingmen.

History abounds in situations where the people rise up in arms to drive out foreign invaders. At such times, the people's role as the saviour of the nation becomes particularly prominent. It was so when the Russian people fought to cast off the Tartar yoke, when they resisted the Napoleonic invasion, and in all similar cases.

The peoples–the Soviet people above all–barred the way to nazism, destroying it and thereby saving world civilisation from the threat of destruction.

Since in class society the people is composed of different–often opposite–classes, it would be a mistake to consider it as a uniform formation. Lenin cautioned against using the word (the people) "to cover up failure to understand class antagonisms within the people".[1]

Today, in *bourgeois countries,* the people is composed of the workers, farmers, progressive intellectuals, the mass of the urban and rural petty bourgeoisie. In many newly-independent countries and those fighting for their emancipation, the people includes appreciable sections of the indigenous bourgeoisie taking part in the struggle for national interests. Nevertheless, not all the bourgeoisie in such countries are part of the people. The so-called "compradore bourgeoisie", subservient to and collaborating with the colonial powers and betraying the vital interests of their peoples, must be excluded. The compradore bourgeoisie is quite plainly an anti-popular force.

[1] V. I. Lenin, *Collected Works,* Vol. 9, pp. 111-112.

The situation under socialism is altogether different: the people includes the entire population. This is not surprising because all anti-popular forces have been destroyed and society consists of the friendly classes of workers and peasants which are joined by the working, essentially popular intelligentsia. Thus, as socialism is being built, the social forces are consolidated. An example of such consolidation is provided by the *Soviet people* which has shaped as a new historical entity. Formed of different nationalities, of two friendly classes and the intelligentsia, it is cemented by the unity of its vital interests, political views and moral standards. This unity rules out the possibility of class struggle within the people. That is one of the greatest achievements of socialism in the USSR. The unity of the Soviet people rallying round the CPSU indicates how far developed socialism has advanced along the road to communism.

§2. The People's Role in History

To comprehend the people's role in history, one needs to understand how it contributes to society's material and spiritual life.

We know that the people is the producer of all material wealth, both the means of subsistence and of production being obtained by its efforts. Engels wrote that nature was the mother, and labour the father, of wealth. But whose labour is it? Who works on the objects of labour and remakes nature, compelling the natural properties of things, the forces of nature to serve man and even creating new qualities and forces not found as such in nature? It is men, the working people, who are the most honourable and important on Earth. The people alone creates all material wealth of society by its labour.

Then, what part does the people–the working people above all–play in the system of production? First of all, let us recall that the workers engaged in material production make up a part of the productive forces. They constitute living labour. Without it, dead labour stockpiled in the means of production cannot return to life. Although the character of the productive forces does not depend on men's choice, it is still the *working people* who, in conjunction with the instruments of labour (which may be individual or social, based on a division of labour or otherwise, involving simple or complex cooperation) actually *determine* the character of production and so of the productive forces in general. And this is an essential characteristic of material production, determining to a great extent the development of society.

Now let us look at the working people's role in production relations. It would be incorrect to assume that in economic systems based on exploitation the relations of production are represented merely by the owners of means of production, i.e, by the exploiters, not the workers. No doubt, the most vivid embodiment of capital are the capitalists. Nevertheless, capital in its bourgeois form (unlike usury capital, for instance) exists only insofar as the workers' labour power is a commodity which the capitalist can buy and which is consumed in the process of production organised on capitalist lines. Labour power is as essential to the capitalist economy as capital itself. Its owners are the proletarians—a class which has a decisive role in history—and which constitutes, in our own age, the bulk of the people.

The capitalist mode of production breeds the proletariat and helps it develop into a world revolutionary force. That is the key point of the Marxist-Leninist doctrine.

Bred by capitalist society, the proletariat is the exponent of new social relations and a force which is to destroy capitalism.

The proletariat, i.e., the main body of working people in capitalist society, is the producer of the material goods essential to that society and of capitalist profit (and with it, of capital's might in general). Simultaneously, it is the exponent of future economic tendencies and embodies the social character of production and other material requisites of the socialist system of economy.

Marx and Engels, in *The Holy Family*, defined the proletariat's role very exactly. To history, they wrote, the intentions of an individual or even a class do not matter, even if it is a class as strong as the proletariat; what matters is what the proletariat is and what role it is to play owing to its place in the capitalist economy. The revolutionary role of the proletariat as the grave-digger of capitalism, liberator of society and builder of socialism has objective grounds. The proletariat's revolutionary character necessarily results from the conditions of its existence, from its place in the capitalist economy, and from the contradictions of the capitalist mode of production.

Apart from being the producer of all material wealth, the people is also the object and subject of history. The history of society is above all the history of the people, and in this sense the people is an object of history. At the same time, history is made by the people. It is the maker of history, its subject. It makes history not by a whim or caprice but in accordance with the objective laws of social development.

The people is *the decisive force in all revolutionary change.* Every revolution in history was performed by the people. Even revolutions at the top performed by a narrow group always drew on the people's discontent with the existing social institutions.

For many centuries, the exploiting classes tried to keep the people from taking an immediate part in historical development, although they did not always succeed. Inhuman oppression again and again compelled the masses to rise against their overlords. It was not until the victorious proletarian revolution that the masses had become an active constructive force in history. As socialist society progresses, the people's role as the architect of history, as a force building a communist society, increases.

The people makes an immense contribution to human spiritual culture. The people creates language–a method of stating and communicating ideas–in the absence of which there could be no culture of any kind. Apart from making common effort possible, language furnished the foundations from which spiritual culture grew. It also furnished the source of folklore, the starting point of every national literature. The people has created marvellous songs, dances, sculptures, paintings, buildings. These masterpieces are the sources on which professional writers and poets, painters and sculptors, composers and architects draw. From their labours, the people have amassed a vast store of information about the external world, from which science has grown.

In primitive society, with brainwork not yet divided from manual work, the people's role as creators of spiritual culture is obvious. After society divides into classes and brainwork and physical labour become separate, the ruling classes spare no effort to limit the people's creative effort and, isolating it from spiritual culture, monopolise the latter. That naturally hindered the people's spiritual activity but never stopped it. The people–that perpetual source of creative talent–is the creator of spiritual values in class society too. All prominent figures in the field of spiritual culture always found in folk art an inexhaustible source of ideas and images for their own work.

§3. The Role of Outstanding Personalities

Thus *the people is the decisive force of historical development.* Yet history has preserved numerous records of outstanding personalities. In the past, historians and social scientists were convinced that great men were the prime-movers of history while the people was an inert mass only brought into motion by them. The entire world history was reduced to the doings of kings, military leaders, politicians, and so on. Books on history, as Plekhanov observed, looked like Lives of Great Men.

Every class in every epoch had its own ideas about greatness. In the view of the feudal ruling class, great men had to be of noble, preferably royal, blood. Hence all kings, emperors, and so on, were great. Some rulers were, indeed, people of more than ordinary ability, but they were very few. For the most part, kings and queens were not particularly gifted and ruled merely by hereditary right.

Capitalism, which swept out feudal privilege, has made wealth the yardstick of greatness. But does a fortune make one an outstanding personality? Obviously it does not. The proofs are not hard to find, if proof be needed.

If, however, we put class prejudice aside and take a sober view of history, we shall have to acknowledge that there were a fair number of statesmen, politicians and generals who left their personal mark on some events.

While it holds that the decisive role in history belongs to the masses, historical materialism is far from denying the prominent role played by great men. Historical materialism only asserts that history is made by the people, not by great men. Some of the latter realised it. In a speech made in 1869, the German "Iron Chancellor" von Bismarck, referring to his friends who extolled his influence on events, said: "My influence on events with which I have had to do is in effect overestimated; but even so nobody has yet expected me *to make* history."

Outstanding individuals are themselves a product of history, of definite social circumstances which enable such an individual to display his abilities.

As Plekhanov justly observes, most of Napoleon's marshals had been strangers to military art before the French bourgeois revolution. One of them had been a fencing master, another an actor, and another a barber. In feudal times nobody would have expected them to make a successful military career. Napoleon himself would have died an obscure general or colonel.

Of course, in order to play a prominent role, an individual must possess outstanding abilities. Yet abilities as such only potentially make an outstanding personality. This potentiality may be realised only given favourable social relations.

Men do not pursue their historical activities singly. Social actions are performed by a mass of people. When several classes are involved, one of them usually assumes the leading role. Thus, in the struggle against feudalism the people was led by the bourgeoisie. In the changed conditions of imperialism the exploited people fighting against the bourgeoisie is led by the proletariat. To ensure success to the struggle, a vanguard must be organised, consisting of the better-aware members of the foremost class, i.e., a political party of this class must be organised. As it functions, this party advances the more experienced and gifted of its members–political leaders.

To recognise the outstanding role of communist party leaders is to acknowledge their authority, experience and foresightedness. The strength of communist party leaders lies in their close contact with the masses and in their capacity to express and defend the basic interests of working people.

At the same time, the people is not an anonymous mass, but a vast number of individual personalities, living, active architects of history. Then what is man, and how is he related to society?

§4. Man Is the Sum of the Social Relations

Marxism has introduced an entirely new conception of the social nature of the individual, proceeding from his intimate association with his environment. Of course, attempts to interpret the individual in close association with the social environment were made before Marx–for instance, by 18th-century materialists. However, the first authentic scientific interpretation of the individual was given in Marxism.

Marx evolved the classical formula disclosing the social essence of the individual. The human essence, according to Marx, is *the sum total of the social relations.* This formula shatters abstract anthropologism, whereby both materialists and idealists vainly tried to discover and classify the specific features allegedly inherent in human nature. For the most part, their man was nothing but a copy of the biblical Adam, complete with halo.

If man is essentially the sum of the social relations, then it is clear that every man is a child of his age, an exponent of its industrial, class, family, national, political, legal, religious and other social relations. Is the individual just a vessel for the social relations? According to the Marxist-Leninist view, it is by no means so. Man takes an active part in the historical process. As regards outstanding figures, they are the torches kindling others or lighting the way for them. Maxim Gorky thus depicted Danko holding aloft his burning heart to give his people light.

