Michael Polanyi

On the Modern Mind

A FEW YEARS AGO I gave a talk on the modern mind to the Medical Section of the British Psychological Society, by which my audience seemed to be disappointed, and my chairman said so. They had hoped for something more substantial, he said, "something to get one's teeth into." From his point of view he was right. For I spoke of the modern mind as a body of ideas having their origin in thought, while in his profession he was used to regarding ideas as the rationalisation of drives, of guilt feeling, or anxiety, or aggression, or insecurity. Such a view is widespread. Here too it may be felt that I am not dealing with the tangible forces determining the mind. When I go on ignoring infantile traumas, broken homes, industrialisation, many may feel lost in a world of shadows.

In a way I should welcome such opposition, as it would help to establish my first point which is that the modern mind distrusts intangible things and looks behind them for tangible matters on which it relies for understanding the world. We are a tough-minded generation.

My second point makes a curious pair with the first. For it is that in spite of our tough theories, our society is more humane than any that had existed before. And if our terrible wars and revolutions are cited against this, I would reply in the words of Paul Tillich: "If ever in history there was a time when human objectives supported by an infinite amount of good-will heaped disaster upon disaster on mankind, it is the twentieth century." I would say that the ideals, the genuineness of which our scepticism has taught us to question, have in fact swayed our time and by their power have almost shattered our civilisation.

I would go further and add that, if our scepticism itself goes to extremes, it does so in a pursuit of a moral purpose, namely of a relentless intellectual honesty. The two conflicting ideas of our age—its scepticism and its moral passions—are indeed locked in a curious struggle in which they may combine and reinforce each other. This is a strange story.

THE BEGINNINGS of modern scepticism go back to ancient Greece, but its present overpowering strength is the sequel of the Copernican Revolution. Copernicus ousted man from his central position in the universe and destroyed the theological cosmos. The heavenly sphere of divine perfection towards which, from his fallen sublunar existence, man was bound to strive, was dissolved in a space without limits, without shape or centre.

And monotony in space was extended into monotony in depth, by the atomic theory of matter. Galileo's mechanics, amplified by Newton, gave new life to the theory that all things are ultimately composed of masses in motion. Atomic particles alone were real and all phenomena were merely appearances of this ultimate reality. Man himself was but a chance collocation of atoms, without purpose or meaning.

Yet the new fellow-feeling, the other master-idea of modern man standing opposite to scepticism, was borne indirectly from scepticism. For it was the attack of scepticism on the Christian churches that released the moral ideals of Christianity from a striving for individual salvation and directed our moral conscience instead to the betterment of human society. The imagination of the new rationalism was soon to be aflame with aspirations for a higher condition of man and society.

Throughout all previous ages men had accepted existing custom and law as the founda-

tions of society. There had been changes and some great reforms, but never before had the deliberate contriving of unlimited social improvement been elevated to a dominant principle. The first government to adopt this principle was that established by the French Revolution; and so the turn of the eighteenth century became the dividing line between the immemorial expanse of virtually static societies and the following brief period in which a passionate hope for a better future became a dominant force in public life.

SCIENTIFIC SCEPTICISM smoothly co-operated at first with the new passions for social betterment. Battling for freedom of thought against established authority, scepticism cleared the way for political freedom and humanitarian reforms. Scientific rationalism brought social and moral progress that has improved almost every human relationship in western civilisation. The new rationalism has been, up to our own days, the chief guide towards intellectual, moral, and social advances.

But troubles developed and became serious in our own century. The demand that all things must be explained by the laws of physics and chemistry became more insistent and more disturbing. A sharpening of scepticism to the point of questioning the very existence of intangible things led to absurd conclusions.

I shall try here to restore our acceptance of higher forms of being and to show how we *can* know and *do* know these less tangible levels of existence. I will then try to bring into view the second master idea of our age and show how this idea of unlimited progress, intensified to perfectionism, has combined with our sharpened scepticism to produce the perilous state of the modern mind. I shall speak of the disasters of our age and finally tell of signs pointing towards a recovery of the grounds for our basic ideals.

