

MONISM AND REALITY

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THE philosopher's mind searches for an unitarian explanation of all phenomena, as persistently as water seeks its level. The background of racial consciousness is so permeated on its higher levels by this tendency, that the modern scientist is as sure of a monistic basis of matter as the ancient philosopher was certain of the indivisible nature of consciousness. Each has apparently found satisfactory evidence for the substantiation of his intuition as he went along.

Here we have an anomaly. It is in the nature of successful research that problems vanish from the lengthening path of experience. If monism is a fact in nature, amplified experimentation should result in the elimination of complexities and contradictions. Therefore it is strange that complexities and contradictions have been the fatality of experiment since its inception.

In the childhood days of science, theories which seemed substantiated by lines of fact within their own narrowly circumscribed field, were naively accepted without much regard to their interrelationship with the equally substantiated ones predominant in other fields. There was not enough comprehensive and correlative examination, for if the Universe is monistic, laws as well as facts have a common genesis, and the theories of one department cannot stand alone and separate from those of another. The impossibilities in certain physical theories seem to have maintained stance through many decades, solely through failure to perceive the vital necessity of cross-ties. The oldest, and at the same time most flagrant, contradictions in scientific theory seem not even to have been placed upon trial for their lives until the day of Einstein.

An ether so tenuous as to permit the passage of sidereal bodies without the slightest friction, and at the same time able to hang the weight of the earth upon the sun: obviously these two conceptions

implied different physical universes. Views so divergent as this give no assurance that either is any measurable approximation to reality. On the contrary, they prove that physical conceptions which cannot be true may exist and even be of great utility in the working of practical problems.

A second perplexity centers in the nature of light. Wave transmission through ether implies a discontinuous medium. If the force of gravitation is tension, as all astronomical and geometrical relationships indicate, it must necessarily be in a *continuous* medium; a conception not only in contradiction with the classic theory of light, but mentally inconceivable, especially and particularly to the physicist. Continuity likewise implies impenetrability. Materials are permeable, malleable, or ductile, because they are discontinuous, the particles capable of motion relative to one another. If cosmic ether were continuous, every body in space, from electron to star, would be held as immovably frozen, from all time and to all time, as flies in amber. Yet without a tensile material, not only would gravitation be impossible, but also the forces of cohesion, adhesion and magnetism.

Aside from all this, the proven spherical propagation of light cannot be mentally related to the phenomena of multifarious transverse vibration which are exposed by polarization. Small wonder that Einstein, bringing a mind prepared for the acceptance of a new cosmos, found sufficient evidence of its necessity. But has he improved matters? That is not certain. For the inconceivable ether he has substituted an equally inconceivable four dimensional space. For the anomalous resistant qualities of the ether, he has substituted a space which is capable of being warped or distorted by the presence of masses in it. His equations seemingly fit the facts better. Are they any nearer reality than the old conceptions? In any case, he has precipitated difficulties of an entirely new category; that is to say, a radical disagreement in physical experiments themselves.

Einstein's triumph was immediate and well nigh universal—a suddenness of revolution which betrays vividly the dawning scientific perception of preceding deficiencies. But attempted verification has brought forth a disconcerting number of discrepancies. Dr. Curtis, of the Alleghany Observatory,¹ claims that the shift of spectral lines is not that called for by Einstein. Dr. St. John, of the Mt. Wilson Observatory, agrees with Einstein, and explains away the conflict. Prof. Dayton C. Miller,² has discovered a well-defined ether drift.

¹ *Science*, May 9, 1924.

² *Science*, May 3, 1925.

This contradicts Einstein and the Michelson-Morley experiment upon which this theory was first based.³ Dr. W. S. Adams corroborates Einstein's spectrum shift. Prof. A. A. Michelson has performed new experiments which also uphold him. Prof. Chas. L. R. E. Menges⁴ seems to think that the Fizeau effect and the Zeeman experiments positively disprove Einstein's theory. Dr. Rudolph Tomaschek, of the University of Heidelberg,⁵ repeats Dr. Miller's experiments, contradicts him, and favors Einstein.