This social conception of human nature underlies the Marxist approach to the unfolding and fulness of the personality. An individual exists and develops in the context of the social relations, actively asserting himself through them. As to the fulness of personality, this depends on one's contacts with other people. The more varied and intensive they are, and the more actively pursued by the individual, the more developed one's personality will be. We must note at once that these factors should not be regarded as external to the individual. For example, one's life activity is a personal characteristic, but it has a social meaning.

At the early stages of social development–

e.g., under the communal system–the individual was more integrated compared with contemporary man. The reason for this, Marx explains, was that the individual had not yet fully developed his relations, so had not yet put them in opposition to himself as independent social forces. This alienation of the individual from the social forces opposing against him starts at the beginning of civilisation and proceeds, becoming ever more complicated, throughout the history of civilisation, up to developed communist society. What, then, are the stages in this process? The explanation of this problem, too, was given by Marx.

"The relations of personal dependence (at first entirely primordial) are the first forms of society in which human productivity develops merely to an insignificant extent and at isolated points. Personal independence which is based on *objective* dependence is the second major form wherein a system of comprehensive communal metabolism, universal relationships, all-round needs and universal abilities is built for the first time. Free individuality, based on the universal unfoldment of individuals and the subordination of their common collective productivity as their common property, is the third stage."[1]

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[1] *Ökonomische Manuskripte 1857-1858*, Moscow, 1935, pp. 88-90.

These three types of relations between society and the individual are stages in the formation and development of man's social essence. Capitalism destroys personal relations among men, changing them into relations in the world of things. Things as commodities dominate men and determine their relations. The capitalist division of labour and mechanised production have produced a man able to fulfil partial industrial or social functions but unable to fulfil himself in society as a human being. Communism alone wipes out the products of man's historical development which cripple his independent personality and moulds an integral and harmonious personality.

§5. The Individual in Communist Society

Now what is an integral and harmonious personality?

The eminent French utopian Charles Fourier (1772-1837) and other utopian socialists sought to solve the problem of the full and harmonious development of human nature applying the law of varied employment. Indeed, one who has mastered several complex skills becomes a different person, the one-sidedness and disunity of his personality being overcome to some extent. Fourier hoped that, in this way, the complete personality of the medieval artisan could be revived. That, alas, was but a romantic dream, which very soon crumbled. In the age of mechanised production, changing the proletarian back into the medieval artisan is out of the question. Even were such a reversion at all possible, it would be a step backwards in the historical evolution of both the individual and the relations of society and the individual.

Consequently, if it does afford some possible development of the individual, varied employment utterly fails to solve the problem of the full and harmonious development of the individual. What, then, is the answer?

Unable to solve the problem for the whole of the nation, bourgeois sociologists have divided society into a mass of drudges and a creative elite which, they claim, alone can hope to attain harmonious development. Yet, can society afford to make all working people slaves so that a small elite can devote itself exclusively to intellectual endeavour? Can the individual be fully developed in this way? Quite obviously, this is a utopia, but, unlike Fourier's noble dream, it is a reactionary utopia.

Then where can we find a realistic programme for the full and harmonious development of human nature? Why does Lenin repeat Fourier's words that in the society of the future everyone will know how to do everything? Is such a thing possible? Men will certainly continue to professionalise labour. Then what about the development of the individual?

Man can and must be creative with respect to the things that mainly fill his life. Therefore the key to the problem is not quantity (numerous skills) but quality, i.e., making work creative and man a creator, turning ordinary activity into creative work. Then labour will not be a mere economic necessity but an indispensable need felt by every able-bodied member of society. Then what about man's all-round development?

Putting the utopian and elitist approach to the problem aside, man's versatility should be considered from the viewpoint of his most vital functions. What are they? Man must be creative, highly moral, highly cultured and physically developed. The CPSU Programme formulates all these requirements in the context of the current stage in the building of communism in the USSR. Versatility, from this standpoint, implies that the individual, as far as his activity and conduct are concerned, behaves actively, creatively, as a collectivist, and this gives him the greatest satisfaction. Can it mean, perhaps, the sacrifice of individual interests at the altar of communist duty?

The communist world outlook and communist duty are of great significance to the moral make-up of the individual. Even so, the programme for the comprehensive development of the individual cannot be considered a simple realisation of communist duty. Anatoly Lunacharsky (the first Commissar of Education) recalls a remark Lenin made in a conversation when it touched on his model attitude to his duties. Lenin said: "Need you tell an apple-tree that it does its duty bearing fruit? When communist duty has become ingrained in the individual, it stops being a duty and becomes a vital need. It will be a vital need for every member of communist society."

Chapter Eight

SOCIAL CONSCIOUSNESS AND SOCIAL BEING

§1. Forms of Social Consciousness

Is it not an oversimplification to say that social consciousness reflects social being? Is not the spiritual life of mankind much too complex to be reduced to this formula? That is how anti-communists usually attack this Marxist proposition. In general, can one bring spiritual culture, multiform as it is, into a system and reduce it to different levels and forms? Let us look at these problems and see if we can isolate the *principal forms of human spiritual culture.*

The first thing we come up against is the complexity and many-sidedness of this particular sphere of the life of human society. It embraces folk songs, epics, poems of all kinds, numerous literary productions, music, sculptors' and painters' works, scientific discoveries and inventions, sayings, and so on. Still, this enormous diversity is neither chaotic nor capricious. Many scholars long ago expressed the idea that spiritual culture reflects the economic conditions prevailing in society. Marxism alone, however, was able to scientifically formulate this idea.

The notion of spiritual culture is itself a little vague. For this reason Marxists have replaced it by the more exact notion of social consciousness. In this way, they underline the fact that all products of spiritual culture are the result of the activity of man's consciousness. And since man is not isolated from others but is connected with society at large, in a great many ways, his conscious life appears as social consciousness, and the aggregate consciousness of the members of the given society.

Marxism is based on the philosophy of materialism. This means that the question of the relation between mind and matter, between material being and intellectual activity is decided by Marxism in favour of matter, which is considered to be primary, while consciousness is considered to be secondary. With reference to history, the interpretation of this general philosophical principle is that *social being is primary and social consciousness secondary.* This means that social being, i.e., men's economic activity, material production and the relations formed by people in the process of production are at the basis of men's spiritual activity. Social consciousness, i.e., the spiritual, ideological life of society, people's varied views and ideas, political, legal, moral and other doctrines, reflects social being.

We shall try to examine social consciousness and select its main characteristics. The first thing which strikes us is the *policy* of different states, the more influential political parties, numerous political conceptions, theories and views. The varied and complex totality of political doctrines, conceptions, programmes, views, ideas constitute the political form of social consciousness.

Closely linked to it is another form of social consciousness known as *law*. It is the sum of principles and rules of human conduct endorsed by the state. Law is the expression of the will of the ruling class and is strictly enforced by the state through its extensive machinery of coercion.

There are, however, principles of social behaviour which are dictated not necessarily and not only by the state. There are principles of conduct and criteria of good and bad, of right and wrong, which are observed and shared by tradition and are imposed by custom, public opinion and the authority of society as a whole or of a particular group. The totality of such principles of conduct and the ideas of what human conduct ought to be constitute the form of social consciousness known as *ethics* or *morality*.

An acquaintance with recent publications, paintings, films, plays, etc., is part and parcel of the life of a modern person. Books, pictures, films, plays arouse either pleasureable or negative emotions and stimulate thought. The varied activities comprised in this area of cultural life are the form of social consciousness called *art.*

Nor can the life of a modern person be imagined without such a form of social consciousness as *science*, without scientific notions of the multifarious world around us. We appeal to science and scientists, advocate a scientific approach to the investigation of nature, society and thought, fight against unscientific methods, and proudly state that we live in the age of the scientific and technological revolution. We discussed the role of science in society at some length earlier in this book.

A particular form of social consciousness which seeks to give us a general conception, a general picture of the world, a knowledge of reality as an integral complex system and furnishes a methodology for studying the world has been named *philosophy*.

Philosophy plays an immense role in society. We only need recall that during the great French revolution the third estate advanced to victory under the slogans put forward by 18th-century materialists and Enlighteners. We may also note that Marxist-Leninist philosophy is the theoretical basis of communism. This alone attests to the extraordinary significance philosophy has in the life of society.

Lastly, sermons, divine services, quarrels between supporters of different religious trends, and so on play a certain role in the spiritual life of society. This form of social consciousness is known in Marxist philosophy as *religious consciousness.*

These are the main forms of men's spiritual activity or, to put it differently, the main forms of social consciousness. We shall now examine their association with social being. Since in class society–such as modern society is–political views hold an important place, we shall start our inquiry with this particular form of social consciousness. Let us begin with an example drawn from history.

The Ancient Greek biographer Plutarch tells us that Alexander, the son of Philip of Macedon, anxiously followed his father's military operations. Philip annexed to Macedon one Greek city after another. Some of them capitulated after a long siege and others were taken by storm. As often as not, Philip bribed citizens to open the city gates to him. The successful king liked to say that a donkey laden with gold could take any city.

With Greece at his feet, Philip was now planning an expedition against Persia. His ambitious son, Alexander, said bitterly that his father would capture all and leave nothing great or illustrious for Alexander to do. Alexander himself dreamed of conquest and saw himself as the builder of a world empire.

Yet Philip was suddenly assassinated and Alexander got the opportunity to carry out his ambitious plans.

In 334 B.C., Alexander of Macedon, who was twenty at that time, moved his troops into Asia Minor. For nine years (the campaign lasted till 325 B. C.) the peoples of Asia Minor, Egypt, the Tigris-Euphrates valley, Central Asia and Northern India were plunged into bloody battles. Alexander executed his plans relentlessly. He showed no mercy to whoever was bold enough to resist him, killing or turning them into slaves.

Alexander built the empire of his dreams. He destroyed the Persian kingdom and annexed its territories, conquering much of Central Asia and establishing his rule over Egypt. True, the Alexandrian empire did not last. In 325 B.C., Alexander, yielding to the demand of his spent troops, ended his expedition. In 323 B. C. Alexander died of fever. His generals began squabbling for power even before he was buried. And soon the apparently mighty empire broke up into several kingdoms under Alexander's associates.

Let us now look at the matter from a different angle, as many historians and social scientists did. Philip of Macedon decided to unite Greece under Macedon, and he carried out his intention. Alexander the Great wanted to create a world empire. Plunging many peoples into bloody war, he created it.

