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Devoted to the Science of Religion, the Religion of Science, and the
Extension of the Religious Parliament Idea

Founded by EDWARD C. HEGELEK

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LORD BYRON

Frontispiece to The Open Court

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THE DREAM OF MATERIALISM

BY WALTER B. LYDENBERG

“I BELIEVE that we shall sooner or later arrive at a mechanical equivalent of consciousness, just as we have arrived at a mechanical equivalent of heat.” In these words, Professor Huxley gave utterance to what is perhaps the ultimate confession of materialism with regard to its hopes and ambitions. Although Huxley died without seeing his dream come true, and indeed probably without expecting to, yet that he was justified in his expectation is not easily disputed. His hope was based on a condition which exists—namely, that there is a relation, possibly an indissoluble connection, between a conscious, spiritual, immaterial, or imperceptible order of things on the one hand and an unconscious, concrete, material or perceptible order of things on the other. Even as spiritual a one as the Psalmist would not disdain to give due credit to the rôle of the material in life, as he sang, “As for man, his days are as grass; as a flower of the field so he flourisheth. For the wind passeth over it, and it is gone; and the place thereof shall know it no more.” This is the materialistic view of things; it is a view upon which the eyes can not be closed; it is entirely logical; and there is no reason why one should rebel at it. It is something forced upon us. It is the expression of a truth. It is that which is seen—the perceptible. Nor is it peculiarly a modern view; it is perhaps as old as man. The savage who staked his life on his trusty spear was, that far, a thoroughgoing materialist. The Hebrew who conceded vision to the eye and intellect to the heart was, that far, a materialist. Coming down to recent times we meet with the discovery of the intellectual function of the brain. As early as Shakespeare’s time the rôle of the brain in intellectual activity was common knowledge: how much earlier than that is not so apparent, but it is clear that with the Greeks and the Hebrews a man thought in his *heart*. We are not a bit astonished to find late writers, as Cabanis, contending that the

brain "secretes thought"; or as Voltaire, that "I am body, and I think"; or as Schopenhauer, that "if matter can fall to the ground, then it can also think"; or as Moleschott, that "without phosphorus, no thought." What did Emerson mean when he said, "Man carries the world in his head"? So certain was Ernst Haeckel of the legitimacy of this view that he did not hesitate to confide that "all phenomena, from the most material to the most spiritual, can be accounted for in terms of motion and matter."

But the dirge of the Psalmist's had hardly subsided when he touched his harp again and sang, this time another song, "But the lovingkindness of Jehovah is from everlasting to everlasting upon them that fear Him." How can that be? Man dies. Can that eternal love be for mortal man? No; though man is mortal, there is that which is immortal. Clearly the Psalmist was not satisfied with his materialistic view of things. And how also about the savage? It was not indeed alone on his trusty spear that he staked his life, but in dance and song he invoked a power unseen, without which his spear was but a broken twig. So, too, with the Hebrew, although vision may rest within the eye, there is in man vastly more than vision, for "the eyes of man are never satisfied." Although Hamlet's mother was satisfied that the visions of her storm-tossed son were but the "coinage" of his "brain," the son himself was not so well satisfied with this materialistic view of things, as where his mother found a brain, he found a conscience which "makes cowards of us all." Though Voltaire was content to say of himself, "I am body, and I think," he could not view the surpassing achievements of Newton as the product of some surpassing body, but rather as the product of "a mighty genius received from heaven." Schopenhauer, who reached the conclusion that matter can think, laid infinitely greater stress on the reversal of the process in that it is "will and idea" that is matter. And so, too, an examination of the trains of thought of the most dogmatic materialists readily elicits evidence that their stands are taken with hesitancy; as Huxley also concluded, "Legitimate materialism . . . is neither more nor less than a sort of shorthand idealism."