In spite of this voyage through rough waters, the Einstein theory, leaving its wider range of cosmology, has found such safe harbor in atomic physics that it is not likely to be soon dislodged. Having become almost inseparably bound up with present conceptions of atomic action, becoming entangled with the most recent researches in radioactivity and the dissociation of matter, it has found itself portion of a twentieth-century set of conceptions which are becoming steadily more difficult. Physicists are beginning to believe that it is indispensable, but that some entirely new form of it must be worked out.⁶

Worst of all, classic theories of radiation have broken down, and science is forced back to the use of the corpuscular theory of light. One eminent representative sardonically remarks that, "The corpuscular theory is used on Mondays, Wednesdays and Fridays, and the undulatory theory on Tuesdays, Thursdays, and Saturdays." Slowly, but surely the minds of men, clinging barnacle-like to the seeming substantial realities known through eye and ear, are being forced adrift into strange currents of thought which may lead to new regions of mind altogether.

Painlevé long ago held that the rotation of planetary bodies in space is an illusion. Says Professor Archibald Henderson: "Are we *all*, indeed, the victims of some strange fallacy?" Professor Walter D. Lambert,⁷ admits that gravitation is a mystery. Queries the Editor of *The Scientific American*,⁸ "Are the things about us real or are they illusions? Philosophers disagree. They admit that we cannot be sure. What we see as rocks and trees and houses may be merely imperfect reflections of some ultimate reality that men do not perceive."

Thus our methods of thought and experiment seem to lead inevit-

³ *Science*, May 8, 1925

⁴ *Science*, April 23, 1926.

⁵ *Science*, March 26, 1926.

⁶ *Science*, Jan. 29, 1926.

⁷ *Scientific Monthly*, May, 1925.

⁸ November, 1924.

ably to contradiction and mystery. It is the belief of the present writer, that the insistent trend of philosophy toward a monistic conception of the Universe, is a fundamentally true intuition, and that our perplexities have arisen from too little of that philosophic instinct applied to our experiments; that we are suffering the pains and penalties duly resulting from blasphemy against monism; not a knowing blasphemy, but one unconsciously impregnating the attitude of mind with which scientific problems are approached.

We search, and rightly so, for a single underlying reality of which all phenomena are modifications. In so doing, inadvertently we assume the attitude that there are *two* underlying realities. We experiment with the whole field of perception, but what is this "we" *which we place in contrast to that field?* It is consciousness, but what is that? Shall we assume that consciousness is independent of matter? Then we have a dualistic universe. Is consciousness a product of physico-chemical action? Then we assume a negation of the law of cause and effect. Sensations and emotions are entirely incommensurable with mechanical or chemical facts. Who can describe or understand feeling save in terms of feeling? Analysis of the mechanical processes correlated with a given sensation show nothing but a continued transmutation of one mechanical force into another, all purely spatial and temporal. Is matter a product of intelligence? If so, we have the same condition reversed. How could the intelligent give rise to the non-intelligent, the emotional generate the substantial, light produce darkness?

Consciousness is here. That is the one undeniable fact of human experience, the only one concerning which there can be no argument. Likewise something is here which is experienced by consciousness. This is a different matter. The nature of that experience is and has been the subject of interminable wrangles between members of every conceivable school of thought. If consciousness is not material, when and how did it become connected with matter in the course of the evolution of species? If matter is not conscious, in what possible way could immaterial consciousness ever act upon and gain ascendancy over matter—an ascendancy exhibited in every contraction of a voluntary muscle?

Is it not most logical to assume that all matter is conscious and but awaits the opportunity for expression through continually more complex structures? Then which is paramount? Consciousness itself or the reverse side of its manifestation, which is called matter? What is the cause of atomic motion? **Blind mechanical force**

or some limited form of consciousness obeying the laws of its own being?

There is but one category of actions which we know at first hand: the voluntary mental and physical actions of our own selves. In these, will, driven by emotion, feeling, or purpose, is certainly paramount. Yet fundamentally the action of will upon the carbon atoms in a muscle is no more explainable than would be the lifting of a block of coal by the glance of an eye. The mass which is moved is more complex in structure, but in terms of elementary composition, there is nothing to choose.

To assume that the electron in its orbit is governed by an intelligence of its own is not in the least to assume that that intelligence is of any kind imaginable to the human mind. It is impossible for us to enter to any degree into the mental processes even of the higher animals; far more so in the case of consciousnesses immeasurably more circumscribed even than these.