It seems that a leader gets an idea, proceeds to execute it and finally carries it out. Then the idea comes first and is followed by the action of the masses which causes change in social being.

Of course, nothing can be simpler than to explain the development of world history from the doings of politicians and the influence of political views and theories. Thus, Plutarch associates the rise of Athens–one of the principal cities of ancient Greece–with the expedient policies of the legendary hero Theseus, and ascribes the foundation of Rome to another legendary hero, Romulus.

However, on going deeper into world history and examining the causes which actuated the outstanding personalities, such explanations prove utterly superficial. Let us examine the concrete facts associated with the activities of Philip of Macedon and his son, Alexander.

Philip of Macedon has gone down in history as the king who unified Greece. But what were the circumstances of the unification? Greece was weakened by incessant wars between its city-states. During hostilities, vineyards and orchards were cut down, crops destroyed, cities and villages burned. Internecine wars devastated Greece. Many historians related that villages lay in ruins, blackened stumps were all that was left of olive groves, the fields were overgrown with weeds. That was one reason why Greece was weakened. But there was another reason, which lay in the very essence of slavery. As the internecine wars went on, the number of slaves kept growing and for that reason free artisans and farmers became ruined. Because slaves were much cheaper to keep, owners of large workshops employing slave labour were able to undersell the farmers and artisans. So small workshops were closed one after another while large shops multiplied. Farmers became ruined and their land was bought up by rich people.

The masses staged rebellions. History has preserved the memory of an extensive rebellion of the poor in Corinth. The rebels killed the rich in the streets and wrecked their houses. The rich, however, triumphed in the end, ruthlessly suppressing the rebellion. Aristotle relates that the rich took this oath: "I swear to be the people's eternal enemy and to cause it as much harm as I can."

Frequent clashes of the rich and the poor also contributed to the weakening of ancient Greek cities. Many rich slave-owners were willing to accept the control over slaves and the poor. Therefore they pinned their hopes on the Macedonian kingdom in their neighbourhood, which was waxing stronger.

All this made it easier for Philip of Macedon to unify Greek cities under the aegis of Macedon. He took advantage of the fact that ancient Greece had been weakened by the devastating wars between citystates, as well as of the fact that many Greek slave-owners accepted his rule, prizing their wealth more than the independence of their native cities.

Now let us turn to Philip's son, Alexander. In his case, too, we find internal causes which lay in the very social being of ancient Greece and determined Alexander's activities. In the 4th century B. C. it was increasingly felt that the internal sources of slavery in Greece were fizzling out. In order to develop further, slave-owning society had to be constantly supplied with slaves. Most of the free poor in Greece either had been enslaved or served in different armies as mercenary soldiers. Moving into the forefront were other sources providing slaves, viz., wars of conquest, subjugation of neighbouring and distant peoples and their enslavement.

If we look closely at the progress of hostilities conducted by Alexander, at the development of his military expedition, we shall observe this increasing tendency. Each time he won a battle, a great number of slaves were sent to Greece. For example, after his first triumph over the Persians, Alexander sent 60,000 slaves to Greece. After a second successful battle he sent 90,000 slaves. The number of slaves increased with every city taken.

Thorough examination of concrete historical evidence, of political leaders' views and goals shows that consciousness can never be anything else but realised being, and men's being is the actual process of their life. We have tried to illustrate it by the examples of two prominent political leaders—Philip of Macedon and Alexander the Great. This approach to the analysis of different results of spiritual culture shows that in every sphere the results of the activity of consciousness are always a reflection of social being.

But human culture is exceedingly rich and varied. Let us see whether it is corroborated by examples drawn from other spheres of spiritual culture.

§2. Social Psychology and Ideology

We have considered but one part of man's intellectual activity, i.e., his political views, political consciousness. It reflects definite aspects of social being, definite social needs. Yet, intellectual activity is highly complex and is not wholly reducible to politics. In human spiritual culture, we can isolate such areas or forms of social consciousness as morality, art, religion, science, philosophy and law. We know from experience that different principles of conduct, imposed by morality, works of art, religious beliefs, philosophical views, rules of conduct prescribed by law, and, lastly, science, play a great role in our life. The question is: Do these forms of social consciousness reflect social being as unavoidably as, we have found, political views do? Does the objective law of the reflection of social being hold equally in their case?

First of all, we must note that it is quite insufficient to analyse merely the more or less theoretically formalised views such as political conceptions, philosophical doctrines, complex ethical constructions, and so on. In human society, immense significance is attached to men's moods and feelings. And it is very important to grasp the fact that all ideologies stem from one root, viz., the *psychology* of the given age, characteristif of this particular age, the totality of its manners, customs, morals, feelings, views, aspirations and ideals.

Every development stage of the productive forces necessarily presupposes definite human relations in the process of social production or, to put it differently, it presupposes a definite social pattern. The latter, in its turn, affects men's psychology, their habits, morals, feelings, views, aspirations and ideals which must necessarily become adapted to the prevailing way of life, to the means of gaining a livelihood. *Society's psychology* always ultimately matches its economic system, being determined by it.

To clarify this idea, let us look at some illustrations from the history of French art and literature. Many art critics quite justly call the outstanding French poet and novelist Victor Hugo, the talented artist Eugène Delacroix and the brilliant composer Hector Berlioz a romantic trio. Yet, not only did each of them work in a different field of art, but they were in general quite far apart. At least, Hugo did not care for music and Delacroix despised romanticist musicians. Nevertheless, the productions of these men who were so unlike reflected the same social sentiments. Delacroix's *Dante and Virgil* is pervaded by the same mood which prompted Hugo to write his *Hernani* and inspired the *Symphonie Fantastique* of Berlioz.

Why should Hugo's writings, Delacroix's paintings and Berlioz' music be psychologically similar? The psychology of French Romanticism will be clear to us only if we regard it as the predominant mood of a concrete class existing in concrete historical circumstances. We shall see why this movement in art, which was essentially bourgeois, should have taken so long to win acceptance from the bourgeoisie.

The fact was that the contemporary French bourgeoisie failed to understand much of what its own representatives sought to express in literature and art. Nor is such difference of opinion at all unusual between ideologists and the class whose tastes and aspirations they express. It explains many features of mankind's intellectual and artistic development. In this particular instance, this difference of opinion resulted, incidentally, in the "refined elite" holding the "hidebound bourgeois" in great scorn which still continues to mislead many art historians, who are utterly incapable of understanding the supremely bourgeois character of French Romanticism. This intricate relation, the influence of social being on social psychology and, further, on more clearly defined areas of social consciousness must never be lost sight of. Unless we pay attention to these interrelations, much in human culture will puzzle us. For instance, in classless primitive society, men's conception of the world, their tastes, all their habits, customs, feelings, notions, strivings and ideas were directly influenced by their production activities.

But in a society divided into classes, the immediate impact of economic activities on the spirit and especially on ideology is much less obvious. While Australian aborigines have a dance representing herb-gathering by women, no dance popular among French aristocratic ladies in the 18th century can be linked in any way with production activities because they engaged in none. To be able to understand what the Australian dance is about, it is enough to know what role herb-gathering plays in the life of an Australian tribe. But to see what the minuet is about, it is not enough to be familiar with the 18th-century French economy. The minuet is one of the dances expressive of the psychology of the leisure class. This psychology underlies most of the customs and "polite manners" of so-called high society. At first sight, the economic life, social being, seems to be ousted in this case by purely psychological factors. That, however, would be a superficial judgement, for one must not forget that the very emergence of leisure classes in society is the result of its economic development. It means that in this case too, social being retains its predominant significance.

The ruling class regards the lower strata with profound disdain, so that it becomes distinctly characteristic of its psychology. Medieval French lords, for instance, relished verses representing peasants as most repulsive creatures:

> Villeins are monsters one and all,
> As ugly as anything,
> Standing fifteen foot tall
> And misshapen withal—
> Humpchested and humpbacked.

The peasants' social psychology was in an entirely different vein. Indignant at the aristocrats' arrogance, they sang:

> We are just as human as they,
> And we can suffer just as much as they.

The peasants asked: "When Adam delved and Eve span, who was then the gentleman?"

In a word, each of the two classes looked at things from its own point of view following from its own position in society. The position of classes, their antagonism tinged the psychology–the totality of sentiments and aspirations –of the opposite sides. The more tense the class struggle became, the more it influenced the psychology of the opposite classes. So, one who wants to know the history of ideology in a society divided into classes must reckon with this influence, otherwise much will escape his understanding.

§3. Morality as a Form of Social Consciousness

Now let us turn to morality or ethics which is the totality of diverse principles of conduct imposed by public opinion and the traditions, habits and customs established in society. Everyone knows from experience the great significance attached to these principles on which human conduct depends. We speak of some acts as good and of others as bad. We consider one kind of behaviour to be nice or good and another shabby or bad.

There is no law that you must say good morning to your friends. If you don't, you won't be fined for it. Lack of common civility, churlishness or hardness are not punishable offences. Yet everybody would rather be polite, tactful and sympathetic.

Everyone knows that there is nothing pleasant in being considered rude or conceited or in earning public disapproval. That is why people try to conform—or at least seem to conform—to the commonly accepted principles of conduct or morality.

Morality is the oldest form of social consciousness. It appeared in primitive society much earlier than art and religion, also very old forms of social consciousness. One may say that morality appeared with the first human community. That is clear because no community, however small it may be, can exist without a system of morals. For this reason, historians have found no people without at least a primitive morality.

There is evidence of peoples with no philosophy or science, no law and hardly any art. It is still open to question whether some had or had not religion. But every people had morality of some kind.

This fact attracted the attention of historians

and ideologists long ago. As they tried to explain the origin of morality, some of them ascribed it to god or other divine sources and maintained that morality was fundamentally immutable and in no way connected with what we call the material conditions of men's life.

Yet if we turn to the history of moral notions and principles, we shall see that *morals change along with living conditions.* They depend on the productive forces and when the relations of production change, morals also change.

Collectivistic production relations under the primitive-communal system bred collectivistic habits and traditions and a collectivistic morality. When, however, the productive forces advanced and it became more suitable for the purpose of production that people should privately appropriate some things, i.e., when the relations of production changed, people's notions also changed. Having private possession of something, which had been considered previously rather unnatural and unusual if not altogether indecent, now was regarded as ordinary and quite consistent with the social interest.