Here we find a confusion and contradiction which, on its face, discountenances philosophy. Here is evidence of a conflict in the reasoning of man starting with the dawn of history and still waging. It is a battle not alone for the scientist and the philosopher and the theologian, but a battle also for the man in every-day life, the business man, the schoolboy, the housewife, the pleasure-seeker. In the factory there are not simply buildings and machinery and finished

product and bank-account; there are anticipated recreation and freedom, recognition, honor, the approving smiles of loved ones. That the schoolboy's pastimes and the wedding guest's love-dreams and all the joys and sorrows and hopes and poetry and prayers of our daily life are after all nothing else than matter in motion is what materialism teaches. If it is so, let us not deceive ourselves. Let us have the truth, and not be afraid of it. "The truth shall make you free."

The essential doctrine of materialism is "All is material." Logically, this is impossible, as a whole can not be equal to a part. Clearly all can not be material, as, for one thing, the immaterial can not be material. To reach a stable footing the doctrine assumes the form "there is no immaterial"; and in this is involved a psychological dictum that the immaterial is a mental illusion. The task of materialism is to prove this psychological dictum.

In attempting this proof, materialism must by its hypothesis eliminate as authentic data all but matter, inasmuch as in the hypothesis there exists no such thing as the immaterial. Materialism has formulated no definition of matter, and our only recourse in an effort to obtain a definition of matter is an acceptance of the common understanding of what matter is, namely, that it is anything which is perceived, seen, felt, apprehended—in other words, anything which we may touch or see. The task of materialism is then to show how matter (the perceptible) can produce the mental illusion of the immaterial. Materialism has adopted no definition of illusion, and our only recourse here also is the acceptance of the common understanding of what an illusion is, namely, that it is a supposed knowledge of that which is not. The task of materialism thus narrows itself to the construction of a psychology out of perceived things, eliminating all psychology of imperceptible things; the distinction here is that between physiological psychology and empirical psychology (the psychology of experience—thought, reason, imagination, feeling, willing, as such). The data of physiological psychology are accepted by materialism (the brain, nerves, etc.); the data of empirical psychology (the immaterial things thought, feeling, willing, etc., as such) are rejected. There are perceived brain, perceived nerves, perceived organs of touch and sight; and these, in their activity, are all that knowledge and all the other data of empirical psychology are. There is no such thing as mind, as such; but instead there is the acting brain. There is no such thing as intellect, as such; no such thing as knowing, as such; nor as feeling, as such; nor as willing, as such; nor as thinking, as such; nor as hoping, as such; nor as sorrowing, as

such: nor as being joyful, as such; nor as devotion, as such; nor as having an illusion, as such (the illusion of the belief in the immaterial is simply that phase of brain activity which in empirical psychology is called an "illusion"). This is the doctrine of materialism narrowed to a point, although an accepted proof of this doctrine has not yet been produced and the psychology of experience still as far outweighs the psychology of the brain and nerves as the meal on the table outweighs the dreams of the starving man.

The field of physiological psychology is a broad one, and it has been well though not exhaustively explored. Possibly the task of materialism is completed when it defines the data of empirical psychology in terms of data of physiological psychology. Before this task can be undertaken the general conclusions with regard to the function of the brain must be clearly in mind.

Broadly speaking, the cerebrum may be described as an aggregation of nerve-cells in more or less intimate contact one with another through the agency of structural elongations, nerve-fibers. The number of these cells in the cerebrum has been estimated as 1,600,000,000; their average length in thousandths of an inch. It is not known whether they are in immediate contact one with another. With regard to the body as a whole, the cerebrum is that portion of the nervous system midway between the terminals in the periphery of the body (the end-organs of sense) and the terminals in the muscular and glandular systems of the body. External conditions operating on the end-organs of sense are, through the medium of the nervous system, known to be definite causes of muscular activity, in the case of reflex action. The control of the muscular system is definitely known to be centered in the brain, and the only observable prime physiological function of the brain is the control of muscular activity, an adjustment of the body to its environment; or, as Professor Wundt put it, "Everything that we call will and intelligence resolves itself, as soon as it is traced back to its physiological elements, into nothing but sentient impressions transforming themselves into movements." In other words, the only visible expression of cerebral activity is resulting muscular movements; that is to say, the mental activity of a man is apparent only in his movements, his speech, his writing, and other physical expressions.