There is good evidence amid the facts of biology for the existence of conscious factors intimately bound up with matter, not only capable of controlling it but of reaching out and entering into "diplomatic relations" with neighboring chemical and physical lines of action. At least one well-qualified scientist has perceived this fact and dealt with it at great length.⁹ Prof. Eldridge has exhibited the convergence of two lines of evidence. In evolution he shows the existence of innumerable developments, and of relationships between species which could not have come by natural selection; nor could they have otherwise arisen except through the initiative of intelligences capable of cross-co-ordinations. In contemporary physiological action he shows the operation of certain forces which are understandable only in terms of intelligence; namely, memory, foresight, and co-ordinative power, the capacity to link different lines of seemingly unconscious physico-chemical action. Such factors, he concludes, are intelligent, though not of the nature of human intelligence. Mind is connected with them, but not necessarily composed of them. Evidence for such powers tends toward the same conclusion as the ability of the human will to move the matter of the body; namely, intelligence as a directive force in all nature.

This likewise does away with another perplexity. Consciousness cannot be named in terms of space. We cannot give it form or size. It is physically the negation of every characteristic which we classically ascribe to matter. In point of direct experience, con-

⁹ *The Organization of Life*, Prof. Seba Eldridge.

sciousness has power only over consciousness. To understand its power over matter, we have to assume that whenever consciousness moves or guides a muscle, it is because of the consciousness resident in the particles of that muscle. Conversely, sensation in a muscle can be felt and understood by consciousness because of the materiality in that consciousness. All this reduces to a polar monism: no consciousness without matter, no matter without consciousness. This polarity I conceive to be not a matter of geometrical or spatial relationships, but qualitatively inherent in the primeval substance of the Universe. In other words, we might conceive of matter as dissipated—experiment has shown that matter can be so dissipated—leaving a primal residue still possessed of these dual potentialities. That is to say, consciousness, or potential intelligence, is indestructible, being a quality inherent in all nature; unevolved matter, its negative pole, is equally eternal.

One may gain an idea of the inseparability of substance and consciousness by the analogy of the magnet, which retains its opposite poles no matter how much fragmentation takes place. The atom is still polar, and most likely the electron as well.

This idea, of course, is a synthesis of monism and pantheism; and here we are in good company. Says Dr. Jonathan Wright,¹⁰ "In Virgil, as in all ancient writers, we get a far franker acceptance than we do today, a much plainer indication of the all-pervading pantheism in the fundamental beliefs of men . . . it peeps out now and then, not in science alone where it has the support of physics, but in religious pedagogy."

Although it may not appear at first sight, this doctrine leads to a radical revision of our ideas of space. If the intelligent aspect of universal substance is the governing one, the material aspect must be conceived of as plastic and purely abstract except when made manifest as an instrument of consciousness. All material laws, therefore, are the laws according to which consciousness operates. Things-in-themselves, though having a real existence of their own, are ideas just as truly as are our conceptions of them. Space is therefore Leibnitzian rather than Cartesian—a mental concept. Many philosophers, in fact, have speculated in that direction. A real space of the nature of extension is inimical to complete monism. So soon as the idea of extension arises, it necessitates the idea of separateness and distinctions of quality. The perceiving consciousness stands at the center of its space and the radii of its observatory

¹⁰ *Science*, Aug. 31, 1923.

powers are ended in all directions by the field of perception, which consists of entities seemingly of another order. Is it not possible that in the cosmos as a whole, the sense of separation, the loss of conscious unity, is akin to what in the human mind is called forgetfulness, dullness, inattention, or suspension of awareness?