From the foregoing we can conclude that people, intentionally or unintentionally, ultimately derive their moral notions from economic practice.

When examining *morality within class society* one must always bear it in mind that the class pattern directly affects morality.

Thus, if we look at developed capitalist European countries, we shall observe different moral conceptions some of which are rooted in their past history and some in their present mode of life.

We shall come across, first, *Christian-feudal morality* inherited from the past and preserving some moral views of the age of feudalism. This Christian-feudal morality is divided, in the main, into Catholic and Protestant morality, and these are subdivided into a whole range of sects, from the Jesuit Catholic and Orthodox Protestant to liberal enlightener. Alongside such moral conceptions we find *modern bourgeois morality*, and next to it *proletarian morality* projected into the future.

In countries following the socialist path, i.e., those having built socialist society and those in transition from capitalism to socialism, *communist morality* gains precedence. It is based on collectivist principles stemming from the domination of common ownership which corresponds to the development of modern production.

Bourgeois ideologists often reproach Marxists for allegedly denying morality, and say that Marxism itself is amoral. Such allegations intentionally or unintentionally distort the essence of Marxism.

Marxists deny that there is any eternal morality resting on immutable dogmas. They repudiate all attempts to impose on men a moral dogma of any sort as eternal, final, immutable moral law, under the pretext that the realm of morality has principles of its own which exist forever. Marxists maintain that every moral theory, every totality of principles of conduct is, in the last analysis, the product of society's concrete economic conditions. In class society, morality is always of a class nature: it either justifies the domination of the ruling class or, as soon as the oppressed class becomes strong enough, expresses its indignation against the ruling class.

Communist morality is the most resolute form of protest against the exploiters' government. It expresses the interest of the working class and all working people. Speaking about communist morality at the 3rd Congress of Komsomol, Lenin said that communist morality was that which helped to demolish the old exploiting society and to rally all working people round the proletariat building a new communist society.

Communist morality helps the proletariat in its efforts to win a happier future for mankind, to build communism. It musters working people against all exploitation, against private ownership which puts in the hands of an individual that which is produced by society's common effort.

To sum up. Under the primitive-communal

system, with its collectivist principles, morality was also collectivistic. In class society, change in the class pattern told most directly on the moral views of classes and individuals. In socialist society, communist morality begins to develop. In a word, in this sphere of man's spiritual life, in this form of social consciousness, the rule that change in social being causes change in social consciousness also holds.

§4. Religion as a Form of Social Consciousness

Drawing on Plutarch, we can reconstruct one of ancient Roman's religious customs. Imagine the sun-flooded streets of ancient Rome. A procession is slowly moving along accompanying a criminal to the place of execution. The armed lictors, full of official importance, step beside the man, while a little way behind citizens follow, exchanging their impressions of the trial and discussing the impending execution.

The doomed man does not seem to notice anything. He is plunged in thought and already far from the turmoil of life. But what is this sudden commotion? Why are the guards trying to push the man into a by-street? Why is he looking round with a renewed interest in life?

Another procession is moving towards them surrounding the chair in which a Vestal is carried, a priestess of Vesta, the Roman hearth-goddess. According to Roman custom, a condemned criminal who meets a Vestal on his way to execution is not executed. The Vestal has only to swear that the encounter was unpremeditated.

Thus, human laws had to give way to what they believed to be divine law. This illustration tells enough about the importance they attached to religion. One could quote numerous examples showing the role religion played in the life of other people, in other countries, in other times.

Let us recall the crusades conducted in the middle ages. Apparently to recover the Holy Land from the Muslims, thousands of crusaders massacred Muslims. Let us recall the massacre of St. Bartholomew (1572) when 30,000 Huguenots were killed in Paris alone because of religious strife.

What is religion, which can save a condemned criminal's life and destroy hundreds of thousands of innocent people? How should revolutionaries approach this important social phenomenon? How are these questions answered in Marxism-Leninism?

But let us hear first what representatives of religion have to say—the theologians, who are constantly dealing with religious problems and preaching religious principles. How do they define religion?

Most Christian theologians derive the word "religion" from Latin *religio,* reverence, which is connected with *religare,* to tie back. From the theological standpoint, religion is the link between man and god. Religion appears as a totality of statutes, dogmas, cults, rites and principles of conduct decreed by god and binding a believer to god.

A similar view is shared by non-Christian theologians. The Buddhists, for example, believe that religion boils down to the dogma on the attainment of salvation by Gautama Buddha, the founder of Buddhist religion, to the principles of conduct laid down by Buddha, which promise salvation and subsequent union with Buddha.

To Muslims, followers of Allah, religion is embodied in the rules and principles of conduct written down by Allah in the sacred book of the Muslims, the Koran, which vouchsafe to the believer communion with Allah and salvation.

To sum up, theologians hold religion to be a bond between man and god. But first of all it is necessary to *prove* that god exists. The point is, however, that there are no means of proving it, nor can there be any.

Why is this so? To begin with, there were numerous gods whom men used to worship, but then it turned out that these gods did not exist. To mention but a few, they were Bel, Anu, Astarte, Osiris, Isis, Horus, Set, Zeus, Poseidon, Hades, Apollo, Athena, Hera, Artemis, Jupiter, Mars, Janus, Vesta. The list is endless.

Ancient peoples had implicit faith in their gods. When the ancient Greek philosophers Anaxagoras and Socrates dared question the existence of the Olympic gods and deride them, they were made to pay dearly for it. Anaxagoras owed his life to the intervention of Pericles, a leading Athenian statesman. All the same, he was banished from Athens. Socrates was condemned for "neglect of the gods" and died by drinking a cup of hemlock, as was the rule in Athens.

Christian, Muslim and other theologians are convinced of the importance of religion to mankind because they think that the gods in which they believe really exist. Facts tell us, however, that religious beliefs also played a great role where the objects of worship were clearly mythological, i.e., imaginary. From this it follows that the theological conception of the role played by religion in the life of human society is plainly threadbare. What role does religion actually play?

First of all, religion is a part of the spiritual culture of mankind. Whatever book on history we take, whether written by a theologian, a bourgeois scholar or a Marxist, we are sure to find a section on religious beliefs in the chapter devoted to the culture of a particular people or the culture of some historical epoch.

Indeed, we come across religion mostly in connection with culture and those spheres of life which are directly associated with spiritual culture. To be precise, religion is one of the principal forms of social consciousness, one of the major components of men's intellectual activity, of spiritual world culture. As a form of social consciousness, it is, in a sense, comparable with such important areas of social consciousness as politics, law, morality, art, science and philosophy. After all, social consciousness does not merely reflect reality, social being. It shapes people's conduct, leading them to act in the way they do. Each form of social consciousness does it in its own way. This equally applies to religion.

Engels and Lenin did much to elucidate the meaning of religion. We are already familiar with one constituent of the Marxist definition of religion, viz., that *religion is a form of social consciousness.* That, however, is not all. Marxism also establishes the *specific nature of the reflection of the world in religion.*

While all other forms of social consciousness reflect reality more or less adequately, religion alone is the form of social consciousness which gives a distorted, fantastic picture of the external world. Marx said that religion "is the *fantastic realisation* of the human essence", that it is the people's illusory happiness, a perverted view of a perverted world, "the general theory" of that perverted world, its encyclopaedic compendium, "its enthusiasm, its moral sanction, its solemn complement, its universal source of consolation and justification".[1]

Concerning the particular quality of religion as a distortion of reality, Engels wrote: "All religion . . . is nothing but a fantastic reflection in men's minds of those external forces which control their daily life, a reflection in which the terrestrial forces assume the form of supernatural forces."[2]

That is how religion reflects the world. Nevertheless, religion does not boil down to a general world outlook, a general view of the world. It also comprises an emotional, sensuous element, a certain emotional reaction to the world.

Religion should not be conceived merely as some kind of faith in the world being built on a certain pattern and being ruled by gods or other supernatural forces. Religion is not just a definite interpretation of reality, a peculiar theory of the world, however much distorted. If it were so, it would have been shattered long ago, for it would be easy to prove that this conception of the world has no foundation in experience and to replace these fantastic notions by a scientific conception of the world.

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[1] K. Marx and F. Engels, *Collected Works*, Vol. 3, p. 174.

[2] F. Engels, *Anti-Dühring*, p. 374.

But, quite apart from other things, religion is a definite attitude to the world. One who has religious notions of the world conceives of himself as part of this fantastic world with which he associates certain hopes, illusions and expectations. This complex of feelings bred by religion makes the latter extremely tenacious.

Religious sentiments refer to *religious psychology* which is of a dual nature being an expression of helplessness, weakness and fear on the one hand, and of hope on the other, which sometimes grows over into religious protest, ecstasy and fanaticism. Writing of this level of religion, Marx underlined that "*religious* distress is at the same time the *expression* of real distress and also the *protest* against real distress".[1]

Thus in Marxist theory two levels of religion are differentiated, viz., the world-view level and the emotional level. Religious notions and ideas constitute the so-called mythological (or world-view) element of religion—a body of myths dealing with the gods, legendary heroes and all sorts of spirits, with their relation to the world and man, and so on.

The emotional level of religion—just as its ideological level—represents a twisted, distorted level of human consciousness. Religion distorts

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[1] K. Marx and F. Engels, *Collected Works*, Vol. 3, p. 174.

not only man's consciousness, his world outlook, but his feelings, his emotional responses to reality as well.

It would not, however, be enough to dwell on these two levels of religious consciousness alone. After all, we have stated that the forms of social consciousness influence and shape human conduct. The distorted conception and perception of the world, inherent in religion as a form of social consciousness, compel man to behave in a similarly distorted, perverse, inadequate manner. A believer worships his god in a definite fashion, performing different rites, offering sacrifices and prayers, kneeling, etc. All this constitutes the ritualistic or cultic aspect of religion.

Religious activity is not, however, confined to worship. Groups, organisations and associations of believers, the churches adopt a definite attitude towards society and social issues, participating in the life of society, social conflicts, the class struggle, etc. These activities are marked by the religious conception and perception of the world.

