A CRITIQUE OF MATERIALISM

G. A. DE C. DE MOUBRAY

This article is being written, not to be broadcast among materialists to wean them from their atheism, but as a means of helping confirmed New Church men to confirm their own beliefs yet further. For, as *Invitation* 51 tells us: "It is allowable to confirm the truths of the church by reason, or the understanding, as much as one pleases, and also by various things in nature; and, in proportion as truths are so confirmed, they become inrooted and shine."

The cross currents of science and mathematics, and of natural philosophy based upon them, have reached a most interesting stage. One of these currents is that of phenomenalism, which can be described as a refusal to pay any attention to anything, or to any aspect of anything, except as we can become cognizant of it through our five senses as extended in scope by means of scientific instruments. A striking example of this attitude is afforded by Behaviorism. I quote from the article on Behaviorism, by J. B. Watson, the founder of this school of psychology, in the XIVth edition of the *Encyclopaedia Britannica*: "So far in his objective study of man, no behaviorist has observed anything that he can call consciousness, sensation, perception, imagery or will. Not finding these so-called mental processes in his observations, he has reached the conclusion that all such terms can be dropped out of the description of man's activity." Dropping out the terms for these concepts for the reason stated can only mean the denial of the reality of what those terms stand for. This denial of the reality of mental process is so completely at variance with the overwhelming mass of experience of the rest of mankind that it can be rejected out of hand.

Another of these currents is the debunking of matter, a result largely of the absence of any conception of the stratification of reality. Finding that apparently ultimate elements of reality such as electrons are not subject to the same laws as macroscopic hard balls of matter, some have eventually resolved them into the algebraic formulae that alone seem capable of describing their behavior. As these formulae can be interpreted alternatively in terms of "wave packets" and of "statistical probability," Sir James

Jeans has written of matter having been resolved into "waves of knowledge." This etherealization of natural philosophy does not, however, get us out of the quagmire inextricably associated with monistic philosophies.

On the other hand, there have been theoretical developments which, for those who have eyes to see, disprove the postulates of materialism. It is, for instance, quite remarkable that evidence should now exist definitely disproving the eternity of matter. If matter has not always existed, where has it come from? It must have been derived from something which has the quality of eternity, that is, which is self-existent. We arrive in this way at the rudiments of a conception of the stratification of reality—of the existence of discrete degrees.

It is important that at the outset of this discussion we should have a general idea of the stratification of reality—the theory which we normally call the "doctrine of degrees." (Swedenborg used the term gradus, a Latin word meaning the rung of a ladder or the step of a stair.) There is involved in the conception a hierarchy of *substances*, sometimes spoken of as "forms" by Swedenborg, as in *Divine Love and Wisdom* 200. It is clear from this passage that Swedenborg looked upon the different strata as having different *forces* acting in them. As we should now say, they are distinguished by different forms of *energy*. (The differentiation between force and energy had not been made in Swedenborg's time. Leibnitz had, in fact, invented the concept of kinetic energy; but he had obscured this by coining the term *quantité de force*. In this he was following the example of Descartes, who had invented the concept of momentum, calling it *quantité de mouvement*. Probably neither of the men realized what a tremendous theoretical step forward he had achieved.) There is also a relation among strata as of *end, cause and effect* (DLW 184), which relation we can also describe as of effort (*conatus*), force (*vis*) and motion (*motus*). Now, in *Divine Love and Wisdom* 218 we are told that effort acts by forces *corresponding* to itself, and through these produces visible motion. This is one aspect of a general principle of correspondence between strata.

Let me give an illustration. Something pleases me: in other words, in the course of mental processes affecting the spiritual substances of the mind under the impulsion of emotional energy, I am conscious of the feeling of pleasure. Electro-chemical proc-

esses corresponding to the emotional processes travel from the brain to certain nerve-endings situated in muscles of the face, producing the effect of muscular movements which are interpreted by bystanders as a smile. Swedenborg, in keeping with *Divine Love and Wisdom* 218, would say that my pleasure, acting as the *conatus* (a term also used in modern psychology), by electro-chemical forces corresponding to itself, produces the motion visible as a smile.

