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ORDINARY MEETING, APRIL 3, 1882.

H. CADMAN JONES, Esq., IN THE CHAIR.

The minutes of the last meeting were read and confirmed, and the following elections were announced :—

MEMBERS :—Lady Alicia Blackwood, Boxmoor ; J. M. Head, Esq., Reigate.

Also the presentation for the library of the following works :—

“Proceedings of the Perthshire Society of Natural Science.” *From the same.*
 “Translation of Epistle to the Hebrews.” By J. E. Howard, F.R.S. *Ditto.*

The following paper was then read by the author :—

MATERIALISM. By C. W. RICHMOND, one of the Judges of the Supreme Court of New Zealand.

MATERIALISM is a system of thought which regards the universe, including man and the mind of man, as solely consisting of or produced by matter, or what is called “material force.” The importance of such a doctrine cannot be over-estimated, since it apparently implies disbelief in the existence of God and in the moral freedom of man. God disappears in this system of thought as a needless hypothesis, whilst man is reduced to a mere effect of the powers of nature. Such, at least, appear to me the logical results of the doctrine.

Yet it is certain that Materialism has been the philosophic creed of men, both in ancient and in modern times, whose aspirations were lofty, and whose lives were temperate, labo-

rious, and serene; and to some of its professors it has seemed to be consistent, not only with a high morality, but even, strange to say, with strong religious feeling. A lively sense of the inadequacy of Materialism as a theory of the universe, and of its present mischievous tendencies, need not interfere with our appreciation of it as a necessary and often useful element in the historical development of philosophical opinion, and of science and the practical arts.

The great achievements of our time in the field of physical research, and more especially the brilliant induction connected with the name of Darwin, have, without doubt, largely contributed to the revival in the latter half of this century of materialistic habits of thought. What is called scientific explanation has penetrated to groups of phenomena hitherto enveloped in a mysterious darkness, more particularly in the department now called "Biology," which concerns itself with the development, structure, and functions of living organisms. Darwin's data are few, seemingly simple, and, for the most part, well established on the solid basis of experience; so that one is apt to forget that he postulates any force of which the origin is unknown. We learn how the eye has been developed from mere spots of pigment, and the honey-bee educated by circumstance to attain the perfect symmetry of her hexagonal cells; how monkeys have obtained prehensile tails and giraffes have been provided, in the same organ, with special fly-flappers; why the orchid *Coryanthes* entraps the humble-bee, visiting its gigantic flowers, to a plunge-bath in its great water-bucket; why the argus pheasant and peacock spread such glorious fans whilst their hens are soberly attired; why the glow-worm carries a light in her tail; how the torpedo came by his galvanic battery; with an endless list of like "whys" and "hows": we read and are delighted,—almost spell-bound; not only by the variety of nature, but by the force and ingenuity of the human mind; and are prone to believe that the plummet of science has really touched bottom! and that the origin of *all things* in mere physical adjustments is at last on the point of demonstration!

Persons unused to philosophical inquiry may not be aware that the question of original causation is not even approached by the physical researches to which I have alluded. To many such it seems simple to say,—We take our stand upon experience; we believe what we know; we know what we can see, hear, touch, taste, smell. To us the world seems to go of itself. If any one will explain the origin of things without going beyond the limits of what we perceive through the senses, to him we will listen as proposing a possible and a

rational solution. No solution which transcends these limits, and resorts to the super-sensuous, is admissible.

But, by the general consent of both the great divisions of modern philosophy, compliance with this demand is an impossibility. Those who are determined to ascend to the first cause of things may, if they please, call themselves Materialists, but must needs transcend the limits of sensuous experience. Nature presents our outward senses with nothing more than a succession of appearances,—phenomena. Suppose a line of billiard-balls, and let the outermost be struck by another ball impelled by some unseen hand: the motion will be transmitted from ball to ball in regular succession until the force is spent by friction. No one would think, in such a case, of attributing the motion of any one ball to its immediate predecessor in the line of movement. It is plain that the balls are mere vehicles of force, and not originant causes. They are, as regards their movement, but links in a chain of effects, where each indeed stands in the relation of a cause to those that follow, but is at the same time the mere effect of all that precede. Physical nature presents to our senses precisely such a chain of successive effects, the originant cause of which is hidden from us. To the philosophic eye the world does not seem to go of itself. True, the phenomena follow one another in an invariable order. But unless we go behind phenomena, unless we carry our thought back to the unseen power,—I myself should say to the unseen hand,—which first set the machine in motion, and still keeps it moving, we learn nothing more than the order of events. “We only find,” as Hume asserts, “that the one does actually in fact follow the other. This is the whole that appears to the outward senses. The scenes of the universe are continually shifting, and one object follows another in uninterrupted succession; but the power or force which actuates the whole machine is entirely concealed from us, and never discovers itself in any of the sensible qualities of body. In reality there is no part of nature that does ever by its sensible qualities discover any power or energy, or give us ground to imagine that it could produce anything, or be followed by any other object which we could denominate its effect.”*

This is just one of the points on which the first impression of nearly every one will be against the doctrine of the philosophers; yet, if you will ponder the matter, remembering always that the question is as to what we know *by means of the outward senses*, you will, I think, be sure to agree in the

* Hume, *Essays*, No. VII., “Of the Idea of Necessary Connexion.”