Thus we see that religion is a highly intricate social phenomenon comprising several levels some of which are related to consciousness, and some to practice. These levels are the result of the twisted, distorted, fantastic reflection and conception of reality. That was what led Marx, after evaluating and summing up all aspects of religion, to conclude that religion is "the *opium* of the people".[1] Lenin regarded this as the key Marxist proposition on religion.

To sum up. Religion is a form of social consciousness. It is a distorted, fantastic reflection of the natural and social forces dominating men, a reflection in which earthly forces assume non-earthly, supernatural forms. It is a more or less compact body of mythological-philosophical notions, religious psychology and religious ritual.

§5. Art

Speaking about art, Marx observed that its development does not always correspond to the general development of society, with the development of society's material basis, which is the skeleton, as it were, of society's organisation.

Indeed, an inquiry into the social role of art inevitably poses questions. Why did peoples (e.g., the ancient Greeks) far less advanced than the modern peoples attain such superb heights in art? How can we explain the fact that works of art produced long ago (e.g., under slavery) still continue to bring people aesthetic pleasure? These and other questions require concrete answers.

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[1] See: K. Marx and F. Engels, *Collected Works*, Vol. 3, p. 174.

First of all it must be understood that the art of a particular age is connected with definite forms of social development. We know that Greek art not only drew on Greek mythology but was rooted in it. And mythology is nothing but *folklore* giving an imaginative and fanciful interpretation of nature and the fundamental notions of life.

But is it possible, in our own age, for anyone to entertain notions of nature and society such as underlay Greek mythology, for instance? How would Zeus the Thunderer compare with the lightning-conductor? Or the god of commerce, Hermes with the modern banking and credit system? Or the other gods of Olympus, with the modern transportation facilities, machines and especially robots?

And yet, the marvellous works of ancient Greek art continue to bring us aesthetic pleasure to this day. Why? To the modern man Greek art is, in a sense, the childhood of humanity. An adult person cannot be like a child. Still a child's ingenuousness has a great fascination for him.

This is why the childhood of mankind continues to attract us as a peculiar and unique stage of social development. Marx remarked that there were unmannerly children and precocious children. Ancient Greeks were normal children. Therefore the peculiar charm of their art does not conflict with the rather primitive environment from which it sprang. On the contrary, those were the only circumstances in which it could possibly grow, and it is inseparable from them.

Because it is rich and varied, ancient Greek art does not perhaps make a very lucid example. And yet, even in its case we can trace the effect of the objective law that social being shapes forms of social consciousness appropriate to it, leaving its mark on the very productions of the art of ancient Greece. Let us delve even deeper into history and look at the age in which human relations were much simpler and clearer and the connection with material production was immediately observable. Will the period of the primitive-communal system supply us with examples corroborating the operation of the objective laws discovered by Marxism?

First let us see how man's notions of beauty developed. In different historical epochs different peoples had distinct, often opposing notions of beauty. Things that are considered beautiful in one age could be considered ugly in another. Why? How did notions of beauty form over the ages?

Scholars studying art in primitive society almost unanimously note that animals' skins, claws and teeth are greatly valued by primitive peoples as ornaments. It was not that they found their colour and patterns particularly attractive. As he decorated himself with an animal's skin, a tiger's claws or teeth, a bison's skin or horns, primitive man was showing others that he was as quick and strong as the beast he had defeated.

Such conclusions are corroborated by ethnographic evidence concerning the notions of peoples which are still at one or another stage of the primitive-communal system. Students of the life of North American western tribes inform us, for instance, that some tribes like to wear ornaments made from the claws of the grizzly bear, the most savage of the wild beasts found in those parts. The red-skinned warrior believes that the fierceness and courage of the grizzly bear are communicated to him who decks himself with its claws.

This example confirms conclusion that the aesthetic notions of beauty in the remote past were directly linked with peoples' production activities and everyday life.

Let us now consider another example drawn from ethnography. Again, it must be remembered that in a certain respect ethnographic evidence gives us an idea of the primitive-communal epoch. Certainly, no existing tribe whose development has been retarded and which has remained at a certain stage in the primitive-communal system for a variety of historical reasons can be identified with peoples which lived in that epoch. Nevertheless, they have something in common, and these historical analogies enable us to form an idea of how our remote ancestors lived.

We know, for instance, that women of many African tribes wear iron rings on their arms and legs. Wives of rich men may wear about ten kilograms of such ornaments. From our point of view, this is certainly very uncomfortable, yet the discomfort does not prevent many African women from wearing such "chains" of beauty.

Why does an African woman like to wear these "chains"? The reason is that they make her appear beautiful to herself and to others. This results from a rather complex association of ideas. The passion for such ornaments is observed among the tribes which have but recently left behind the Iron Age, i.e., those among which iron is considered a precious metal. And everything precious seems beautiful because it is associated with the idea of wealth.

Here is another example illustrating the idea of the beautiful current among some African tribes. The Batokas who live in the upper reaches of the river Zambezi consider it ugly for a person not to have removed the upper incisors. Where does this odd notion spring from? It is also due to a rather complex association of ideas. Batokas part with their upper incisors to imitate the ruminating animals. We may think it a somewhat peculiar desire, but the Batokas are a pastoral tribe with whom cattle spells wealth. Hence the idea that what is dear is beautiful.

We have quoted examples of various notions of beauty held by some peoples. At first sight, these notions seem to have nothing in common. But in fact they have. The notions of beauty shared by primitive and retarded peoples reflect certain aspects of their social being, of their mode of life.

Hunting peoples consider the claws, teeth or skins of the animals they hunt to be beautiful. What is hard to get is considered beautiful.

Peoples familiar with wealth and social inequality associate the idea of beauty with wealth and social inequality.

Pastoral peoples, whose life is most closely connected with cattle, associate their ideas of beauty with the most valuable thing they have, cattle.

We find further proof of the inherent connection of art and social being in other kinds of art. Thus many African peoples have the keenest sense of rhythm, an oarsman singing in rhythm with the movements of the oars, porters singing in rhythm with their steps, and housewives singing in rhythm with their corn grinders. Basuto women, who wear metal bangles on their arms, which tinkle at every movement, often gather together to grind corn, accompanying the rhythmical movement of their arms by singing. The beat is the main thing in Basuto music, and the more rhythmical a song, the more beautiful it is considered. That was also characteristic of our remote ancestors.

Why is the beat important? The answer is that primitive men chanted in rhythm with their work, and every kind of work had a chant adapted to its rhythm. As the productive forces advanced, the significance of rhythm in work decreased, although it is not lost altogether. In some German villages, for instance, every season has particular noises associated with it, and every kind of work similarly has particular music associated with it.

Generalising these facts, students of primitive art point out the close similarity between the economic conditions of our primitive ancestors and contemporary retarded peoples whose life and art form the subject of ethnography. What makes many works of modern bourgeois art hard to appreciate is the absence of any direct connection between art and the methods of production in civilised society. We must see, however, that this is the result of nothing but the development itself of the social productive forces, which causes the division of social labour between different classes. The fact that society has become more complex, that the connection between art and social being has become more intricate, does not in the least disprove the materialist view of the history of art but, on the contrary, provides fresh and convincing evidence in its support.

Let us turn to French society in the 18th century. The class nature of this society directly affected the development of French art, and thus the drama. In medieval France, just as in Western Europe at large, the farce was predominant in the theatre. Farces were written and performed for the people. They were an expression of the popular views and sentiments.

In the reign of Louis XIII, the farce began to decline. It was considered to be only good enough for lackeys and not for persons of refined taste. The farce was supplanted by the tragedy. Yet the French tragedy had nothing to do with the ideas and sentiments of the masses. It expressed the views, tastes and aspirations of the aristocracy.

Time passed, and the aristocracy began to decline. The spirit of opposition steadily spread among the bourgeoisie and began to make itself felt in art as well. The growing third estate (the bourgeoisie) was dissatisfied with literature and the theatre which it would like to see more edifying. It was then that the bourgeois drama appeared, contrasting the virtuous bourgeois to the depraved aristocrat.

Thus, we see that this form of social consciousness, art, is directly affected by the changing life of society, changing social patterns and class relations.

We could quote more examples to show that other forms of social consciousness also reflect social being. There is, however, no need for it as we have already given many illustrations sufficiently corroborating the objective law governing the development of different forms of social consciousness, which was described in Marxist theory.

§6. Revolutionary Theory and the Revolutionary Movement

In conclusion we shall dwell on one more problem which is essential to the comprehension of the relation of social consciousness and social being. So far, we have stressed that social consciousness reflects social being, and that different products of social consciousness are, to one extent or another, reflections of social being.

May we conclude from this that social being is merely reflected in social consciousness, as in a mirror? No, such a conclusion would be quite incorrect. Precisely such a position on the passive nature of social consciousness, ideas and the spiritual life of mankind has been ascribed to Marxism by the ideologists of the bourgeoisie, of the classes which are hostile to the working class and working people.

By establishing the fact that social consciousness depends on social being, that social consciousness reflects social being, Marxist-Leninist theory has by no means belittled the significance of social consciousness.

Having given a correct definition of social consciousness, Marxist theory also indicates its place in the life of society. One cannot transform society by transforming ideas alone. To make society better, to make life truly human, it is necessary to reorganise social being. And social consciousness plays a highly important part in it. It gives man knowledge of the methods of transforming life. Seizing the masses, social consciousness urges them to work for the transformation of reality. That is why Marx stated that "... theory ... becomes a material force as soon as it has gripped the masses".[1]

[1] K. Marx and F. Engels, *Collected Works*, Vol. 3, p. 181.

Chapter Nine

THE IDEOLOGICAL STRUGGLE AND HUMAN RIGHTS

In the previous chapters we considered mainly the philosophical problems which make up the theoretical framework of the Marxist world outlook. But, however abstract its propositions, philosophy is never isolated from life. It always perfoms methodological and ideological functions, helping men to find their bearings in the complex social reality and the battle of ideas. Dialectical and historical materialism is no exception in this respect. Let us take a look at the battle of ideas in the 20th century and the place of communist and bourgeois ideology in this battle.

History has witnessed numerous coups, discoveries, wars and revolutions which left their imprint on subsequent developments. But whatever happened, the exploitation of man by man remained, and all development went on within the limits of exploitative society. The working people who performed revolutions saw their hopes crushed as one form of exploitation was replaced by another.