THE MECHANICAL PHILOSOPHY of Galileo was more fully stated by Laplace when defining a Universal Knowledge of the World. He pointed out that from to-day's topography of the ultimate particles of the world (which would include their velocities and the forces acting between them) we could calculate any future topography of the same particles, and he claimed that this would give us a knowledge of all things to come, to the very end of time. It has been objected that such predictions contradict the exercise of free will, but this had only the effect of calling in question our possession of free will. Indeed, to bring up this particular difficulty of free will is to overlook the more massive fact, that a Laplacean atomic topography would tell us virtually nothing that is of interest to us. It would give us the total energy of any particular region in the universe, but we could not even make out whether things in that region had any definite temperature, and if so what that temperature was.

To fathom the depth of such ignorance parading as Universal Knowledge, imagine yourself deprived of all your previous experience and presented in its place with a Laplacean topography of the universe. Though you were endowed with an unlimited ability for mechanical computations, you would search in vain to calculate something worth knowing. For what you would want to know are things seen and felt, things heard and smelt, and the laws of mechanics cannot derive such knowledge from a topography of atomic particles. Alone the action of our sentient self, responding to the atoms impinging upon our senses, can supply such information.

But even granting, for the sake of argument, our powers of sentience and forgetting also that an atomic topography cannot define temperature, we could still get no further than to derive the laws of physics and chemistry, and this would not enable us to recognise living and sentient beings. In saying this, I contradict the claims of biologists who affirm that they are explaining life in terms of physics and chemistry. But the fact is that they do nothing of the kind. The purpose which biology actually pursues, and by which it achieves its triumphs, consists in explaining the functions of living beings in terms of a mechanism *founded on* the laws of physics and chemistry, yet *not explicable by* these laws.

We can make this clear by showing that no mechanism, not even the simplest machine, can be explained in terms of physics and chemistry. Let me choose as an example of a machine the watch I wear on my wrist. My watch tells the time. It is kept going by the main-spring, uncoiling under the control of the hair spring and balance wheel, and thus it turns the hands which tell the time. Such are the operational principles of a watch, the principles which define its construction and working. It is these principles that cannot be defined by the laws of inanimate nature. For no part of a watch is formed by the natural equilibration of matter. Each is artificially shaped and connected to perform its function. Physics and chemistry cannot reveal

the practical principles embodied in a machine, any more than the physical chemical testing of a printed page can tell the content of its text.

BUT HOW CAN WE embody any structural or operational principle in a piece of inanimate matter, without interfering with the laws of inanimate matter? To answer this question, we must realise that no inanimate object is ever fully determined by the laws of physics and chemistry. Laplace himself had to assume for his speculations on future atomic topographies an initial atomic topography which was not derived from atomic mechanics. *The laws of physics and chemistry can likewise be applied only to a given set of initial conditions.*

This is, in fact, true of any general principle that applies to experience. It must leave indeterminate a certain range of circumstances in which it can apply, and any particular application of such a principle requires that these circumstances be fixed by some agency not under the control of that principle. This is well known for the laws of physics. The conditions which have to be fixed by some external agency are called here the *boundary conditions* of the system to which these laws are applied. It is on these boundary conditions that the shaping of a piece of metal into a machine takes effect. *Machines are systems, in which the boundary conditions left open by physics and chemistry are controlled by certain structural and operational principles*; and hence machines cannot be described in terms of physics and chemistry.

And what is true of machines is, of course, equally true of the machine-like functions of living beings. Such functions are determined by structural and operational principles which control the boundary conditions left open by physics and chemistry. Living conditions can, therefore, not be described in terms of physics and chemistry.

THUS THE MATERIAL of a machine is under the control of these two independent principles. The role of these two is very different. If the laws of physics and chemistry were suspended for a moment, all machines would stop working; their operational principles rely for their performance on these laws. This of course does not hold in reverse. Pulverise a machine and its fragments will continue to obey the laws of physics and chemistry. The wrecking of the operational structure does not affect these laws, for they apply to the material of the machine *in itself* even when split into isolated bits of matter.