end that Hume is in the right. When, indeed, experience has taught us that any natural occurrence has been invariably followed by some other, then, assuming as we all do in modern times the perfect uniformity of nature, we confidently expect that the appearance of the former event, whenever it occurs, will be infallibly followed by its regular consequence; and in common speech we couple the two together as cause and effect; though, if we reflect upon the matter, we easily perceive that the so-called cause is itself a mere effect of something antecedent. We must not delude ourselves with the metaphor of a self-acting machine, for, in truth, there is no such thing. No machine goes of itself, or is more than an arrangement for transmitting force,—like the intermediate billiard-balls. We may, then, take it as established, that the notion of producing cause or force is not given us by the senses, nor to be found in external nature, for this is the concurrent verdict of all the schools of modern philosophy. On this account, Hume and his followers, including Mill and Herbert Spencer, consistently maintain that the knowledge of a producing cause is beyond the scope of science. Knowledge of the order of phenomena is all that, in their opinion, is possible to the human intellect.

But, despite the caveats of these philosophers, the dynamic idea, the notion of a force in nature, maintains its hold upon the human mind. We are impelled by an irresistible necessity to demand a cause of every occurrence. May I quote Martineau as saying, “By an irresistible law of thought all phenomena present themselves to us as the expression of power, and refer us to a causal ground whence they issue. This dynamic source [this origin of power] we neither see, nor hear, nor feel; it is given in *thought*,—supplied by the spontaneous activity of the mind itself as the correlative prefix to [*i.e.*, inseparably coupled in the mind with] the phenomenon observed. By the general acknowledgment of philosophers this idea is so strictly a necessary idea as to be entirely irremovable from the conception of any change: to cut the tie between them, and think of phenomena as *not effects*, is impossible, in fact, even to the very writers who propose it in theory.” A productive power, though unrevealed to sense, must, then, be sought for behind the things produced. To revert to our well-worn illustration,—the movement of the first billiard-ball must be accounted for, or nothing is finally explained.

In one respect the backward search for the primal cause of all things has, of late, been made easier for the Materialist, and a guess of ancient science has been confirmed. Modern

experiment has taught us that the various effects ascribed to the supposed forces of matter are mutually interchangeable; that force, arrested in one manifestation and seemingly absorbed, is not destroyed, but transmuted. The old fable of Proteus, as has been often said, is exactly realised in nature as she appears to the eye of modern science. Bind her you cannot, for she forthwith reappears in a new shape. The motion of the smith's hammer, arrested by the anvil, sets the atoms vibrating and is changed to heat; whilst heat in the furnace of the steam-engine results in molar motion. An electric current can be made to produce magnetism, and *vice versa* magnetism to give rise to the phenomena of electricity. The galvanic current is an effect (in the physical sense) of chemical changes, and is also (in the same sense) a cause of them. Heat, electricity, radiant energy, and chemical action, are mutually convertible, can all produce motion, and be, in turn, produced by it. More than this, there is reason to conjecture that the effects of force, differing as they do in their action on ourselves as sentient subjects, may be identical when considered in their own nature, or, as we say, *objectively*; and that all are resolvable into modes of motion. Such an objective identity with motion is considered to be already established in regard to light and heat. Motion appears the simplest effect of force, and everything points to the probable resolution of all other phases or effects of force into this one mode of manifestation. That accomplished, physical science will have verified the datum of Democritus. We shall have matter in motion, in void space, as the apparent beginning of physical things. There the science of nature must come to a stand; the investigation of phenomena can take us no further back. But behind the ultimate phenomenon of motion the materialist assumes a force as causing motion, and through motion, in its successive phases, producing all other phenomena. This force is supposed to reside in atoms, the ultimate particles of matter. In modes yet to be explained it leads on to combinations of ever-increasing complexity, and is displayed in higher and higher developments of power; rising from mechanical to chemical, from chemical to vital, from vital to mental manifestations. Without diminution or increase, by imperceptible gradations, it ascends through the infinite series of physical existence,—from the glowing hydrogen and nitrogen of the incandescent nebula to the light of reason in the brain of man. Such is the theory we have to deal with.

It will be seen that the Materialist herein agrees with the Theist,—that he asserts, and, so to speak, believes in, a First

Cause ; differing in this from Hume and the Phenomenists : for the scepticism of Hume is as fatal to Materialism as to Theism. But the first cause of the Materialist is mechanic force, or matter endued merely with mechanic force, and wanting not only mind and consciousness, but sensation, and even life. Yet this dead matter, or, if you please, this mindless unconscious power, is the supposed origin of life, sentiency, and self-conscious intellect. What we have to consider is, whether this be a thing conceivable.