In these circumstances, historical progress was bought at too dear a price. Marx wrote that the progress of history in antagonistic society was like "that hideous pagan idol, whc would not drink the nectar but from the sculls of the slain".[1]

The Great October Socialist Revolution in Russia radically altered the course of history, translating into reality the dreams of the best minds of humanity. It destroyed exploiting society and created a new, equitable social system. The triumph of the Revolution implied the triumph of the progressive new ideology of Marxism-Leninism which became predominant in a huge country occupying one-sixth of the globe.

§1. Two Ideologies

Adversaries of the working class like to say that there would be no ideological struggle if the Communists had not invented it. History, however, testifies to the contrary. It shows that ideological struggle has been going on ever since ideological relations started among men. It was pursued in different ways and its intensity varied from one historical period to another, but no matter how its forms and pitch

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[1] Karl Marx and Frederick Engels, *Selected Works* in three volumes, Vol. I, Moscow, 1977, p. 499.

might change, it has always been there, expressing the interests of different, and often diametrically so, social classes at all stages in history.

With the emergence of Marxism, ideological struggle becomes more intense. At a time when communism was yet a mere "spectre haunting Europe", its founders wrote: "All the Powers of old Europe have entered into a holy alliance to exorcise this spectre: Pope and Czar, Metternich and Guizot, French Radicals and German police-spies."[1]

As soon as Marxism emerged, all forces of the old world united against it ignoring their own ideological differences.

Ideological struggle increased especially after the victorious Great October Socialist Revolution. From then on, the bourgeoisie's "righteous indignation" at communist ideology went hand in hand with its hatred for the Soviet system, giving rise to a combination of anti-communism and anti-Sovietism.

Ideological struggle against the Soviet Union has always had an important role to play in the overall political strategy of imperialism. For some time the imperialists hoped that their military superiority would enable them to get the upper hand in the ideological argument by sheer force of arms. That superiority was, how-

[1] Karl Marx, Frederick Engels, *Collected Works*, Vol. 6, p. 481.

ever, but shortlived. As the balance of forces in the world changed, imperialism was faced with a historical situation, quite new to it, in which all expectations to resolve the ideological antagonisms by military means were doomed. As a result, the global strategy of imperialism had to be thoroughly revised and the ideological struggle, whose outcome is to determine the direction in which history will move, was put in the forefront.

Hence the theories of "erosion of socialism", "national communism" (or "regional Eurocommunism"), and so on. Ideologists of imperialism seek above all to discredit Marxism-Leninism and real socialism, and sow discord in the developed socialist society, the world socialist system, and the world communist movement.

Today socialist ideology is a major factor determining the intellectual climate in the world. Not only is it dominant in the socialist countries, but it also has millions of supporters beyond their boundaries. This undermines the ideological positions of imperialism and causes bourgeois ideology increasingly to lose social support. Viewed from this angle, the development of history over the past sixty years has been marked by a series of setbacks sustained by bourgeois ideology, while Marxism-Leninism has gained new ground.

§2. Anti-Communism—the Ideological Weapon of Imperialism

Even so, it would be wrong and dangerous to underestimate the possibilities of bourgeois ideology. While imperialism's ideological positions were undermined, the monopoly bourgeoisie and its pundits were looking for new opportunities of counteracting socialism, brainwashing the masses and spreading anti-communism. The ideological stock-in-trade of imperialism was thus modified and updated.

In the political and military-strategic context imperialism has to reckon with the changed balance of forces in the world and, as it still hopes to crush socialism some day, is compelled to manoeuvre, stepping up ideological subversion against the socialist countries and trying to "bore socialism from within".

Adjusting to the new historical situation, bourgeois ideologists have changed their methods of fighting Marxism. In view of the immense popularity of socialist ideas, they can no longer pretend that there is no such thing as Marxism or abuse it to their heart's content or indulge in vulgar anti-communism. Having to tread more warily, they increasingly turn to Marx, extracting isolated fragments from his works and adapting them to their own ends. It comes as no surprise that the more the influence of Marxism grows, the more persistent are the attempts to revise it.

In recent years bourgeois ideology united with revisionism. The mounting activity of revisionism, both right and "left", is supported by imperialism and plays an important part in ideological sabotage against socialism and the world communist movement.

Anti-communism was and continues to be the chief ideological weapon of imperialist reaction. The anti-communists would like nothing better than to see the socialist system split and become "polycentric" and to see the "erosion of socialism". They think that growing contacts with the West will cause new value orientations to emerge in the Soviet Union and other socialist countries, bringing about a sweeping degeneration of culture in them which will furnish a lever for remaking socialist society in the spirit desirable to the West.

Anti-communism has become more active in the treatment of problems of political democracy and individual freedom. This has resulted in a campaign over the imaginary violation of human rights in the socialist countries, in which the present US Administration and government bodies in some NATO countries take an active part. In the course of the campaign, pluralistic bourgeois democracy is presented as a model while the inherent vices of capitalism—social inequality, exploitation, inflation and unemployment–are ignored. In spite of bourgeois propaganda, the masses are increasingly aware that socialist democracy alone can ensure freedom from exploitation and give the people a decisive part in government.

It is significant that even notoriously reactionary writers are beginning to realise that the primitive anti-communism of some years ago with its myths and bankrupt doctrines can no longer help the imperialist countries to work out an effective policy. The article of Prof. A. Dallin of Columbia University "Bias and Blunders in American Studies on the USSR" is of interest in this respect. Prof. Dallin acknowledges that the Americans' notions about the Soviet Union ever since 1917 have been full of ignorance and incomprehension, and that leading US statesmen and journalists are under the spell of the delusion and prejudice created by their own propaganda machine.[1]

Similar to other forms of bourgeois ideology, anti-communism is not due to some politicians' ill will, although there is no reason to deny it either. Bourgeois ideology in whatever form is nothing else but a distorted reflection in ideology of real developments occurring in the world and, above all, in the capitalist world.

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[1] See A. Dallin, "Bias and Blunders in American Studies on the USSR", *Slavic Review*, Vol. 32, No. 3, September 1973, pp. 560-76.

And if we want to understand and explain modern anti-communism, we must turn to capitalist reality in which lie the socio-economic and political roots of contemporary anti-communism.

§3. The American Realities and Human Rights

The crisis of the 1970s has proved again that the socialist system has indisputable advantages over capitalism. It has confirmed the stability of the socialist economy and its inexhaustible capacity for satisfying, unlike capitalism, the fundamental rights and freedoms without which man cannot exist. Modern developments have, undoubtedly, served to increase further the prestige of the existing socialist society in the non-socialist world and enhance the attraction of the historical example set by the peoples having rid themselves of social oppression and exploitation.

These circumstances by themselves could explain the purpose of the propaganda campaign which is to convince peoples in the non-socialist countries that things are not so bad at all, divert their attention from their own deteriorating economic and social position to the problems of political democracy, and to slander socialism once again in the hope of making it less attractive to peoples of other countries.

Nor is that all. This bourgeois campaign sets out to undermine the socialist system from within, seeking out malcontents and provoking conflicts in socialist countries. It is also designed to split the international communist movement, setting some communist parties against others under the false slogan of "national", "regional", and other brands of communism.

It is nobody's secret that this propaganda campaign has intensified after the new administration in Washington came into office, and that from then on certain American officials and government agencies have assumed the unseemly role of leaders and inspirers of this campaign.

This fact, unprecedented for many years, certainly requires explanation. And it can be explained from the situation which had shaped in the United States by the time the present administration came into office. Yet, the roots of this situation lie in the American political history of the 1960s-1970s.

The shots in Dallas which killed President J. F. Kennedy rang throughout America, ushering in an era of major political crimes. No doubt, the underlying social causes which led to the degradation of American politics had taken shape earlier and were engendered by the social and the state system.

It was, however, not only the assassination of a president on whom different social groups pinned their hopes which, incidentally, were never realised, that shocked the United States. It was also the disgraceful game the US official quarters described as investigation.

It would be hard now to say exactly what caused the prestige of state authority in the United States to fall—whether it was the assassination itself or the sheer inability of a government spending astronomic sums on maintaining an intelligence service in the country to protect its own prestige and immunity.

This amazing impotence of authority and absolute impunity of the actual sponsors of the crime, doubtlessly, set off a series of assassinations each of which was declared to be the work of one individual or another. The authorities were not at all abashed by the fact that more and more such "individuals" turned up. Yet, each assassination as well as stereotyped "inquiry" made opinion increasingly suspicious of the government and doubtful of its ability to protect its citizens and uphold their rights.

All this coincided with acute racial and national conflicts which aggravated the home situation still more.

The war in Vietnam, which American journalists now describe as the dirtiest war in American history, was another fact which had disastrous consequences for the home political situation in the United States. Its impact on the domestic scene, although not fully unravelled yet, was immense.

It was not only that US servicemen were sent to die for what was incompatible with the genuine interests of the American people, which was the cause of mass desertion from the army and the reason why young men of call-up age fled the country.

Nor was it that thousands of American soldiers involved in massacres in Vietnam received lessons in moral degradation which no people can escape unscathed.

It was, above all, that the Vietnam war itself was a flagrant violation of American law which states that the US Congress alone may declare war (Section 8, Art. I of the Constitution of the United States). And the US Congress never declared war on Vietnam. The war just went on, swallowing thousands of American lives, while presidents issued orders they had no right to issue under the Constitution.

Thus for several years while that undeclared war lasted, the US Government gave the people a memorable lesson in violation of law and civil rights.

Yet, another unconstitutional process was developing during the Vietnam war. It was the concentration of power in the hands of the non-elective White House apparatus. Joseph C. Harsch wrote in *The Christian Science Monitor* of November 11, 1976: "The seizure of the policymaking function by the White House and its concentration in the White House staff has been a process which began slowly and cautiously. . . .

". . .It began growing again under John F. Kennedy, and exploded in the Johnson and Nixon era."

Harsch mentioned in the same article that the outsized President's office numbered 1,831 persons including 61 special assistants to the President.