I propose to go one step further, and say that each of these three strata, mental, physiological and muscular, has its own internal system of causation, which I call mechanistic causation; and that these systems of causation are connected with each other by the system of causation which we have been considering, which I call purposive causation. Purposive causation can act only in one direction, downwards and not upwards (there is only spiritual influx, not physical influx) : the emotional force affects the electro-chemical processes in the nerve cells by purposive causation; and the electro-chemical processes set off muscular movements, also by purposive causation. Implicit in this conception is that on each of the major strata there is a closed system of conservation of energy. That I am supported by Swedenborg in this generalization I deduce from *Divine Love and Wisdom* 218. He speaks of a *conatus* acting by forces *corresponding* to itself. The term "correspondence" is used here in no loose sense. It implies that the *conatus* and the force are different orders of being—in relation to each other of *end* to *cause* (DLW 184)—so that there can be no flow of energy from one stratum to the other, no conversion of *conatus* into force.

Materialists might object to the term "purposive" as implying conscious purpose, the existence of which they might deny. But they make no difficulty about believing that the organs of plants and animals are in correspondence with their *functions*. For their benefit the term "functional causation" might be used.

There is another difference between the two types of causation which must be thrown into the sharpest relief: whereas mechanistic causation—except in so far as its course is modified by purposive causation—is wholly determined by the past—except again for the minute element of indeterminacy introduced by Heisenberg's principle of indeterminacy, which is noticeable only when we study the motion of isolated, or very few, electrons or

photons—purposive causation looks to an end, that is, to the future. Hence it was called by the Scholastics *causa finalis*, mechanistic causation being called *causa efficiens*, and is called in modern times *telcological causation.*

Now, while Swedenborg looks upon the Divine degree as the only self-existent one, and is monistic in that extremely limited sense, true monistic systems of philosophy look upon reality as altogether on one stratum. Materialism is peculiar only in seeking to identify that stratum with what can be experienced by our five senses as extended by scientific instruments, and, we should add in this century, by the apparatus of higher mathematics.

The Problem of Thought

Materialist philosophy, if consistent, must look upon thought as a product or aspect of physical process, as an epiphenomenon; as the result of electro-chemical forces affecting the tissues of the brain and therefore wholly determined by the past, wholly conditioned by mechanistic causation.

The great question is whether such physical process can lead to the discovery of truth, including the truth concerning the materialist hypothesis. For the purpose of this argument I define truth as the form of reality—of things, processes and events—delineated by means of words. When a delineation corresponds with reality, it is true. When it does not, it is false.

There would seem to be only two possibilities: either our trains of thought are mirrors of reality, or there is no relation—or a mere chance relation—between thought and reality. In the former case there can be no mistake, no falsity: our judgments must always be correct, even about the minor practical things of life. In the latter case there is no possibility of ascertaining truth: all our judgments must be discarded; the materialist must discard the materialist hypothesis; we fall into complete scepticism.

Both these hypotheses are in the most obvious conflict with our experience of life. If we observe our thought processes we realize that we can, as it were, sit back and subject one of our lines of argument to criticism—whether the problem be the repair of a gadget, a question of policy, or a theorem of philosophy. We can notice what appears to us to be a weak link in the chain of reasoning, reason the matter out afresh, and arrive at a totally different

conclusion. In other words, we have a capacity for intellectual freedom. In ordinary life this capacity may be very limited, extending only to matters not affected by any emotional potential. But it can be cultivated, as it is, for instance, by judges; so that intellectual men can, and ought to, attain tremendous freedom in their reasoning—a freedom which stands in the starkest contrast to the bondage to which physical process is subject. We can contrast the freedom of intellect and the bondage of matter.

Psychologists have attempted to explain the process of thought as a process taking place all on one level, on the analogy, for instance, of an electronic brain. But I am unaware of any psychologist having attempted to explain the extraordinary human ability to criticize his own trains of thought.

Swedenborg supplies the only possible explanation of this ability (DLW 255; DP 75, 104: 2, 130: 2, 278; AR 947: 2; TCR 603).

"[Man] can reflect on a higher level upon what he thinks on a lower. . . . Hence it is clear that man thinks above thought, seeing it, as it were, beneath him" (DP 75).

"That there are a higher and a lower region in the human mind every one may see and acknowledge from slight attention to his own thoughts. For he sees what he is thinking about, and accordingly says that he has been, or is, thinking about this or that. Now this would not be possible unless there were an interior thought, called perception, which looks into the lower, simply called thought. A judge, when he hears or reads a long list of cases quoted by an advocate, brings them under the view of the higher region of his mind, and sees them under one general principle. He then looks down into the lower region of natural thought, there arranges his arguments in due order, and, according to his higher view of the subject, delivers his opinion and pronounces judgment" (TCR 603).