It is implied in the very notion of an originating cause that it shall be adequate to the production of its appropriate effect. No words can make this matter clearer. But here you will, of course, bear in mind the distinction between cause in the proper sense, and in the sense of mere physical antecedent. In regard to the latter, there is no necessary resemblance between it and the natural occurrence of which experience has shown it to be the invariable precursor, although in familiar language the two things are, as we have seen, coupled together as cause and effect. For example, there is nothing in the qualities of oxygen and hydrogen that could *à priori* lead one to suppose that the result of their combination could be a substance like water, which differs in every sensible quality from either of its natural predecessors or parents. In the physical antecedent we cannot, as Hume rightly teaches, by mere dint of thought and reasoning, discern the presence of any power or quality adequate to the production of any effect at all, far less to the production of any particular effect. And when we recur, as we must recur, to the super-sensuous, or metaphysical, notion of cause, we are at the same time carried back by reason behind all the phenomena of nature to some real energy in which they all originate, and by which they are maintained. When, therefore, I insist that the cause must appear to the mind adequate to the production of its appropriate effect, it is of this *vera causa*, this true originating power, that I am speaking. But the proposition is one not capable of proof, for it relates to a simple primary idea, of which no analysis is possible. I can only throw myself upon the general consciousness of mankind, and beg you to ask yourselves whether it is not as I say.

Now, the Materialist assumes, as we have seen, that he has at his disposal a force self-capable of the wonderful series of transmutations which has been enumerated. The series includes as its last two terms the ascending steps, first, to vital, and thence to mental, manifestations. Let us fix attention on the last step but one,—that, namely, from inorganic matter to living organisms. Observation has, it is

true, as yet failed to discover any case in which even the lowest organism appears to have been generated out of inorganic matter. Let it, however, be assumed that such a sequence of phenomena,—no more, remember, than a sequence of phenomena,—may be at last recognised as sometimes occurring, or as having at some time occurred in the course of nature,—there will still remain at this upward step a huge difficulty for the Materialist. Beginning, as he must, with separate atoms endued with motion, and this motion resulting in attractions, repulsions, and mutual affinities, he has with these, when we arrive at animated nature, to build up *an organic whole*. Now, an organic whole is not the mere sum total of the constituent atoms. These, as we all know, are in perpetual flux in every living creature. “The parallel,” says Huxley, “between a whirlpool in a stream and a living being, which has been often drawn, is as just as it is striking. The whirlpool is permanent, but the particles of water which constitute it are incessantly changing. Those which enter it on the one side are whirled around, and temporarily constitute a part of its individuality; and as they leave on the other side their places are made good by new comers.”* The turmoil of molecules in a living creature may, he thinks, be justly likened to the great wave of the vortex below Niagara, which for centuries past has maintained the same general form, though the component particles of water are changing every moment (*The Crayfish*, p. 84). One might almost think that Samuel Taylor Coleridge was speaking, and with Coleridge I continue:—“As the column of blue smoke from a cottage chimney in the breathless summer noon, or the steadfast-seeming cloud on the edge point of a hill in the driving air-current, which, momentarily condensed and re-composed, is the common phantom of a thousand successors,—such is the flesh which our bodily eyes transmit to us, which our hands touch. Not only,” he proceeds, the “characteristic shape is evolved from the invisible central power, but the material mass itself is acquired by assimilation. The germinal power of the plant transmutes the fixed air and the elementary base of water into grass or leaves, and on these the organic principle in the ox or the elephant exercises an alchemy still more stupendous. As the unseen agency weaves its magic eddies, the foliage becomes indifferently the bone and its marrow, the pulpy brain or the solid ivory. That what you see *is* blood, *is* flesh, is itself the work, or, shall I say, the

* Huxley, *The Crayfish*. Kegan Paul & Co., London, 1880.

translucence of the invisible energy, which soon surrenders or abandons them to inferior powers (for there is no pause, no chasm in the activities of nature), which repeat a similar metamorphosis according to *their* kind. These are not fancies, conjectures, or even hypotheses, but *facts*, to deny which is impossible, not to reflect on which is ignominious."*

We see, then, that an organic whole imports a distinct and individualised agency, whereof the identity consists not in the ever-changing material, but in the living principle, which on that changing material imposes a definite form. The profound and candid Lange clearly recognises the difficulty which here arises for the materialistic thinker:—"Sensation," he says, "is found only in the organic animal body, and here belongs, not to the parts in themselves, but to the whole. We have thus reached the point where Materialism, however consistently it may be developed in other respects, always either more or less avowedly leaves its own sphere. Obviously with the union into a whole, a new *metaphysical* principle has been introduced, that by the side of the atoms and void space appears as a sufficiently original supplement. . . . The organic whole is, then, a wholly new principle by the side of the atoms and the void, though it may not be so recognised."†

This leads on to what appears to me an insuperable objection. Atoms in motion, and, of course, a void space to move in, are, it will be remembered, the postulate of the Materialist. Sensibility for the atoms is not demanded. If it were, other considerations would be opened, to which I shall hereafter advert. Given, therefore, the non-sentient atoms, how is the sentient to be developed out of the non-sentient? I again refer to Lange, who thus pursues the subject of my last extract. "The difficulty," he says (*id.*, p. 146), "which here again suggests itself of fixing the exact seat of sensation is the most important point, completely evaded by the Epicurean system, and, in spite of the immense progress of physiology, the Materialism of the last century found itself at precisely the same point. The individual atoms do not feel or [if they did] their feelings could not be fused together, since void space, which has no substratum, cannot conduct sensation, and still less partake of it. We must, therefore, constantly fall back on the solution,—the motion of the atoms is sensation." But he asks, a few lines further on,—“How can the motion of

* Coleridge, *Aids to Reflection*, p. 392. Pickering, London, 1836.