The situation in which government of the United States is carried out not by the heads of departments accountable to the Congress, but the White House personnel accountable to the President, is, according to Harsch, causing anxiety to the Congress which, he writes, has "lost its ability to get at and help control policymaking". It is not accidental that James M. Naughton wrote in *The New York Times* of November 29, 1976, summing up, as it were, the presidencies of Nixon and Ford: "Six years of imperial Presidency and two of executive restraint worked in combination to alter the outlook, change the tone and, to some extent, restructure the shape of the executive branch."

The entire process is unconstitutional, whereby the Americans were given a lesson in autocratic disregard of the law for quite a number of years. Prof. Neustadt of Harvard University, whose opinions are often cited by the American press, considers in the light of these circumstances the institute of presidency as a "kingship" in the sense that it makes the Americans react to it emotionally just as other peoples respond to monarchy.[1]

Prof. Schlesinger writes in his *The Imperial Presidency* (Boston, 1973) that "the Presidency has got out of control" (p. X) and is hardly constitutional as it is, and that to keep "a strong President constitutional, in addition to checks and balances incorporated within his own breast" ... "the vigilance of the nation" is also needed, or the Americans will have an imperial presidency (p. 418). How serious a problem of the "crisis of government institutes" in the United States has become is also witnessed by the conference held in Los Angeles in the autumn of 1974 (*The Center Magazine*, Vol. VII, No. 5, 1974, p. 31). The conference discussed the crisis in the contemporary presidency. One of the speakers at the conference was Senator Walter F. Mondale (now Vice-President), who said that it was necessary to raise the prestige of the legislative bodies and "curb any President's illegal use of the most sensitive law-enforcement agencies of the government: the Federal Bureau of Investiga-

[1] See *The New York Times*, March 28, 1976.

tion, the Internal Revenue Service, the Department of Justice, and the Central Intelligence Agency.... They are ... instruments of great potential danger to our constitutional liberties".

Watergate was another important landmark in the chain of events which have resulted in the "crisis of confidence in the institutes of government" in the United States. The long inquiry, which revealed flagrant violation of elementary rights and liberties, and Nixon's eventual resignation showed once again that arbitrary rule had become routine in American society.

To this should be added sensational exposures of the violation of civil rights and liberties by the American intelligence service agencies both at home and abroad, and of scandalous instances of corruption and tax dodging by American politicians.

All this has resulted in a powerful civil rights campaign in the United States spearheaded against race and national discrimination and the war in Vietnam.

In that situation, the American propaganda machine tried to rehabilitate the "American way of life", "American system of values", etc., in connection with the 200th anniversary of American Independence.

This campaign was not, however, much of a success, the festivities being overshadowed by the disgrace of the Vietnam war and Watergate. The general trend of American propaganda at the time is well illustrated by an article in *The New York Times* devoted to Independence Day (July 4, 1976). It said among other things: "Two years after Watergate and four years after Vietnam, friends who were then ashamed of the United States seem to be saying now that they see America's better values surviving." Such was the cold comfort that bourgeois propaganda-mongers offered to the people.

Add to it a series of scandalous exposures of immorality, corruption and tax dodging on the part of some Congressmen and prominent politicians, which equally attested to the breaches of the law by the powers that be. Obviously enough, in such circumstances the leading American statesmen have no reason to pose as champions of legality, civil rights and freedom. The campaign "in defence of human rights" in the Soviet Union and other socialist countries is regarded by the present US Administration as a major means of diverting the Americans' attention from arbitrary rule and illegality in their own country, as well as a means of rehabilitating the American state system both in the eyes of the Americans and world opinion at somebody else's expense, by harming the peoples whose socialist system provides an effective alternative to capitalism.

In his speech, "The Great October Revolution and Mankind's Progress", L. I. Brezhnev noted that the new Soviet Constitution "gives further convincing proof that concepts of freedom, human rights, democracy and social justice become truly meaningful only under socialism"[1].

§4. Mature Socialism and Human Rights

Marx and Engels always viewed socialism as a social system under which free development of every individual is the condition of free development of all, of society at large. Developed socialist society today gives each of its members a wide range of rights and freedoms. To illustrate, the 1977 Soviet Constitution ensures citizens such rights as the right to work, to housing, to education, the right to enjoy cultural benefits, the right to submit proposals to state bodies and criticise shortcomings in their work, freedom of scientific, technical and artistic work, the right to associate in public organisations, etc.

The *right to work* is ensured by the socialist economic system, steady growth of the produc-

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[1] *New Times*, No. 45, November 1977, p. 6.

tive forces of Soviet society, free vocational and professional training, improvement of skills and training in new trades and professions. The right to work is not a new constitutional right, it was granted to Soviet citizens under the 1936 Constitution. Is it a mere reiteration of the previous Constitution or are there some new points here? Let us look into this question.

Proclamation of a constitutional right is, of course, a very important thing. That every citizen should have the right to work and to equal pay for equal work, irrespective of social status, race, nationality, religion, sex, etc., is certainly of exceeding importance. No one would deny that the political and legal guarantees of this right are very important. Yet, they can be easily upset by the simple fact that there are not enough jobs in the country. Then labour exchanges will be overcrowded, newspapers will be full of advertisements placed by people looking for work, and there will be hundreds of thousands or even millions jobless.

In the Soviet Union, the right to work has social and economic, as well as political and legal, guarantees. It means that the socio-economic structure of Soviet society (public ownership of the basic means of production, economic planning, crisis-free economic development) is such that since 1930 there has been no unemployment in the Soviet Union. All labour exchanges there closed in 1930 as nobody wanted them any more.

However, in order to understand the full implication of the right to work in the Soviet Union it is not enough to know merely one, albeit essential, fact that unemployment was abolished there. The Soviet state provides employment for all of its citizens. The new Soviet Constitution considerably extends the content of the right to work, stating that at the current stage the Soviet state can do much more to provide favourable conditions for its implementation.

Today the Soviet state not only provides employment for all citizens, but also commits itself to make it possible for citizens to choose their trade or profession in accordance with their inclinations and be trained accordingly. This is ensured by the wide network of state-run vocational schools with training free of charge. As for those who already have a trade or profession, the state gives them every opportunity to improve their skills or train for another occupation. Practically every enterprise—certainly every medium-sized or large one—has numerous programmes for skill improvement and schools, including technical secondary schools, at which one can train in a new trade or greatly improve his qualifications without giving up his job. Many enterprises have technical higher schools. Training is, of course, gratuitous.

As a result of diverse political, legal, social and economic measures, including the abolition of unemployment, creation of new jobs on a mass scale and free vocational training throughout the country, demand for labour in the Soviet Union exceeds the supply.

The *right to housing* is a new constitutional right not to be confused with the article on the inviolability of the homes of citizens which can be found in nearly every constitution. What does this innovation in constitutional law mean? Why was this right not mentioned in the previous Soviet Constitution? It was due above all to the fact that the available housing the Soviet Union inherited from the tsarist regime was insufficient. Although the Soviet Government did much even before the war for a fair redistribution of the available housing and launched the construction of new houses for working people, these measures were not yet enough. The Soviet Union lacked the industrial facilities for housing construction. Further, one must consider the fact that during the Second World War great damage was caused to the available housing, insufficient as it was. The nazi invaders burned to the ground 92,000 villages and destroyed dwellings in 2,500 towns and townships. The Soviet state, naturally, had to spend time and effort to restore the ruined houses. For this reason it was unable for a long time to ensure its citizens the right to housing and had to limit itself to satisfying their elementary requirements in that respect.

Thanks to the strides made by the developed socialist economy, it recently became possible to launch the construction of houses by industrial methods. Let us see now how available housing has increased in the Soviet Union. The young Soviet state inherited from the tsarist regime altogether 180 million sq m of useful floor space in towns. This figure has by now been exceeded ten times, mounting to 1,860 million sq m. In the last decade alone, 34 million flats were constructed, which means that more than half the population and nearly three-quarters of the urban population live in new flats or houses. Since some people move into new flats and houses, those who remain in the old dwellings are less crowded, so the majority of working people have had their living conditions improved.

Houses are built in the Soviet Union at an increasing rate. Whereas in forty-odd years, 1917-1959, only about 500 million sq m of floor space in state-owned houses could be built, 545-550 million sq m of floor space will be put into operation during the current five-year period alone (1976-1980). Such is one side of the problem, which is that at the current stage the Soviet state really can provide its citizens with comfortable dwellings.

The other side of the problem is no less important. Rent in the Soviet Union is the lowest in the world, although it is paid for the use of modern dwellings with all conveniences. Soviet citizens are astonished to hear foreign visitors complain that rent consumes more than a third of their earnings. In the Soviet Union, rent comes on average to 5-6 per cent of earnings. Since there is no unemployment in the Soviet Union, and labour is in great demand, usually several members of a family have jobs and on this basis rent accounts at most for 2-3 per cent of the aggregate income of an average Soviet family. In many countries, as is known, apartment houses or tenements constitute a profitable industry. The Soviet state, however, has never regarded rent as an item of revenue. Both in the past and at the present time rent in the Soviet Union is expended on the maintenance and preservation of houses.

The great material possibilities for the construction of new houses and the social measures taken to ensure fair distribution of floor space at low rent thus make a real guarantee of the right of Soviet citizens to housing.

The *right to education* was also granted under the previous Constitution. In this instance, too, the new feature consists in the much greater possibilities that now exist in the Soviet Union for the implementation of the right to education. In the 1930s, when the previous Constitution was adopted, the state could afford only four-year universal compulsory and free education and was just beginning to introduce universal seven-year education.

At present, the shift to universal free ten-year education has been completed in the Soviet Union. Currently there are more than 167,000 general education schools, 4,300 technical secondary schools, and upwards of 850 higher schools. In 1977, there were altogether more than 99.5 million students in the Soviet Union, 49 million of them attending ten-year secondary schools. The total enrolment in technical secondary schools was in excess of 4.3 million, and at higher schools, five million. Education in the Soviet Union is free, and students of technical secondary and higher schools receive monthly government grants. Adults can get an education without leaving their jobs at any of the numerous night schools and night and correspondence technical secondary and higher schools and courses. Correspondence courses of higher schools and technical secondary schools have more than 1.5 and 1.2 million students respectively.