A machine or a machine-like functioning living being can be said therefore to comprise two levels. There is an upper, comprehensive level embodying the operational principles of the system and a lower more primitive level, controlled by the laws of physics and chemistry. The lower level is formed as it were by the unorganised mass, the higher level by the principle that controls its organisation. In other words, we have a lower level of isolated parts and a higher level of the functional whole formed by the parts. This higher level represents then the joint "meaning" of the parts.

We see here the beginnings of a hierarchy in which the distinction between things essentially higher and essentially lower is restored.[1]

We can generalise the two-level structure of living beings and machines to the playing of a game of chess. The conduct of such a game is an entity controlled by a stratagem and the stratagem relies on the observance of the rules of chess. This relation does not hold in reverse, for the rules of chess leave open an infinite range of stratagems. Moves of chess are therefore meaningless by themselves and their meaning lies in serving jointly the performance of a stratagem.

ALL THESE relations become clearer in the case of a skill which comprises a number of levels in the form of a hierarchy. The production of a literary composition, for example of a speech, includes five levels. The first level, lowest of all, is the production of a voice; the second, the utterance of words; the third, the joining of words to make sentences; the fourth, the working of sentences into a style; the fifth, and highest, the composition of the text.

The principles of each level operate under the control of the next higher level. The voice you produce is shaped into words by a vocabulary; a given vocabulary is shaped into sentences in accordance with a grammar; and the sentences are fitted into a style, which in its turn is made to convey the ideas of the composition. Thus each level is subject to dual control; first, by the laws that apply to its elements in themselves, and second, by the laws that control the comprehensive entity formed by them.

Such multiple control is made possible again by the fact that the principles governing the isolated

[1] The argument of this section was first developed in this form in "Tacit Knowing: Its Bearing on Some Problems of Philosophy," *Reviews of Modern Physics* (Vol. 34, 1962, pp. 601–615).

particulars of a lower level leave indeterminate their boundary conditions, to be controlled by a higher principle. Voice production leaves largely open the combination of sounds into words, which is controlled by a vocabulary. Next, a vocabulary leaves largely open the combination of words to form sentences, which is controlled by grammar; and so the sequence goes on. Consequently, the operations of a higher level cannot be accounted for by the laws governing its particulars forming the next lower level. You cannot derive a vocabulary from phonetics; you cannot derive grammar from a vocabulary; a correct use of grammar does not account for good style; and a good style does not supply the content of a piece of prose.

A GLANCE AT the functions of living beings assures us that they consist in a whole sequence of levels forming such a hierarchy. The lowest level is controlled by the laws of inanimate nature and the higher levels control throughout the boundary conditions left open by the laws of the inanimate. The lowest functions of life are those called vegetative; these vegetative functions, sustaining life at its lowest level, leave open—both in plants and animals—the higher functions of growth and leave open in animals also the operations of muscular action; next in turn, the principles governing muscular action in animals leave open the integration of such action to innate patterns of behaviour; and again such patterns are open in their turn to be shaped by intelligence; while the working of intelligence itself can be made to serve in man the still higher principles of a responsible choice.

We have thus a sequence of rising levels, each higher one controlling the boundaries of the one below it and embodying thereby the joint meaning of the particulars situated on the lower level. The meaning of each successive rising level thus becomes richer at each stage and reaches the fullest measure of meaning at the top. We can see then why the "Universal Knowledge" of Laplace, or a physico-chemical topography of the world, is virtually meaningless. *All meaning lies in higher levels of reality that are not reducible to the laws by which the ultimate particulars of the universe are controlled.*

The world view of Galileo, accepted since the Copernican Revolution, proves fundamentally misleading. *What is most tangible has the least meaning and it is perverse then to identify the tangible with the real.* For to regard a meaningless substratum as the ultimate reality of all things must lead to the conclusion that all things are meaningless. And we can avoid this conclusion only if we acknowledge instead that deepest reality is possessed by higher things that are least tangible.

THIS MIGHT seem to take us back to the medieval conception which interpreted the particulars of the world in the light of its major comprehensive meaning which understood the parts as manifestations of the whole and not the other way round. But this would be going too fast. It is not enough to show that there is room for living functions and other higher principles in the boundaries left open by the laws governing inanimate nature. For we cannot claim the existence of essentially higher levels so long as our very identification of them is called in question by a positivistic empiricism. To this objection I must now turn.