† *History of Materialism*, vol. i., p. 144. Trübner & Co., London, 1879.

a body in itself non-sentient be sensation? *Who* is it, then, that feels? How does the sensation come about? Where?"

With these last words of Lange, the full difficulty of the problem opens upon us. Mere animal sentiency may perhaps exist without any degree of consciousness, as, for example, in the oyster. But the philosophy which would explain the Kosmos as the effect of the forces of matter must show those forces to be adequate causes of conscious sensation in man. Here, however, on the confession of men themselves strongly attached to atomic Materialism as a physical theory, we reach the brink of an impassable chasm. "On the atomic theory," writes Lange (*id.*, 23), "we explain to-day the laws of sound, of light, of heat, of chemical and physical changes in things, in the widest sense, and yet atomism is as little able to-day, as in the time of Democritus, to explain even the simplest sensation of sound, light, heat, taste, and so on. In all the advances of science, in all the modifications of the notion of atoms, this chasm has remained unnarrowed." Even when science shall have succeeded in constructing a complete theory of the functions of the brain, and in showing clearly the mechanical motions, with their origin and their result, which correspond to sensation, she will be (I again recur to the words of Lange) "for ever precluded from finding a bridge between what the simplest sound is, as the sensation of a subject,—mine, for instance,—and the processes of disintegration in the brain which science must assume in order to explain this particular sensation of sound as a fact in the objective world" (Lange, *id.*, p. 23). To the same purpose Professor Tyndall, who, on this point, will not be a suspected authority, says, in his article entitled "Virchow and Evolution" (*Nineteenth Century*, November, 1878),—"Here, however, the methods pursued in mechanical science come to an end; and, if asked to deduce from the physical interaction of the brain molecules the least of the phenomena of sensation or thought, we must acknowledge our helplessness. Between molecular mechanics and consciousness is interposed a fissure [the Professor is thinking of the Alpine glaciers] over which the ladder of physical reasoning is incompetent to carry us."

But, if no mechanical theory of the universe can account for mere sentiency, how complete must be the failure of every such system to take the last upward step from vital to mental, and to resolve the problems of human thought and feeling. "The special case of those processes we call intellectual," says Lange, "must be explained from the universal laws of all motion, or

we have no explanation at all. The weak point of all Materialism lies just in this, that with this explanation it stops short at the very point where the highest problems of philosophy begin " (*id.*, p. 30). Man himself is, so far as our experience extends, the highest product of the universe. Is it rational,—is it possible,—to regard him as the effect of something destitute itself of mind and consciousness? Can the effect be more and greater than the originating cause? It may, indeed, be less, but can it, I repeat, be greater? Just in this point lies the vast advantage of those who, in any form, hold to the doctrine of an originating mind. On either side an assumption simply stupendous,—for the moment let me call it an assumption,—must be made when we endeavour to account for this stupendous universe, of which we form a part. Some one, perhaps, will interject, But why endeavour to account for it? The question is foreign to our immediate purpose; but I reply, in passing, because we cannot help attempting. The problem of existence is thrust upon us. *We are*, and know there was a time when we were not. We know ourselves to be the effects of an unknown power. Not to suppose a cause is simply a thing impossible. Some cause of all things,—that which I just now called "an assumption,"—is, then, no assumption, but a belief, which is inevitable. The belief of the Theist is in a Being not less than man, but immeasurably greater, who of the fulness of his life has given us a portion. The first cause of the Materialist is matter in motion,—nothing more,—and I ask again is such a cause of things conceivably adequate to the production of the known effects? Can we so explain to ourselves our own rational existence? We have seen materialistic explanation brought to a stand before the phenomenon of mere organic life. How can it deal with the fact of conscious personal existence? Have I, then, no meaning when I say, I AM? Let us ask ourselves that question, for it is in vain to argue with those who will not face it. Then, are we, in deference to supposed deductions from physical experience, to give the lie to that inner consciousness which tells us that we are other than, and more than, the material organism to which our life is for the time inexplicably bound; that the *mind* of man is not his *brain*, nor his life, the sum of the mere vital forces which are its perishable instruments? Can we, indeed, believe that saint and sage, philosopher and poet; the play of fancy, the method of reason, the struggles of the Will, the warnings of the Conscience, with all that belongs to the abysmal deeps of Personality; all the drama of history; all the passion of life; are, as this pseudo-science pretends to teach us, the mere outcome and expression of molecular change, all products

alike of the fortuitous concourse of atoms? Rather let us confess an ineffable mystery, than thus darken counsel by words without knowledge!