Summing up: in view of the bondage of matter and the freedom of mind, mental process cannot be a mere aspect of physical process: it must be a process of quite a different sort: mental and material process must occur on different strata of reality. Furthermore, the freedom of mind itself presupposes a stratification within the realm of mind.

Other forms of monism are wrecked on the same rocks. Consider Bertrand Russell's *sense-data philosophy.* The sense-data are neutral elements of reality, physical *or* psychic according to their context. That is to say, they are physical *and* psychic at the same time. As it is not disputed that they are subject to physical

law, it follows that thought must be subject to physical law—that it is merely physical process seen from another angle, which it obviously is not.

If one wanted to import psychic law, on the ground that psychic law would apply in a psychic context, it would not work, for there would be a conflict: the neutral elements of reality would be obeying two different sets of law at the same time, the one characterized by bondage, the other by freedom.

Whitehead's Attempt to Solve the Problem—That my zeal has in no way led to my caricaturing the monist case is proved by the great lengths to which Whitehead went to avoid the deadlock, while tying mental and physical process to each other to account for the freedom of thought.

Whitehead calls himself a pluralist. But according to my definitions, his postulates are those of monism. His monism is panpsychic: his "actual entities" have both a "physical" and a "mental pole." The problem to be solved, in his opinion, is not merely that of freedom of thought—"the spontaneity of conceptual reaction"—but the originality of response to stimulus, even on the part of individual cells of the body. (The argument is taken from *Process and Reality*, pp. 145–147.) This originality can be the outcome of no mechanistic causation, involving "inheritance from the past." "The reaction is dictated *by the present* and not by the past. . . . An organism is alive when in some measure its reactions are inexplicable by *any* tradition of pure physical inheritance." "Physical inheritance," that is to say, mechanistic causation, tends to prevent the originality of response for which we are seeking an explanation. Where are we to find this originality of response?

Whitehead comes to the startling conclusion that "*life is a characteristic of empty space* and not of space characterized by any corpuscular society. . . . Life lurks in the interstices of each living cell, and in the interstices of the brain."

Whitehead was a most acute thinker. His suggestion is the only way out of monism. But what are we to make of this startling conclusion? I can think of only two ways of looking at it. The first is to treat it as an absurdity: how can the processes of life, thought, any sort of process, take place in a complete vacuum? The second is to realize that *it implies an abandonment of his monism*. The life that lurks in the interstices of matter is a new order of being, related, but only in some distant and unspecified

way, with the "actual entities" which are the atoms in his metaphysical scheme. He has, in fact, had to invent a new order of being transcendent to his actual entities. Having no place to put them in his scheme, he has put them in empty space. This is delightful mythopoeic thinking. For "empty space" read "higher stratum of reality," and a theory of the stratification of reality has come into being. And so, even for Whitehead, mental and material process must occur on different strata of reality.

The Principle of Parmenides

It would seem wise to pause here for a moment to consider an important principle of common sense, first enunciated by *Parmenides* (born about 540 B.C.): "out of nothing nothing comes." The rival opinion, that God created the universe out of nothing, first occurred in the second century B.C., in the Second Book of the *Maccabees 7*: 28. This book is in the Roman Catholic canon; and the Vulgate translates the passage "*ex nihilo fecit illa Deus.*" Swedenborg resolutely took the same lines as Parmenides (see *The Infinite,* Swedenborg Society, 1902, p. 89).

This principle has been historically the fertilizing idea behind the great scientific principles of the conservation of mass, energy, momentum, electric charge, and so on, and it remains their logical basis. The materialistic scientist, no more than the philosopher, can afford to repudiate it. It is not open to him to recognize the principle only when it suits him. If he wants to deny it in the field of mind, the onus of proof rests clearly on him.

The Problem of the Purposive Element in Behavior

We have seen that the Behaviorists avoid this problem by denying purpose—will—in human behavior. Intellectual consistency forces them to take up that attitude. But some materialists admit its existence. Thus Julian Huxley in the article "The Vindication of Darwinism" in the *Rationalist Annual,* 1946, writes:

> "We have the glorious paradox that this purposeless mechanism [Natural Selection], after a thousand million years of its blind and automatic operations, *has finally generated purpose*—as one of the attributes of our own species."

The power of purposive action emerging in a world of blind and automatic action, emerges as something fundamentally new.