There is no precise theory of positivistic empiricism, but its present practice is clear in some important cases. It denies that we can know more than tangible, external facts. Take the consciousness of a human being. Consciousness, we are told, is not a tangible fact and we must hesitate therefore to attribute consciousness to any living being, animal or man.

It would seem impossible that neuro-physiologists, let alone psychologists, should deny the existence of consciousness which is a major part of their subject matter. Can one study perception without referring to what people see? Or the localisation of emotional centres in the brain, without referring to what the subjects feel? Yet a distinguished neuro-physiologist like O. Hebb has urged scientists to assume that consciousness does not exist, even though such a hypothesis might eventually prove false. Nor is this an isolated instance. The psychiatrist, L. S. Kubie, speaking on the same scientific occasion,[2] declared that a "working concept" of consciousness was indispensable to psychology, and went on to say:

> sometimes we are explicit and frank about this. Sometimes we fool ourselves about it. Many workers have attempted to avoid using the word because of its traditional connotations, which have had a somewhat mystical, imponderable, non-scientific, philosophic and/or theological flavour. . . .

[2] I am referring here to the contributions made by O. Hebb and L. S. Kubie to the Symposium on *Brain Mechanism and Consciousness* held in Quebec in August 1953 (see the report edited by J. F. Delafrayne, Blackwell, Oxford, 1954).

Kubie's words show what is happening here. Scientists who urge us to assume that consciousness does not exist do not believe this themselves. It would be absurd to suppose that Hebb wants neuro-physiologists to assume that all their subjects are unconscious. He merely wants them to describe their findings as if consciousness did not exist.

This is the programme of behaviourism. It sets out, for example, to eliminate all references to the human mind, by substituting for the mind the sound of human speech when telling about a state of mind. Such an enquiry refuses to observe that a man is in pain and it can acknowledge only that he complains of pain. The fact that this view wipes out the purpose of medicine—as the alleviator of human suffering—is disregarded. Behaviourism could describe medicine only as a process for eliminating complaints of pain, even though complaints can be more effectively silenced without medicine. The very conception of compassion is denied and torture is theoretically given free rein.

None of this is intended, or even remotely approved, by behaviourists who call in question the existence of consciousness. It is clear, therefore, that they do not mean what they say when urging us to doubt or disregard, or at least avoid mentioning, the existence of consciousness. They seem to take pride, as scientists, in professing something that laymen would find absurd. They feel themselves then as successors to the Copernicans who forced laymen to see our earth, the very ground of fixity, hurtling around an immobile sun.

SUCH FOOLING OF OURSELVES is widely admitted in biology. Everyone knows that you cannot inquire into the functions of living organisms without referring to the purpose served by them, and by the organs and processes which perform these functions. Yet we must pretend that all such teleological explanations are merely provisional. The story goes round among biologists that teleology is a woman of easy virtue, whom the biologist disowns in public, but lives with in private.

The practice of science can be sound, even when it is conducted in the name of false principles. For biologists to deny their use of teleological reasoning is quite harmless. It is even possible that some valuable research *must* be based on absurd assumptions. Think of the recent exploration of various parts of the brain by electrodes of microscopic size, which showed the nervous system operating as a machine. This splendid enquiry would be hampered by keeping in mind the fact that the assumption of the whole nervous system operating as an insentient automaton is nonsensical. Neurologists may be right, therefore, in ignoring the absurdity of the idea underlying their work.

The situation reminds one of the theological map-makers of the Middle Ages. In the 6th century a great traveller and merchant, called Cosmas, turned monk and then launched an attack against Greco-Roman geography on the grounds that it contradicted the text of the Bible. He produced in its stead an image of the world in the shape of the Tabernacle of Moses. It looked like an old-fashioned trunk, with its lid as the heavenly firmament. Other absurd theological maps were current in the Middle Ages until the 15th century, even while sailors' maps of remarkable precision were used to travel the seas of Europe. Cosmas himself would not have relied for his travels to India on his tabernacle as the map of the world. But having turned monk, he found this image professionally illuminating.[3]

The official theories of psychology and biology also give professional satisfaction, even though nobody can believe in them. Yet I think it would be better to stick to the obvious truth, if this can be done with a good philosophic conscience, as I think it can.