The notion of a self-transforming power, which becomes of itself at each upward movement more than itself, is no solution of the riddle of the world. Each successive change requires a cause. Under the term "development" we only conceal the difficulty, for that which is developed must have pre-existed potentially in the germ. Out of matter we can get nothing which hypothesis has not first put into it; and, if mind be the outcome and effect, nothing less than mind will suffice as the cause and origin. It may be argued that the creative ascent to man is by an infinite gradation extending downwards and backwards into past Time through æons of lower existence. But this does not diminish the requisite creative power. It is not as in mechanics, where the smallest force, with time to work in, may suffice to the mightiest tasks. For it is here a question, not of quantity, but of quality. "In not a few of the progressionists," says an authority already quoted, "the weak illusion is unmistakable, that, with time enough, you may get everything out of next to nothing. Grant us,—they seem to say,—any tiniest granule of power, so close upon zero that it is not worth begrudging; allow it some trifling tendency to infinitesimal increment; and we will show you how this little stock became the Kosmos without ever taking a step worth thinking of, much less constituting, a case for design. The argument is a mere appeal to an incompetency in the human imagination, in virtue of which magnitudes evading conception are treated as out of existence, and an aggregate of inappreciable increments is simultaneously equated,—in its cause to *nothing*, in its effect to *the whole of things*. You manifestly want the same causality, whether concentrated on a moment, or distributed through incalculable ages; only, in drawing upon it, a logical theft is more easily committed piecemeal than wholesale. Surely it is a mean device for a philosopher thus to crib causation by hair-breadths, to put it out at compound interest through all time, and then disown the debt. And it is vain after all; for, dilute the intensity and change the form as you will of the power that has issued the universe, it remains, except to your subjective illusion, nothing less than infinite and nothing lower than divine."

Fairly viewed, the facts import that at every step in the ascent there has been a fresh influx of power, a gradual imparting of new qualities. We may grant to the physicists that the stock of mere physical force has been a constant quantity. But it is rational to hold that its persistence has

been accompanied by gradual infusion of transforming power and purpose, of which physics can take no account, and to do the tasks of which material force has been, as it were, set as a bond-slave.

Still, however, there will recur the old question, How are we to explain the apparent dependence of mental phenomena upon material arrangements? A single clot of blood upon the brain will destroy consciousness. And how shall we account for the phenomena of insanity, and of old age, unless we regard the mind as an effect of the material organism? Is it not true, as the German says, "Without phosphorus no thought?" The argumentative force of these questions depends upon the fallacy of which Hume has furnished the refutation already quoted. Philosophy does not justify us in asserting that the concomitant phenomena of mental and cerebral action are related to one another as cause and effect. They are to be regarded as conjugate effects of an unknown cause which has coupled them together, perhaps only for a time. To say that consciousness and thought are *produced* by the motion of the molecule of the brain is to outstep the limits of physical science, and, more than that, to state a proposition which is absolutely inconceivable. To use the language of Professor Tyndall, "it eludes all mental presentation." Vibrations of matter cannot be conceived of as translated into thoughts and feelings. This would be to cross the unbridgeable chasm between mind and matter. And there is this additional reason for not regarding the mental as products of the accompanying material phenomena. The molecular changes in the substance of the living brain result in the generation of nervous force. The physical series of events is complete in itself, without reference to the synchronous mental series. The energy developed in the brain is, no doubt, a physical force. As such it can be fully accounted for. It disappears in the performance of its appropriate physical work, including not only those material phenomena (whatever they may be) which accompany thought, but digestion, secretion, respiration, muscular action; in short, in the provision of the main supply of power for every vital process. We have every reason from analogy to believe that the dynamic account of expenditure and product could be made out, and exactly balanced, were our physiological knowledge equal to the task. But in such an account it would not be possible to place "thought" to credit as a product of expended force. The account would balance without it. "That metaphysical ghost the Ego" (it is Huxley's phrase) suddenly looks in on the completed calculation of the physicist, as an unwelcome visitant

from some strange region, refusing to be accounted for, or to be explained away. The mental power developed simultaneously with molecular changes in the brain is, therefore, not a phasis of the material energy developed. It cannot be computed in foot-pounds. "Consciousness on this view," says Tyndall, in the article already cited, "is a kind of by-product, inexpressible in terms of force and motion, and unessential to the molecular changes going on in the brain." Except the term "by-product," which implies causal connexion, we may accept this statement. A little further on in the same paper Tyndall quotes himself as inquiring, "What is the causal connexion between molecular motions and states of consciousness?" "My answer," he continues, "is, I do not see the connexion, nor am I acquainted with anybody who does." It is no explanation to say that the objective and subjective are two sides of one and the same phenomenon. Why should the phenomenon have two sides? This is the very core of the difficulty. There are plenty of molecular motions which do not exhibit this two-sidedness. Does water think or feel when it runs into frost-ferns upon a window pane? If not, why should the molecular motion of the brain be yoked to this mysterious companion—consciousness? We can form a coherent picture of all the purely physical processes,—the stirring of the brain, the thrilling of the nerves, the discharging of the muscles, and all the subsequent motions of the organism. We are here dealing with mechanical problems, which are mentally presentable. But we can form no picture of the process whereby consciousness emerges, either as a necessary link, or as an accidental by-product, of this series of actions. The reverse process of the production of motion by consciousness is equally unrepresentable to the mind. We are here, in fact, on the boundary line of the intellect, where the ordinary canons of science fail to extricate us from difficulty.

It is a favourite saying of the ultra school of Materialists that the brain secretes thought as the liver secretes bile. In the light of the foregoing observations we may perceive the full absurdity of such a statement, as of others of the like coinage. Such language has no real significance, except, indeed, as displaying that the speaker who employs it has failed to grasp the facts of the case. Our conclusion, then, is that the association of the human mind with a physical organism is not ground on which the philosopher is warranted in regarding mind as the mere effluence and expression of material changes.