Herbert Nichols¹¹ believes that nothing exists save mind, more or less evolved. Minds or intelligences need not be spatially separated. They may be conceived as existing together, as thoughts exist in a single brain. Nichols has carried out experiments—whose repetition and checking would be highly advisable—going to show that form-perception is solely a matter of sense-education. The thing-in-itself produces the impression; the nature of the sense-education determines the form which that impression presents to the perceiving entity. He moreover shows that the time-space equations which govern material science can be replaced by energy-change equations. If we conceive “energy” in this sense as being the self-moving power of consciousness, the implication is obvious. If we correlate what is introspectively known of the workings of consciousness, with the visible phenomena of the Universe, a most promising avenue toward the solution of some of our difficulties is opened up. Contradictions and impossibilities seem to be inherent, as heretofore shown, in all physical conceptions of the Universe. On the other hand, we do know that the most contradictory ideas can live side by side in the human mind. Are any of the inconsistencies of the ether, for instance, or any of the Einsteinian perplexities, more striking than the state of mind in which a “fundamentalist” exists comfortably? There must be certain basic laws inherent in the nature of the universal substratum, probably few, and simple, and immutable. These laws must govern the workings of consciousness, and are probably as yet entirely unguessed, though forming the only absolute truth in the Universe.

Taking the physical cosmos as a conception composed of, and at the same time created by, a limitless number of mental entities of all degrees of evolution, physical laws and mental conceptions of those laws blend together. Law and conception alike may be considered as evolutionary and experimental. The contradictions we are now discovering may have their origin in some primeval paleopsychic evolution during which developed conscious conceptions, whose contradictions could not in the nature of things become evident until some highly evolved form of self-consciousness, capable

¹¹ “A Crisis in Science,” *The Monist*, July, 1923.

of synthesis of experience, and of introspection, had been developed, such as that of man himself. In other words, if we are to find unadulterated truth, we may have to look for it in the recondite laws governing intelligence, which are basic; and not in the apparent laws governing the physical world, which in a sense may be misconceptions of nature herself, as much as of mankind. This might appear to some as an anthropomorphization of nature. I regard it as *an impersonalization of consciousness instead.*

Following such a hypothesis, we have also a wider vision of cosmogenesis. It has been long held and is still believed by some, that energy transformations are all "one-way roads"—that the Universe is "running down" and will ultimately reach a state of quiescent petrification. I must confess that this view has always appealed to me as impossible. If it is assumed that the universe is evolving as a whole in any single direction, we face not only the achievement of a completion and a final end, but the formidable problem of an origin. If the Universe is running down, it obviously had a beginning. This throws us into the arms of special creation—a philosophic and scientific abomination.

Of late the discoveries of Professor W. D. MacMillan and others have brought about much speculation as to whether creation proceeds simultaneously with destruction: whether the path of the universe is undulatory or cyclic, rather than tending constantly up or constantly down. It is thought by many that while the matter of the stars is dissipating itself into energy, that energy in some way is recreating atoms in the depths of space.

The outstanding feature of ideation is its self-reproductive power. Given one or two insignificant ideas as a beginning, and the structure of thought which can be produced by an intelligent mind within a short time, approaches infinity in its ramifications. If creation is of the nature of changes in consciousness, there obviously can be no question of a beginning nor can any end be set. Whether cyclic or orthogenetic, the evolution of a conscious Universe has possibilities infinite in every sense, whether they be possibilities of time and space, of new material laws, or of entirely unimagined emotions, sensations or experiences. Intelligence is impersonal in nature; personality only a temporary phase of it. Science rightly revolted against anthropomorphism. Is it not possible that the true direction for that revolt should have been toward a conception of consciousness as impersonal, rather than the tendency to ignore it, which has actually arisen?

"It hath not yet been shown what we shall be." No one can say what has been achieved in the development of consciousness as connected with undiscovered and unguessed forms of substance, of which the ether—or ethers—may be an unexplored category. No one can say how far back into the primeval depths of space and time the consciousness of any single human being may have had genesis. Nor is there reason to suppose that its ultimate destiny in each case may be less than infinite. Hard as iron, microscopically circumscribed, are the limitations of those intelligences whose illusive forms we try to spy out by physical experiment. The organic kingdoms seem to form a vast tree of ever-expanding consciousness, which with man bursts into the flower of self-perception, with a consequent capacity for self-directive exercise of will. From that point may we not substitute geometrical progression of conscious development for the arithmetical type pertaining to the lower orders? It may ultimately be found that the true secret of self-evolution lies in an understanding of those heretofore mentioned laws of consciousness, still undiscovered, which underlie all physical manifestation. Or are they undiscovered? There is a strange unanimity among the older sages, with their insistence upon the reality and unity of consciousness as opposed to the illusions of matter. Perhaps we are far from having sounded the depths of their wisdom, or having understood their idiom.