WE ARE TOLD that the consciousness of another person is not directly observed, but merely inferred from external facts, and that a strict empiricism prefers to acknowledge only facts that are directly observed. But nothing is ever observed except by the aid of intelligent transactions which integrate a great number of impacts made on our several senses, along with the internal responses evoked by these impacts within our own body. What we see and hear depends in a thousand ways on the preparedness of our own mind and on our intelligent participation in making out what it is that we see and hear.

Suppose I look at my right hand. I recognise its area by its closed contours. But if that were all,

[3] See Lloyd A. Brown, *The Story of Maps* (London, 1951). "After tearing down the writings of Greek infidels such as Plato, Aristotle, Eudoxus, and Ptolemy, he [Cosmas] proceeds to construct his own cosmography based on the Scriptures and the writings of the Holy Father." The *portolano* or harbour-finding charts accurately described the coastline of the Mediterranean.

my hand, when moved about, would keep changing its colour, its shape, and its size. The experience of my hand as a solid object, having definite properties, would never arise. I see it as such by integrating a host of rapidly changing clues both in the field of vision and inside my eyes and some still deeper in my body. By my powers of integration I see thousands of changing clues jointly, as one single unchanging object moving about at different distances, viewed from different angles, under variable illuminations. And this is exactly what happens when I observe a face full of anger and menace; I see it by exactly the same kind of integration. We cannot reasonably reject our observation of anger and menace on the ground that it requires an act of integration, unless we refuse to observe anything at all.

We can deepen this result by exploring the process of integration a little further. Suppose I look at an object, for example, my own finger, through a pinhole in a sheet of paper, or better still, through a blackened tube; if I do this and then move my finger back and forth I see it swelling as it approaches my eye. The moving object has lost some of its solidity, for it now lacks confirmation by the clues that normally contribute to its image from the periphery of the visual field.

Notice here how many of the clues we integrate so successfully to the sight of an object are not known to us in themselves. Many of them cannot be sensed at all; the contractions of our eye muscles, for example, can never be experienced as such and we are aware of them only in the way they make us see the object that we are looking at. Other clues, like those we cut out by a pin hole, we do sense, but only from the corner of our eye. We do not attend to these either, *but rely on our awareness of them for attending to the coherent entity to which they contribute.*

Modern philosophers have argued that we can have no evidence for inferring the existence of other minds, and this would be true if we had to rely on an explicit process of inference. But that is not the case. We integrate the particulars of a physiognomy in the same way as we integrate the clues, or parts, of any other perception, namely by fusing the clues or parts as presented to our senses into a meaningful way of perceiving them. We may call this a *tacit process* of inference by contrast to an explicit process of inference as defined by logic to-day.

CLEARLY, THE NEW ELEMENT I have introduced here into the conception of knowing is the way we know clues by relying on our awareness of them for attending to that to which they point or, more generally, the way we know things by relying on our awareness of them for attending to something else, which is the coherent entity to which they contribute. We may link this now with a certain experience we all have of things we know almost exclusively by relying on them for attending to something else. *Our own body is an assembly of such things.* For we hardly ever attend to our body as we attend to an external object, while we continually rely on it as a means for observing objects outside and for manipulating these objects for our own purposes. *We may identify, therefore, our knowing of something by attending to something else, with the kind of knowledge we have of our own body by dwelling in it.* In other words, we may say that when we rely on our awareness of some things for attending to other things, we have assimilated these things to our body. We may say, for example, that we know the clues of perception by dwelling in them, when we attend to that which they jointly indicate; and that we see the parts of a whole forming the whole by dwelling in the parts. We arrive thus at the conception of *knowing by in-dwelling.*

IN-DWELLING operates on all levels of reality. But when we know living things, our in-dwelling enters into an especially intimate relation to that which it knows. A lion pouncing on the back of an antelope co-ordinates its own observations and actions in a highly complex and accurate way. The naturalist watching the lion mentally integrates these co-ordinated elements into the conception of the lion hunting its prey. Other vital co-ordinations, like embryonic development, are much slower than this, but no less rich in co-ordinated details; the study of physiological functions fills many volumes and the co-ordinations performed by human intelligence are unlimited. But the perception of living beings consists throughout in mentally duplicating the active co-ordinations performed by their living functions.