As I have quoted largely from Professor Tyndall, it is as well to say, that whilst glad of him as a useful ally in what

he calls "laying bare the central difficulty of the Materialist," I am by no means content with his conclusion of the whole matter. "If," he says, "you consent to make your soul a poetic rendering of a phenomenon which, as I have taken more pains than anybody else to show you (!), refuses the yoke of ordinary physical laws, then I, for one, would not object to this exercise of ideality." It is impossible to accept as satisfactory this jaunty concession to the faith of mankind. We know what the Professor means when he relegates a belief to the ideal realm. It is to him, as to many other votaries of physical science, the world of unreality. Rather would I profess with Robert Browning, "God and the soul the only facts for me."

"Prove them facts?—That they o'erpass my power of proving, proves them such,"

"Fact it is I *know* I know not something which is fact as much."

I content myself with this passing protest, for my present design is rather to expose the fallacies of Materialism than directly to vindicate a more rational creed.

I have had more than once to fall back upon the general consciousness of mankind in proof of an assertion. Such appeals are not to be avoided in a discussion like the present, but are not always satisfactory. Some seem to find consciousness a blank, where to others it appears to render a clear verdict. But in regard to the distinction between mind and matter, so far as human knowledge goes, it happens that the question can be brought to a conclusive test. It is this: All material objects appear to occupy a certain space. In the language of metaphysics, extension is an attribute of matter. The mind, on the contrary, with its faculties and affections, cannot be thought of as extended. Neither long measure suits them, nor square, nor cubic; love and hatred, hope and fear, honour and honesty, will and conscience, occupy no space; have neither length, breadth, nor thickness. Weight, and other measures of material force, all of which have relations to space, are equally inapplicable. Mental powers are, as Tyndall puts it in the passage I just now cited, "inexpressible in terms of force and motion." So much is clear beyond all possibility of doubt or cavil.

On this ground we are justified in treating the chasm between mind and matter as, to human conception, absolutely impassable, and that not merely in the present state of physical science, but for ever. In truth, we know more of mind than we do, or ever can, of matter. Men of Tyndall's way of thinking recognise this chasm,—this "fissure," which

their "ladder" is too short to cross. But they are under an illusion common in the case of those who limit their studies to physical nature. They place themselves, in idea, *on the wrong side of the gap*. They think they can approach the problems of mind from the side of matter, and try in vain to lay the plank across. But in reality they stand with the rest of us on the opposite edge of the chasm.

We know less, I repeat, of matter than of mind, and always must do so, for the simple reason that we ourselves are minds. Of matter, whatever we may believe, we know directly nothing but its phenomena,—not the thing in itself. Here we may almost shake hands with the school of Hume. How far that school, generally held in reverence by Materialistic thinkers, can go in the direction of pure subjective idealism is shown by John Stuart Mill, who would resolve the external world into "permanent possibilities of sensation." Huxley, too, has hinted at his own possible escape from the platform of Materialism through the same trap-door.

It has been attempted to reform the hypothesis of Materialism in several ways with a view to evade the difficulties which have been pointed out in regard to the evolution of the sentient and intelligent from the non-sentient and non-intelligent. The course pursued has been essentially philosophical, namely, to import into the supposed cause the qualities known to appear in the effect. Mind and a thinking power have accordingly been assumed, either as qualities of the universe of matter as a whole, or of the constituent atoms. Upon the former hypothesis of the universal diffusion of soul in matter, Materialism merges in Pantheism. Such a notion, taught by Paracelsus and others, is well known as the doctrine of *anima mundi*. The other method is adopted by Priestley in his lectures on "Matter and Spirit," commended by Bain as one of the ablest expositions of Materialism in the last century. It has recently been revived in a new shape by the late Professor Clifford, in his doctrine on Mind-stuff, and has even found an expositor amongst ourselves in a pupil of that accomplished and admirable man. My objection to the doctrine, so far as it here concerns us, may easily be anticipated from what has gone before. No theory which disperses sentiency and intellect amongst the atoms composing our bodily frame can account for that conscious unity which is the most intimate of our convictions. Mind as it exists in the atoms is of course to be supposed something less than human; that being so, the summation, or fusion of their intellectual forces, or even the bringing of these forces to a focus, were any such processes imaginable, do not give us the required effects

in the production of human consciousness. It is quality which is wanted, and the physicist is ever seeking to fulfil the requirement by accumulating quantity. In illustration of this topic, I cannot forbear borrowing a quotation of Tyndall's, from the German Materialist Ueberweg, in a letter to Lange. The passage is as follows:—"What occurs in the brain would, in my opinion, not be possible, if the process which here appears in its greatest concentration did not obtain generally, only in a vastly diminished degree. Take a pair of mice and a cask of flour. By copious nourishment the animals increase and multiply, and in the same proportion sensation and feelings augment. The quantity of these latter possessed by the first pair is not simply diffused among their descendants, for in that case the last must feel more feebly than the first. The sensations and feelings must necessarily be referred back to the flour, where they exist, weak and pale, it is true, and not concentrated as they are in the brain."

This passage presents itself to me, I confess, as quite a burlesque of the doctrine of Mind-stuff. Ueberweg, it will be seen, prefers to trace the sensations of the increasing family of young mice not to the organic power transmitted through the parents, and impressing a form on the assimilated particles of the food consumed, but to similar feelings, "weak and pale, it is true," in the flour itself! A Cheshire cheese or a bunch of tallow candles would, no doubt, be found to possess like sentiments. Surely Ueberweg, in penning this absurd passage, cannot have reflected that the same particles which might nourish mice might also form the food of a pair of cats, or even of a human couple, and would, in that case, be proved by his argument to possess the sentiments, not of mice alone, but of their natural enemy and of mankind.