It is not certain, however, that Professor Wundt was justified in attributing the source of all cerebral activity to sentient impressions, if by this is meant impressions arising in the end-organs of sense. The evidence is clear that a single nerve cell, even one of the minutest and one wholly buried within the brain substance, may be affected

by impressions developed within the cerebrum. The evidence is also clear that all sentient impressions are not invariably transformed into movements; rather the vast majority of sentient impressions appear to be wholly absorbed and possibly entirely diffused within the central nervous system. In other words, the function of the brain is comparable to the function of a sponge. Furthermore, the possibility of strictly intercerebral stimuli must not be overlooked, such possibly as blood pressure and blood movement, chemical activities in the structure of the cerebrum, latent cellular processes, and some indefinite biological phenomenon which might be defined as the stream of life; definite knowledge of these factors is, however, lacking. And there is the possibility also that cerebral nerve-cells may be affected by forces reaching these cells not through the medium of the end-organs of sense, but directly through the cortex of the cerebrum, such as electrical forces, radio forces, or other telepathic forces of kinds wholly unknown.

Whatever the source of cerebral activity, its visible expression, as we have stated, is muscular movement or impulse to muscular movement. The intensity of muscular movement is in a way susceptible to measurement, as is possibly also, in a measure, the intensity of impulse to muscular movement. The difficulty of determining a minimum limit to the intensity of impulse to movement would seem to be unbounded, so that the range of the intensity of impulse may be from a maximum of a definitely measurable horse-power to a minus infinity horse-power; that is to say, there may be impulses to movement so delicate as to defy all means of measurement.

It is to the action of this, physiologically speaking, absorbing and controlling organ, the cerebrum, that materialism turns for proof of the illusory character of the knowledge of the immaterial.

It distinguishes between knowledge of the material and knowledge of the immaterial; the former is certain, the latter illusory; the former is gained through the end-organs of sense, the latter through other sources.

What are these other sources? For the present they are hypothetical. We have hinted that they may be intercerebral stimuli, intercerebrally generated either by an ever-present "stream of life" or by telepathic forces received directly through the cerebral cortex. It is certain, however, that, from the essential uniformity of character of nerve-structure within the external end-organs of sense (the eye, the skin, the ear, etc.) and nerve-structure within the cerebrum, it is possible that there may be one or more organs of sense wholly within the cerebrum, necessarily and forever unknown to us through

visual or tactual perception, receptive on the one hand of external stimuli constantly being gathered in by the external end-organs of sense, and receptive on the other hand, and simultaneously and directly, of stimuli engendered in the nerve-matter of the functioning brain itself. In other words, physiologically there is no reason why sensation should be limited to the external end-organs of sense and not be a function also of intercerebral organs.

The presence of an intercerebral organ of sense, sensible only to cerebral activity, might be considered as a physiological explanation of the empirical phenomenon of self-consciousness. The nerve-complex of the cerebrum may be considered to be under incessant bombardment by stimuli from all sides, checking these stimuli, absorbing them, and transforming them not into incessant muscular activity, but into an incessant impulse to action. Simultaneous with this incessant intercerebral impulse, new stimuli are constantly being added to the fire by the external end-organs of sense. From the blending of this complex of extra-cerebral and inter-cerebral stimuli, a single momentarily predominating cerebral impulse must result, expressing in some manner the fact of the conflict of an external world with an internal world, the differentiation of these two worlds, the differentiation of the self from the environment, the differentiation of the self from the non-self, the phenomenon of self-consciousness. In other words, self-consciousness may be defined physiologically as the impulse to the adjustment of the body to conditions imposed by the blending of simultaneous and conflicting functionings of the end-organs of sense and an inter-cerebral organ of sense—the simultaneous sensing of the self and the non-self.