We can see now how we know another man's mind and share his mental life. We understand, for example, a man's skilful performance by mentally combining its several movements to their joint pattern. Chess players enter a master's mind by rehearsing the games he has played. Knowing a man's mind is then to experience the joint meaning of his actions by dwelling in them from outside. This is how we

get to feel another man's consciousness, to share his pain and pity him. Knowing life is always a sharing of life, but to know another person is to share his life as an equal partner. When we study inanimate matter or the lower organisms, we stand to these in an *I-It* relation, but as we gradually rise to the study of man we arrive at an *I-Thou* relation to him. We enter into mutual understanding with him.

Here, then, is a theory of knowledge which tells us how we can both know and experience the higher intangible levels of existence, which a positivistic empiricism refuses to recognise.

I SHALL NOW pass on to some large questions of our culture, by facing the challenge that a positivistic empiricism presents to the existence of moral principles. A textbook of sociology, published three years ago, opens with a formal statement of its principles in four points. The fourth of these principles declares that sociology is

> *unethical*; that is, sociologists do not ask whether particular social actions are good or bad; they seek merely to explain them.

Some sociologists would seek to qualify this principle, but very few effectively do so. It is predominantly accepted and cherished as securing the scientific character of sociology.

Let us face what is implied in this principle. To assume that you can explain an action without regarding whether it is good or bad is to assume that moral motives play no part in it. To extend this assumption to all social action is to deny the very existence of genuine moral motives in men. When I protest against such doctrines, I am assured that the sociologists who teach this moral nihilism are themselves men of high moral principles, supporting noble causes in public life. This is thought to put the matter right. It is considered quite in order that we should teach absurd views that we do not believe because we think that they are scientific.[4]

I admit that most students will uphold their moral convictions regardless of being taught that these are without foundation. They may even respond to the social perfectionism of our age, and make high moral demands on society. Some may never feel this internal contradiction, in others it may cause confusion, a reduction of respect for their own life. We can assess the possible consequences arising from this situation, by turning to the ideas of writers who have worked out these contradictions of the modern mind in literature and political thought. Literature and politics are the mythology of our age and the school of our imagination.

The tension between a positivist scepticism and a modern moral perfectionism has indeed erupted with vast consequences in our days. It erupted in two directions, towards art and philosophy and towards politics. The first was a move towards extreme individualism, the second, on the contrary, towards modern totalitarianism. These two movements may appear diametrically opposed; yet they are but two alternative solutions of the same equation which required *the joint satisfaction of a belief in moral perfection with a complete denial of moral motives.*

I SHALL start with the individualist solution of this equation. A man looking at the world

[4] The textbook of sociology quoted is Harry M. Johnson, *Sociology, A Systematic Introduction* (Harcourt, Brace and World Inc., New York, 1960, and Routledge & Kegan Paul, London, 1961). In the Foreword, Robert K. Merton writes: "With this book Mr. Johnson joins the small circle of... masters of sociological writing...."

Freedom from value-judgment is maintained throughout the book. Cruelty to Negroes in the latter half of the last century is explained by the use of the Negro as a scapegoat. Victimising the Negro deflects feelings of frustration from causing social disruption. "Thus the Negroes were victims of a heightened need of national unity in the face of external problems.... National unity and sectional unity were achieved partly at the expense of the Negro." (p. 602)

The social functions of scapegoating have been repeatedly analysed during the past decades, for example by C. Kluckhohn and D. Leighton (*The Navaho*, Harvard, 1946, pp. 176–7. "... Navahos 'take out' on witches by word and by deed the hostility which they feel against their relatives, against whites, against the hazards of life itself.... The killing of witches is characteristically brutal. ... Witches in other words are scapegoats." "... there is no doubt that witchcraft is Navaho culture's principal answer to the problem that every society faces, how to satisfy hate and yet keep the core of society solid.... The people blame their troubles upon 'witches' instead of upon 'Jews' or 'niggers'."