This is metaphysically a ridiculous opinion: not only has a materialistic universe *become* a highly panpsychic universe, if not a transcendental one, but the startling fact is that the materialistic universe *has made itself* panpsychic. For the mechanistic principle, natural selection, "has superseded itself"; it "still operates in human affairs, but to a subsidiary and decreasing extent, and with the advent of man, major evolutionary change is and will continue to be mediated mainly through a social, *not through* a biological mechanism." Thus violence is done to the principle "out of nothing nothing comes."

However, Julian Huxley is not, as J. B. Watson is, a consistent thinker. In another mood, in *Essays of a Biologist*, he had admitted the principle *ex nihilo nihil fit*, and concluded that matter must always have some of the properties we associate with mind in the higher animals. *His universe was panpsychic all along.* It is an inconsistency to claim that blind and automatic operations *generated* purpose.

At this stage, for the purpose of this argument, I define psychic process as the activity of directing subsidiary processes—psychic, vital or physical—in some definite direction; that is, of orientating their activity towards some point of the compass, as it were, or towards some consciously or unconsciously apprehended goal.

It is psychic process of this sort which Huxley, in one mood, imagines to have been created out of blind and automatic vital processes; which in their turn, if he is a consistent materialist, have been created by, or consist in nothing other than, the blind and automatic play of physical process: and which, in his other mood, by attributing mental characteristics to matter from the beginning, he presumes to have been present in the universe from the beginning.

We have already considered the first alternative. *The second alternative* is that mental process existed from the beginning of things. If so, why should it not have been effective in some form before the emergence of man, and indeed from the beginning of things, and, in this case, on a cosmic scale?

The Immanence of Purpose in Physical Process

There is indeed every reason to believe that forward-looking process has been immanent in physical process from the beginning

of things. About the beginning of the 18th century de Maupertuis discovered *the law of least action,* and interpreted it as evidence that reason was operating teleologically in nature. The principle has remained unshaken ever since. Let me sketch its history shortly.

In the Hellenistic age, *Hero of Alexandria* worked out the theory that reflected rays of light took *the shortest possible path. Pierre de Fermat* (1601–1665) extended the principle, working it out for light as a wave phenomenon traveling through media of various refractive indexes. He enunciated it as a general *principle of least time. Pierre de Maupertuis* (1698–1759) put forward the *principle of least action*—the theory that motion from place to place is always effected with the least possible expenditure of energy. *Joseph Louis Comte de Lagrange* (1736–1813) gave this principle a more developed mathematical foundation in terms of the integral calculus. In 1844 *Sir William Rowan Hamilton* (1805–1865) discovered the close analogy between the mathematical laws for the propagation of waves (Fermat) and for the dynamics of the moving point (Maupertuis). He also showed that all gravitational, dynamical and electrical laws could be represented as minimum problems. So as to cover all these aspects of physics, he developed the "Lagrange function" into what are now known as the Hamiltonian functions. In 1915 *Hilbert* developed the mathematical aspect of the theory further by proving that, on the principle of relativity, gravitation acts so as to make *the total curvature of space-time a minimum.* This principle was impliedly extended by *the unitary field theory* announced by Einstein in 1929 and again in 1949. All these developments in essence merely extend the scope of Maupertuis' principle of least action.[1]

As an example let us take the simplest of all cases, that of the reflection of light. You catch my eye in a mirror. A quasi-infinite number of rays from my eye strike the mirror. What will determine which of those rays ends its trajectory in your eye? There are two possibilities. The most elementary textbook on

[1] My information on this subject has been taken from *A History of Science and its Relations with Philosophy and Religion* by Sir William Cecil Dampier (Cambridge, 3rd edition, 1942) p. 427; *Ondes, Corpuscules, Mecanique Ondulatoire* by Louis de Broglie (Albin Michel, Paris, 1945) pp. 84–93. See also *Physics and Philosophy* by Sir James Jeans (Cambridge, 1942) pp. 185–189.

optics will tell us that the angle of reflection is equal to the angle of incidence. So that ray will reach your eye which, on its way from my eye to yours via the mirror, subtends equal angles of incidence and reflection on the surface of the mirror (following a path which a perfectly elastic small ball would take). But Hero of Alexander tells us of another factor determining which of the rays, on leaving the mirror, will end up in your eye. Forgetting for the moment all about equal angles of incidence and reflection, and drawing in our imagination a quasi-infinite number of lines connecting your eye and mine via the mirror, the trajectory followed by the photon will be that which, when it has completed its course, will turn out to have been the shortest. It happens to be the same trajectory as that which subtends equal angles on the surface of the mirror. So we have two different laws governing the motion of the photon, producing an identical result. The laws cannot be independent of each other. Which is the cause of which? We note that the law of equal angles is of a mechanistic type, while the forward-looking law of eventual shortest distance is of a purposive type.