It is conceded that self-consciousness is at the basis of the psychology of experience, empirical psychology; what sees, thinks, knows, feels, wills is the self—nothing else. So in physiological psychology it would become this sensed nervous system functioning, as distinguished from the sensed external world functioning, that is the self. The empirical phenomena of knowing, thinking, perceiving, imagining, feeling, willing could therefore be defined as follows in terms of physiological psychology. Knowing is a cerebrally contained impulse to an adjustment either to an extra cerebral condition or an inter-cerebral condition. Feeling is a cerebrally contained impulse to an adjustment to a condition of the body as a whole. Willing is a cerebrally contained, cerebrally originating impulse to an activity. Thinking is a cerebrally contained impulse to an adjustment to a condition of receptivity of a continuance of cerebrally contained adjustments to conditions. Perceiving is a cerebrally contained

impulse to an adjustment to extra-corporeal conditions effective upon the end-organs of sense. Imagining is a cerebrally contained impulse to an adjustment to conditions not effective upon the end-organs of sense. Remembering is a cerebrally contained adjustment to a condition which does not exist but which did exist and which has been cerebrally retained. The sensed functioning of any one of these cerebrally contained impulses is the self-consciousness of empirical psychology.

So we might go on, defining the phenomena of empirical psychology in terms of cerebrally contained impulses to adjustments to conditions, but the end-results would be as unsatisfactory as trying to read an unfamiliar language. Tyndall declared that "the chasm between these physical processes and the facts of consciousness remains as intellectually impassable, as in prescientific ages." Notwithstanding this, materialism must bridge the chasm. To this task it is spurred on by the doctrine of evolution, in that the biological and physiological data relative to the development of the human nervous system appear to be not without meaning. Biologically and physiologically considered, the simplest form of a functioning nervous system may perhaps be illustrated in the reflex action of the simplest forms of animal life; it may be denoted the *mouth* stage, in which excitation of food touching the periphery of the animal is followed immediately by the opening of the mouth to absorb the food. A higher, and second, stage may perhaps be illustrated in the reflex action of more complex forms of animal life; it may be denoted the *eye-mouth* stage, in which only certain excitations from light, such as a particular color, will result in the opening of the mouth, thus developing a function of selection in the reception of food. A third stage may perhaps be denoted the *eye-foot-mouth* stage, in which certain kinds of vision react upon locomotive muscles resulting in the propelling of the organism into conjunction with food. A fourth stage may perhaps be denoted the *stomach-eye-foot-mouth* stage, in which conditions within the organs of digestion control activity of the eye, foot, and mouth. Here, perhaps may be imagined the presence of a central nervous system, coördinating and controlling after fixed laws the activities of the organism in conformity with both internal and external conditions of a simple nature. A fifth stage may perhaps be denoted the *mate* stage, in which phenomena of so-called instinct enter, involving sexual selection, and a higher development of the central nervous system. A sixth stage may perhaps be denoted the *offspring* stage, a step still higher in the play of instinct, in which the offspring is fed under controlled laws

approaching in a measure intelligence. A seventh stage may perhaps be denoted the *fellowship* stage, in which colony-instincts play their part. An eighth stage appears to follow closely upon the fellowship stage, which may be denoted the *self-consciousness* stage, for it is clear that in fellowship selection of any complexity is involved also the selection of that which is not a fellow, i. e., the self. Little as we can know of the self-consciousness of the dog, we are unable to understand how it can select and care for its maimed brother except in so far as in some measure it is conscious of the soundness of itself as distinguished from the maimed condition of the brother. Here we must imagine the presence of a highly developed central nervous system, in which slumbers a latent impulse ready at a moment's notice, upon the slightest provocation, to create an adjustment of the body to conditions irrespective of digestive, sexual, or maternal conditions—a love of fellows, playing an important rôle in the preservation of the species. A final, indefinite, broadly inclusive stage may be imagined in a practically complete control of all incoming and outgoing nerve-impressions by a central nervous system; a dominating cerebrum; a storehouse of inhibited nerve-impressions, latent but always potent; an ability to retain and repeat an impulse over a lifetime (memory); a state of cerebral activity accompanied by long periods of muscular inactivity (thought); an ability to sense and respond to inter-cerebral functions (self-consciousness); the control of action on the basis of received sounds vocally made (speech); the control of action on the basis of received visions of pictures, signs, or words tactually made (writing).