This theory leads Mr. Johnson to comment on the further development of the Negro's position in the United States as follows: "Technically, perhaps, the suffering of the Negro is no more dysfunctional than the loss of men in a victorious battle. Everything, including the integration of social systems, is achieved at a cost." Nevertheless, we are told, the necessity of using Negro talent and of placating African states has led to concessions to the Negro.

Would it not appear, then, that if Lincoln had but known of the social functions of "scapegoating," he might have introduced Negro-baiting in the North and thus united the nation at a much lesser cost than by a civil war?

with complete scepticism can see no grounds for moral authority or transcendent moral obligations; there may seem to be no scope then for his moral perfectionism. Yet he can satisfy it by turning his scepticism against existing society, denouncing its morality as shoddy, artificial, hypocritical, and a mere mask for lust and exploitation. Though such combination of his moral scepticism with his moral indignation is inconsistent, the two are in fact fused together by their joint attack on the same target. The result is a moral hatred of existing society and the alienation of the modern intellectual.

The effect on his inner life goes deep. His scepticism-cum-perfectionism scorns any expression of his own traditional morality; it despises it as banal, second-hand, hypocritical. Divided against himself, he seeks an identity safe against self-doubt. Having condemned the distinction between good and evil as dishonest, he can still find pride in the honesty of such condemnation. Since ordinary decent behaviour can never be safe against the suspicion of sheer conformity or downright hypocrisy, only an absolutely a-moral, meaningless act can assure man of his complete authenticity. All the moral fervour which scientific scepticism has released from religious control and then rendered homeless by discrediting its ideals, returns then to imbue an a-moral authenticity with intense moral approval. This is how absolute self-assertion, fantasies of gratuitous crime and perversity, self-hatred and despair are aroused as defences against a nagging suspicion of one's own honesty.

This theme has prevailed in Continental thought since a century ago Dostoevsky first described murder as an experiment in moral scepticism and, soon after, Nietzsche repudiated all traditional conceptions of good and evil as hypocritical. About the same time Rimbaud launched a great poet's imagination into a world of disordered sensualism, and he was followed in the next generation by Gide who showed that perversion and gratuitous crime could be marks of moral authenticity. To-day we have a whole literature, much of it of high quality, in which absurdity and a sombre, fantastic obscenity are presented as tokens of unflinching honesty.

These are some individualistic solutions of the conflict between scepticism and perfectionism. They unite the two opposites in a moral nihilism charged with moral fury. This paradoxical combination is new in history and deserves a new name; I have called it a ***moral inversion***.

In public life moral inversion leads to totalitarianism. I shall speak only of Marxism-Leninism as the most important movement of this kind. The Marxist revolutionary scorns any appeals to generous sentiments and scorns also any appeal to the Utopian image of an ideal society. His scepticism forbids him to rely on such motives. But, though he cannot declare these high motives, they are his driving force and must be satisfied. Marxism resolves this contradiction by inventing a machine—the Marxist machine of history—which, working inside society, will bring about the destruction of capitalism and its replacement by socialism. The machine will achieve this without the aid of noble sentiments or images of social perfection. Such a mechanism, claiming to control all mental processes in society, is bound to appeal to a scientific outlook. When this mechanism offers also a safe disguise and embodiment for the Utopianism which motivates its makers, its appeal becomes irresistible.

The two contradictory elements of Marxism effectively protect its teachings against criticism by alternately taking over its defence. Its moral fervour denies a hearing to any intellectual objections, while any moral scruples are contemptuously rejected as unscientific.

This combination of conflicting principles explains how Marxists can accept historical inevitability as an incentive to work and fight for bringing about the events declared to be inevitable. For since the Marxist theory is merely a disguise for Utopian ideals, it tacitly enjoins us to fight for the fulfilment of its theoretical predictions.