At the beginning of this lecture I adverted to the theory of Darwin, as tending to favour the spread of Materialism. Darwin has, in fact, revived "the simple and penetrating thought," as Lange calls it, first offered by Empedocles to the thinkers of antiquity,—that adaptations preponderate in the animated world just because it is their nature to perpetuate themselves; while what fails in adaptation has long since perished. In the light of this idea the appearance of design in creation may seem explicable without resort to the hypothesis of a creative mind. Now and then, though rarely, Mr. Darwin himself writes as if this were a legitimate inference from his theory. Thus at the beginning of the last chapter of his work *On the Origin of Species** we have the following passage:—

* Sixth edition, p. 204.

"Nothing at first can appear more difficult to believe than that the more complex organs and instincts should have been perfected, *not* by means superior to, though analogous with, human reason, *but* by the accumulation of innumerable slight variations, each good for the individual possessor." "Surely," observes Martineau, an authority with some, commenting on this passage, "the antithesis could not be more false were we to speak of some patterned damask as made, *not* by the weaver, *but* by the loom; or, of any methodised product as arising, *not* from its primary, *but* from its secondary source. All the determining conditions of species,—viz.: (1) The possible range of variation; (2) its hereditary preservation; (3) the extrusion of inferior rivals,—must be conceived as already contained in the constituted laws of organic life; in, and through which, just as well as by unmeditated starts [or, as he says elsewhere, "creative paroxysms"], reason superior to the human, may evolve the ultimate results." To which I would add that some of the laws of organic life, upon the assumption of which Darwin works out his explanations, are in themselves so marvellous,—for example, a taste for beauty in the female pheasant coincident with our own,—that we may well transfer our wonder from the "patterned damask" to the "loom" itself. And behind these postulated laws a power, as we have seen, is wanted. As Max Müller reminds us, "even Charles Darwin requires a Creator to breathe life into matter,"—and, indeed, a good deal more than mere life. No scientific explanation even touches the ultimate dynamical question. Light is thrown on the methods of creation, but the creative power remains a mystery beyond the sphere of science.

I have thus endeavoured, I fear at too great length, to present you with a sketch of one branch of the argument against corpuscular Materialism (the only popular form of the doctrine of Materialism), as it presents itself to my mind. We are, I have contended, absolutely unable to conceive that the organic and sentient wholes which make up the animal world can have sprung from inorganic, non-sentient atoms, without a new infusion of power, still less that the self-conscious minds which constitute the world of man can have had such an origin. To the difficulties thus raised the Materialist has only one reply, which consists in the hypothesis that the atoms themselves are, from the beginning, endowed with all the powers, including the power of thought, which ultimately make their appearance on the stage of Being. I have endeavoured to show, with the help of better illustration than I myself could bring to bear upon the subject, that even this hypothesis is insufficient to account for the facts and the

phenomena, either of sentiency or intellect. The attempt to reform the hypothesis so as to supply at the beginning a cause adequate to all that is finally developed in the result, can only end in that very supposition of a Divine Original which Materialism repudiates. Nothing less than God can be the adequate cause of Man. It has, indeed, latterly been attempted to evade this conclusion in a strange way. To secure the sufficiency of a mechanic force as the origin of things, Man, as the supreme effect, is degraded to the level of an automaton. There is a sort of consistency in thus completely banishing mind from the universe; yet it is strange to think of the trouble these acute intellects are taking to persuade us that we and they alike are mere magnetic mockeries,—the ephemeral result of unstable combinations of matter. By first giving the lie to our perceptive constitution, and then inviting us to confide in suicidal conclusions founded upon data furnished by this discredited witness, they involve themselves in a tissue of contradictions, and we may safely leave their refutation to the common sense of mankind.

The secret sources of disbelief, as of belief, often lie beyond the reach of logic, deep in men's character and history. What appears to me convincing argument may find no way to the recesses of another's mind, may fail to break through the crust of inveterate mental habit, or prove futile in presence of deficiencies which are organic. Yet I hope that to few, to whom the argument may not have been familiar, and who may have been drawn in what seems to me the wrong direction by prevailing tendencies, I may, perhaps, have succeeded in showing that the difficulties of the question are in reality enormous; and that it is at least utterly unwise to draw from Materialistic premises conclusions which are repugnant to practical good sense, or, what is still worse, which seem to liberate us from obligations hitherto deemed sacred.

The CHAIRMAN tendered the thanks of the meeting to Mr. Justice Richmond, and to Mr. David Howard, V.P.I.C., and then read the following communication from the Rev. Canon Saumarez Smith, D.D., Principal of St. Aidan's College:—

BIRKENHEAD, *March 30.*

Sir,

Mr. Richmond's paper seems to me to be an admirable one in tone, in style, in argument. He is careful to avoid all personal censoriousness, whilst he plainly condemns Materialism, and shows it to be an *inadequate*

and an *irrational* theory, with a hint also (at the end of the paper) that it is at least, likely to become an *immoral* theory.