This is the mind-machine of materialism's. It is nerve-force functioning in nerve-matter and expressing itself in bodily impulses, movements, signs, and sounds, largely through the agency of the muscles. It is a force contemporaneous and coextensive with the phenomenon life. Through it arises the illusion of the immaterial; and here we encounter the outstanding problem of materialism, namely, to show, materialistically, how this illusion of the immaterial arises.

With regard to this, the following deductions appear to follow from the materialistic data presented. The mind-machine, like all machines, is necessarily, with respect to the laws which govern it, *infallible*. Nerve-force, like all forces, is essentially positive, not negative. There can be no impulse to an adjustment, except it is an impulse to an adjustment to a condition, as there can be no effect except it is caused. Perception and its modifications, with respect

to the laws which govern them, are necessarily *infallible*. Physiologically, there is no such thing as an illusion; all is inevitable, necessary, mechanical. Physiologically, every so-called illusion is, empirically considered, in itself an illusion, as physiologically there is no illusion. The problem of the illusion is returned by physiological psychology, to empirical psychology. Physiologically, every so-called illusion is no more than a contradiction; that is to say, conditions may not be now as they were; but it can not be said that, physiologically, conditions were not as they were. Contradiction, not illusion, is physiologically possible,—an impulse to the adjustment to a condition preceded by but still coexistent with an impulse to the adjustment to an essentially contradictory condition. What I saw, I saw; what I now see, I see. If I am impelled to adjust to the condition of the house falling down over my head, it means that the *nerve-conditions* attending the falling of the house were existent; if the house did not fall, I may adjust differently later. If I am impelled to adjust to the condition of my body's being transported toward the clouds, it means that the *nerve-conditions* attending such a possibility are present. Whether the event occurred, whether it was possible, are different matters; the fact is, there was the physiological nerve-adjustment,—a positive activity. My companion may adjust or believe otherwise; but, physiologically, what has his nervous system to do with mine? or mine with his? If I adjust to the condition of life after death, what has that to do with past conditions or with future conditions? How I may adjust in the future will depend on me in the future. Thus imagination; and if imagination, belief; and if belief, faith, are, like perception, like digestion, physiological phenomena, effects of causes, phases of "matter in motion," factors in muscular control, materially inevitable, materially infallible. My belief, my adjustment, is the predominant physiological fact, the external world to the contrary notwithstanding. "As he thinketh within himself, so is he," is as true physiologically as empirically. In the psychology of the poet,

"Unfading Hope! when life's last embers burn,
When soul to soul, and dust to dust return!
Heaven to thy charge resigns the awful hour!"

Has materialism any basis for sustaining a charge of fraud against spiritualism? None that it can produce from materialistic data.

On the other hand, has it grounds on which to support its own proper claims irrespective of the contradictory claims of spirit-

ualism? How far is it justified in its dogma? On that point, it is evident that, physiologically considered, the extent of response of nerve-force to external conditions is limited by its own nature. The body can adjust nervously only to conditions to which nerve-force is sensitive. Perception, the criterion of the material is therefore also limited to perception. That far, it is an incomplete criterion, and metaphysically an insufficient criterion. That which is perceived is the perceptible, not the imperceptible. The cause, the origin, the life-principle of this nerve-force—that which precedes it and conditions it—being necessarily different from it, can certainly have no part in it other than its cause. There is no more fundamental axiom in materialism than that every effect has a cause. It may be true that nerve-force is nothing else than the play of electrons and protons which constitutes also electrical force; but if so, nervous impulses are limited to the range of this play, are dependent upon the cause of it, and can not function except as such. You can no more expect to find a nervous impulse existing under conditions other than those of its own physical laws, than you can expect to produce an electrical current with a single element of your storage battery.

Nor are physiologically defined limits any less evident in the empirical phenomenon of knowledge. Confucius is credited long ago with having discovered that "there are things above the power of human comprehension, beyond the grasp of human intelligence." Similarly, we find that faithful historian of materialism, Lange, reaching the conclusion that "the whole cause of materialism is forever lost by the admission of the inexplicableness of all natural occurrences."