This is what Max Planck, who formulated the Quantum Theory, has to say on this general problem, in *Religion und Naturwissenshaft,* 7th edition, Leipzig, 1938, p. 11:

"The principle of conservation of energy is by no means enough to enable us to compute the course of a physical event beforehand in all its details, since it leaves infinitely many possibilities open. There is yet another, much more inclusive, law, the so-called principle of least action. It gives us a shock of surprise to realize that this law, when adequately formulated, must convince every unbiased person that nature is governed by a reasoning, purposeful will. For instance, light takes precisely that path from among all possible paths which it can travel over in the shortest time. . . . We can define the course of every event by means of the following statement: Among all processes which we can imagine transforming a physical object from one definite state to another in a definite time, the process which actually occurs is that for which . . . the Lagrange function for that time has the lowest value. This principle of least action is that from which the elementary effect-quantum later received its name. . . . To the *causa efficiens,* the cause which acts out of the present into the future, now comes the *causa finalis,* which conversely takes the future as its hypothesis, and derives from it the course of events."

This statement by Max Planck is of the highest importance. It is indeed revolutionary. Even in the most material fields of

science he propounds the theory that the course of mechanistic causation is ultimately determined by purposive causation. It is to be noted, however, that Prof. Max Planck has no theory of the stratification of reality. His great generalization would take on a greater, and altogether transcendent, value were it to be worked into a general theory of the stratification of reality.

The Relation Between the Law of Least Action and Belief in the Coherency of the Universe

According to Whitehead, belief in the coherency of the universe is in the last resort an act of *faith*. For the early Greek philosophers, who possessed practically no scientific knowledge, belief in its coherence was the result of intuition. As Copleston says, they possessed a power of metaphysical intuition. The Patristic and Scholastic philosophers derived their belief in coherence from their religious belief in the creation and governance of the universe by one omnipotent god. Post-renaissance philosophy based its belief in coherence on the universal applicability of mathematical law. Added to this we now have such principles as that of the conservation of energy; for, if there is an absolute interchangeability between all forms of physical energy, they must all fit into one system. But nowadays a doubt has crept in as to whether exceptions are not possible to laws and principles formerly supposed to be of universal applicability. Hence Whitehead's insistence on the ultimate act of faith.

But if Planck's contention is correct, the basis for that act of faith is immensely strengthened. If all the mathematical laws of physics can be deduced from the twin principles of conservation of energy (plus mass) and least action *acting together*, not only are all mathematical laws brought together into a vastly more closely knit system, but belief in their ultimate validity is immensely strengthened.

Rising now to the implication of a will acting purposively, immanent in all phenomena, we are in a position to say that, so far as phenomena can be described in mathematical terms, it is most definitely *one will* which governs them. Thus we find justification for Anaxagoras's great intuitional leap when he replaced Empedocles' twin principles of Love and Hate by the one all-sufficient principle of *Nous*. Let us now consider another emotional (or voluntary) aspect.

The Problem of Love

I have never met any attempt by a materialist to explain love. Materialists seem never to have considered the problem. Their approach to the problems of existence and of life has consistently been purely intellectual. Yet their disregard of the voluntary aspect of life is illogical. Are not what we call interest, desire, love, forms of energy?

Since Leibnitz, in his 1686 mathematical paper, put forward the theory that the "quantity of force" (mv^2) remains constant in the universe, the principle of the conservation of energy has become the cornerstone of the scientific edifice. The scientists' difficulty is that love and emotion generally, except in so far as they are manifested in physiological events, cannot be fitted into this scheme. They are not measurable physically; they are not involved in the transmutations and exchanges of energy which are measurable by our instruments. But what if each major stratum of reality has its own closed system of conservation of energy, with its own chains of mechanistic causation, events on different strata being connected only by purposive causation? This is the theorem being put forward in this paper.

Henry Bergson, who had at least one concentrated spell of study of Swedenborg's theological works—whether before or after he wrote his greatest work I have been unable to ascertain—wrote of *creative energy* having to be understood as love (*Les Deux Sources de la Morale et de la Religion*, Presses Universitaires de France, 48th edition, pp. 272, 273).

(*To be concluded*)