The progress made by education in the Soviet Union stems from the development of socialist society, from the change in the life of the country which was launched by the Great October Revolution in 1917. They had built schools, colleges and universities and trained teachers in Russia before the Revolution as well. But they did it at a different rate. *Public Education,* the official organ of the tsarist Ministry of Education, wrote shortly before the Revolution that it would take 180 years to abolish illiteracy among the male population of Central Russia, and 360 years to abolish it among the female population, also of Central Russia. As for the population of the fringes of the Russian Empire, the journal wrote, it would take 3,500 years to stamp out illiteracy among them.

Soviet government created an efficient system of public education which dealt with illiteracy within 19 years, and rapidly developed this system further in order to meet the growing cultural requirements of Soviet citizens. Thus we see that the right to education is not only granted by the Constitution, but is also ensured by the effective education system that has been built under Soviet government.

The 1977 Soviet Constitution grants citizens of the USSR the *right to enjoy cultural benefits.* This is a new point in a constitutional law and a new constitutional right. It is not the customary article proclaiming the right to education which is to be found in almost all Constitutions round the world. This article goes far beyond mere education. It speaks of the opportunity to enjoy cultural benefits as of the right of every Soviet citizen, and of the guarantees of this right. After all, a well-educated person may remain culturally limited if he has no access to the treasures of culture.

In the Soviet Union, treasures of national and world culture are accessible to all sections of the population. All museums and libraries are the property of the people, and the state of the whole people looks after their normal functioning and further growth. Before the October Socialist Revolution there were 76,000 libraries and only 180 museums in the country, and now there are 350,000 libraries and about 2,000 museums in the Soviet Union. Both libraries and museums are accessible to all. In tsarist Russia, however, more than two-thirds of the libraries and a great many museums were not open for the working classes. The Hermitage in Leningrad, for instance, which contains treasures putting it on a par with Louvres or the British Museum, was closed to ordinary folk for a long time.

Not only were there few centres of culture and learning in tsarist Russia, but they were to be found mostly in the areas inhabited by Russians. Under Soviet government much was done to distribute them evenly throughout the country. To illustrate, there is an Academy of Sciences in every Union Republic, whereas previously there was only one Academy of Sciences, in the capital. There were 12 universities in tsarist Russia, situated mainly in the areas populated by Russians. At present, there are as many as 63 universities in the country, including Altai, Far Eastern, Bashkir, Daghestan, Kabardino-Balkarian, Kalmyk, Mari, Mordovian, Chuvash, and Yakut universities. The names alone show that in setting up these universities both territorial and national factors were taken into account, so as to ensure access to the benefits of culture in every area and to every Soviet people.

Article 47 of the new Soviet Constitution reads: "Citizens of the USSR, in accordance with the aims of building communism, are guaranteed freedom of scientific, technical, and artistic work. This freedom is ensured by broadening scientific research, encouraging invention and innovation, and developing literature and the arts. The state provides the necessary material conditions for this and support for voluntary societies and unions of workers in the arts, organises introduction of inventions and innovations in production and other spheres of activity.

"The rights of authors, inventors and innovators are protected by the state."

First of all, we should like to call the reader's attention to the fact that *freedom of scientific, technical, and artistic work* is guaranteed to citizens "in accordance with the aims of building communism". Why is the reference to the aims of building communism made in the Constitution? Is it not enough to proclaim a right and define it in purely legal terms? The point is that this is not an ordinary right which only needs to be exactly formulated. It is a right which is simultaneously a part of the main objectives of communist society. Many modern Constitutions grant this right as a mere formality, because today freedom of scientific, technical and artistic work is mentioned as a rule in important political documents. One finds it also in the Constitutions of states which cannot ensure their citizens even the right to education.

It is altogether different in the case of the Soviet Constitution. One of the major objectives of Soviet home policy is to build a communist society. The aim of communist society with respect to the individual is his all-round, harmonious development. And freedom of creative work is indispensable to the attainment of this aim. It is not enough to open wide the doors of secondary schools and universities and give a person a good education. Conditions must also be provided in which he will be not only a consumer, but also a producer of cultural benefits. And this is possible only when there is real freedom of scientific, technical, and artistic work in society.

Much has been done in the Soviet Union

over sixty years to enable citizens to exercise freedom of creative work. The workingman was barred from cultural benefits for millennia. He could not create them as he was illiterate and deprived. Even his consumption of cultural benefits was limited by the ruling classes to a pittance. Soviet government eliminated this historical injustice. It gave the workingman access to education, thereby giving him the opportunity to acquaint himself with the treasures of world culture. It also provided material conditions for spreading culture among the working people. It set up numerous educational and research centres belonging to the people, nationalised the theatres, art galleries, museums, conservatoires and philharmonic societies, and made them accessible to working people and their children. Freedom of scientific, technical, and artistic work has a solid material foundation in the USSR. It currently has more than 850 higher schools; 350,000 libraries; 135,100 clubs; 154,000 film projecting units; almost 600 theatres; 94 circuses; 214 concert bureaux; about 2,000 museums; 149,000 amateur groups at trade union clubs. The new Soviet Constitution takes account of all this and sets the aim to provide ever better conditions for ensuring freedom of scientific, technical, and artistic work.

The Western bourgeois press assiduously spreads the fiction that all public organisations except the Communist Party are banned in the Soviet Union. Practice as well as the relevant article of the Soviet Constitution on the right to associate in public organisations convincingly show that the allegation is groundless. Besides Communist Party branches, the Young Communist League and the trade unions, there are unions of writers, artists, actors and journalists, and numerous scientific, technical, medical, defence, athletic and other voluntary societies in the Soviet Union. We lack the space here merely to enumerate all Soviet public organisations. To name but a few, there are eight all-Union associations of workers in the arts, more than twenty all-Union scientific societies, thirty all-Union scientific medical societies, and numerous other public organisations.

No wonder that there are so many public organisations in the Soviet Union. The life of modern society is complex and varied, and the interests, needs and aspirations of Soviet people are too diverse for any one organisation to cover them all. This explains why the Communist Party of the Soviet Union and the Soviet Government have been working ever since the Great October Socialist Revolution to provide and improve conditions for the functioning of numerous public organisations. It is not fortuitous that the new Soviet Constitution states: "Public organisations are guaranteed conditions for successfully performing the functions defined in their rules."

For illustration, let us take the All-Union Society Znanie (Knowledge) which unites almost two million lecturers. It has a publishing house of its own, one of the largest in the Soviet Union, which brings out annually more than 400 different brochures and books to a total of over 25 million copies. The Soviet Writers' Union, too, has everything it needs to carry on active creative work. Its central organ, *Literary Gazette*, has a large circulation and enjoys great popularity. The Soviet Writers' Union publishes numerous magazines, viz., *Novi mir* (New World), *Znamya* (Banner), *Druzhba narodov* (Peoples' Friendship), *Voprosy literatury* (Problems of Literature), *Yunost* (Youth), *Koster* (Bonfire), *Sovetish Heimland* (in Yiddish), *Soviet Literature* (in English, German, Spanish and Polish), *Lettres Soviétiques* (in French), and so on. Besides these all-Union magazines, the Soviet Writers' Union publishes magazines in the Union and autonomous republics, regions and territories.

Similar facts can be quoted about numerous other public organisations functioning in the Soviet Union. Energetic, creative activity of diverse mass organisations is a feature of Soviet life. The new Soviet Constitution legalises and guarantees this characteristic of developed socialism. Thus practice shatters one of the fictions current in bourgeois propaganda and intended for people who know little or nothing about life in the Soviet Union.

As we see, even a cursory glance at some of the rights granted and guaranteed under developed socialism shows that the prediction made by Marx and Engels about free development of all members of socialist society has been carried into practice. L. I. Brezhnev said: "The establishment of the principles of social equality and justice is one of the greatest achievements of the October Revolution. We have every right to say that no other society in the world has done or could have done as much for the masses, for the working people, as has been done by socialism! Every Soviet citizen enjoys in full the rights and freedoms enabling him to participate actively in political life. Every Soviet citizen has the possibility to choose a profession according with his inclinations and abilities, and to do work that is useful to his country and people."[1]

[1] L. I. Brezhnev, "The Great October Revolution and Mankind's Progress", *New Times*, No. 45, November 1977, p. 6.

CONCLUSION

The history of philosophical and socio-political thought is a record of hundreds of ideas and theories. Many old philosophers sincerely wished to point out the path to social justice and human happiness, as well as furnish people with knowledge of the world.

Yet, however sincerely they might try to help people, these philosophers remained alone or at best won a limited following. Whatever schemes for man's happiness and welfare they devised, neither happiness nor justice materialised.

When the working class, at whose hands the world was to be transformed, had appeared in the world scene, it became urgently necessary to provide a doctrine showing how this historic mission could be accomplished. This doctrine was Marxism-Leninism which answered the practical questions posed by the class struggle of the proletariat, and not only explained the world but showed how to transform it. This doctrine, advanced in the late 1840s by Marx and Engels and carried forward in the epoch of imperialism by Lenin, has become today the world outlook of hundreds of millions.

No romantic dreams or illusions, but rather the objective scientific analysis of reality which made it possible to determine goals for the struggle of the oppressed and exploited and the elaboration of concrete forms of this struggle have helped Marxism-Leninism to become an effective instrument for remaking the world.

The victorious socialist revolutions performed in a number of countries, the construction of socialism and the building of a communist society have become realities due to the fact that this titanic effort on the part of the masses has for its theoretical foundation the philosophy of Marxism-Leninism, which is the world outlook of the communist parties.

Marxist-Leninist philosophy, which was necessitated not only by the class struggle but by the progress of science, provides a truly scientific method of knowing the world and is the theoretical basis of scientifically building the new society.

Born more than a century and a quarter ago, Marxism-Leninism has been going from strength to strength. It is strong because it is true, because it reflects the world correctly and gets to the root of things. This correct knowledge of the world owes much to Marxist philosophy. It is the profound philosophic justification of all fundamental propositions of Marxism-Leninism that distinguishes it from all previous theoretical conceptions.

It was no accident that Marx, Engels and Lenin, who were great revolutionaries, politicians and economists and active members of the revolutionary movement, were also great philosophers who paid constant attention to the study and development of philosophy. That enabled them in times of social upheavals to find correct solutions and correctly determine the trend of social developments.

Through the study of Marxist-Leninist philosophy one can grasp the laws governing the development of the world, to understand, with their help, the intricate processes of social development, and to get a glimpse of the future, to foresee the course of human history.

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