The harshness of the political parties charged with this task is often criticised, or else excused, as the use of evil means in the service of a noble cause; but such reproach or excuse is misplaced. Marxism-Leninism denies being guided either by moral motives or Utopian visions and declares it follows only the directives of science. The question of weighing means against ends cannot arise then. If you claim to embody a mechanism, you must behave like a machine; your unscrupulousness will be sanctioned by the morality inside the machine. A morality embodied in a machine is necessarily blind to its own handiwork and deaf to the voices of reason: it has turned fanatical.

Truth itself then becomes embodied in the machine. Whatever makes the machine run faster is said to be true. A universe of public fantasies is erected in which even its authors have lost their bearings. The very victims of

faked trials are persuaded that in some sense the fantastic accusations against them are true. To think otherwise would be to forsake the revolution, which is unthinkable.

I HAVE described the modern mind by the content of its ideas and have explained the emergence of the modern mind as the outcome of a process of thought which originated in the Copernican discovery and in the interplay of the ensuing intellectual revolution with the moral ideas of Christianity. This was how I explained the moral ideas of modern literature, as well as the political creeds and disasters of our age.

These great events were not due to the effects of economic circumstances nor to the early training of infants. The ideas of the Russian Revolution have spread to regions of the most varied economic structure and of equally varied customs of swaddling babies or of early toilet training. Any theory that would account for these revolutions of thought by economic or infantile traumas expresses the same errors concerning the nature of man and thought which caused these disastrous revolutions. It tends to perpetuate these errors.

A true diagnosis of our disorders should help to overcome them. My own interpretation of the modern world would do this by recognising thought as an independent, self-governing force.

I feel supported in this by the great movements recoiling from modern totalitarian ideologies. Stalinism is passing away and we look back on its rule with growing amazement. Russians are asking insistently how those terrible things could have happened. Concluding his memoirs in 1962, Ilya Ehrenburg speaks of "all the things that lie like a stone on the hearts of people of my generation." The whole world is involved in this: we cannot trust ourselves again unless we can understand how people, so steeped in our own modern scientific outlook, could produce such an insane tyranny and support it fanatically for years on end.

The answer to this question is coming out by stages, darkly. At the 20th Congress of the Russian Communist Party, held in February 1956, Khrushchev first denounced Stalin's misdeeds in a secret speech. A few months later Polish and Hungarian writers were openly demanding freedom of thought. These men were leading Communist intellectuals who were recoiling from the theory that morality, justice and art, and truth itself, were to be identified with the interest of the Party. Hungarian Communist writers solemnly repudiated the teaching that political expediency could be a criterion of the truth and "after bitter mental struggles" vowed "that in no circumstances would they ever write lies." A few weeks later, the Hungarian people, led by these intellectuals, overthrew the Stalinist régime established by Rakosi.

This revolution was fought to gain recognition for the reality of intangible things; of truth, of justice, of moral and artistic integrity. The Bolshevik attempt, undertaken for high purposes and in the light of a sophisticated theory, to establish an empire that denied this reality, had failed. It had proved unbearable. I believe that this passionate recognition of a metaphysical reality, irreducible to material elements, marks a turning point: it will serve as an axiom for any future political thought.

Writers in Poland and Hungary are trying now to find a place for the morally responsible individual within the Marxian conception of history. Early manuscripts of Marx, until recently unpublished, offer some substance for this. But the reviving of some Hegelian ideas in the thought of the young Marx will not take us far.

WE NEED A THEORY of knowledge which shows up the fallacy of a positivist scepticism and authorises our knowledge of entities governed by higher principles. Any higher principle can be known only by dwelling in the particulars governed by it. Any attempt to observe a higher level of existence by a scrutiny of its several particulars must fail. We shall remain blind in theory to all that truly matters in the world so long as we do not accept in-dwelling as a legitimate form of knowledge.

In-dwelling involves a tacit reliance on our awareness of particulars not under observation, many of them unspecifiable. We have to interiorise these and, in doing so, must change our mental existence. There is nothing definite to which we can hold fast in such an act. It is a free commitment.

But there is something imponderable for us to rely on. We have around us great truths embodied in works born of the very freedom which we are hesitating to enter. And recent history has taught that we can breathe only in the ambience of these truths and of this creative freedom. I, for one, am prepared to rely on this assurance for acquiring and upholding knowledge by embracing the world and dwelling in it.