The danger to which the writer alludes (p. 322) of "persons unused to philosophical inquiries" being misled by the fascinations of scientific discovery into an acceptance of the dicta of scientists concerning "causation," as if they were "scientific," and *therefore* trustworthy, is, I believe, a very real danger.

The fact is, that when we begin to speak of causes, "originant" forces, "organific" forces, "conscious sensation," and the like, we leave the province of (what is now, by a limitation of the term, called) "science," and become perforce *metaphysicians*, *i.e.* philosophisers about the non-sensuous or super-sensuous.

And philosophy, if it is to be anything more than negative scepticism or a suicidal process of reasoning, must admit both *mental* and *material* phenomena to be factors in the mighty problem which philosophy is ever endeavouring to solve. This granted, let men push "sensationalist" or "idealist" notions as far as they may, we are driven at last to the ultimate question, What is the "productive power, though unrevealed to sense," which "must be sought for behind the things produced"? Three answers are possible: (1) That of the Materialist *proper*, I believe that from Matter everything is evolved; (2) that of the Theist, I believe that Mind must be the originating force; (3) that of the Agnostic, I do not know. Which answer, then, is most reasonable when we take *all the facts* into consideration? Is it to say with Lange, "The motion of the atoms is sensation" (p. 8), or to adopt Prof. Clifford's doctrine of mind-stuff, and thus by a glaring *petitio principii* invalidate all after-display of logical acumen? Is it not far more reasonable to say (the ultimate question being, we remember, a "dynamical" one), that our highest notion of productive power, *i.e.* the notion of Mind and Will, must be connected with the primary super-sensuous cause of all motion and energy?

But the Agnostic steps in, and says, "You cannot know this inscrutable Power." Now there is, be it remembered, an ambiguity in the use of this word "know." The Theist, and those who recognise the Bible as the book of highest authority in religious matters, will, to a certain extent, concur with those who say God is inscrutable, or "unknowable." (Psalmists, Prophets, and Apostles, might be cited as intimating that God's ways are "past tracing out.") But is there not a real, though incomplete, knowledge of the supra-human, supra-material causative power attainable by philosophical faith? I mean that faith, which is the rational issue of the exercise of our mental powers upon "metaphysical" questions,—questions which, as Mr. Richmond clearly reminds us, are inseparably associated with the "why" and the "how" to which (physical) scientists can give no answer while acting within their own province; for "the knowledge of a producing cause is beyond the scope of science." The passage in the paper (p. 330), "Man himself . . . without knowledge" admirably puts before us the necessity of *belief* in some primary cause, and the advantage of the belief of the Theist over that of the Materialist.

The Judge insists with proper emphasis (for it is a cardinal point) upon the fact that the question of originating force is "a question not of quantity but of quality" (p. 331).

"Allow time enough," says the advocate of "natural development," "and everything will come out of the primary granule of matter." But this granule must either have itself possessed a creative power, or it must have been, *in a manner which "science" cannot explain*, endowed with a non-material germ of vitalising and organic energy, which was to be gradually evolved and perpetually sustained.

Whence came the energy? how is it directed into the organising channels? and how did that granule come into existence?

Philosophy says, "We must believe in Mind and Personal Will."

Religion and moral impulses lead us higher, and we say, "We believe in God Almighty, Maker of all things visible and invisible."

This belief in God is, at any rate, a more reasonable and a more adequate answer to our searchings after the cause and origin of things than any Materialistic scheme of philosophy can be.

The last sentence in the paper reminds us that Materialism, when logically carried out, proves to be an *immoral* as well as an irrational and an inadequate theory. (We assert this, while we fully adopt the just reservation made at the beginning of the paper, that some persons who have adopted a Materialistic creed in philosophy have by no means been immoral persons.) It is not merely *mind* but *conscience* that is attacked by Materialism. And our conscience as well as our intellect repels the theory as one which, logically, can find no place for the stupendous problems of sin and righteousness, of right and wrong. These are problems which must present themselves to every thoughtful man, whatever practical conclusion he may come to in the matter of religious belief. A philosophy that ignores these problems is no true philosophy. They are problems with which "science" cannot deal,—problems which "philosophy" must face, but problems on which satisfactory light can only be gained by "revelations" from God.

I am, &c.

Professor ODELL said that all classes were, more or less, occupied with the question of Materialism, and he believed that there was no subject of greater importance. On the fourth page of the paper the author said, "On this account Hume and his followers, including Mill and Herbert Spencer, consistently maintain that the knowledge of a producing cause is beyond the scope of science." Was this so? Was the knowledge—he did not mean an absolute, but a partial knowledge—of a producing cause beyond the scope of science? Was such a knowledge beyond the scope of ordinary minds? He (Professor Odell) thought not. They might not see the cause of a particular effect, but they knew there was a cause somewhere. Could they see the world as it was presented to their vision and intelligence in all its might and magnitude, and yet come to the conclusion that there was no cause for it? The whole foundation of society was being undermined by the

Materialism of the present day—the Materialism of such men as Huxley, Spencer, Tyndall, and others, who taught the Materialistic doctrine. Wherever they went, in the marts of commerce or among the students of nature, they found that this Materialism was gaining ground, and gradually undermining the conscience of the nation. In ordinary conversation, in their own homes and among their own families, they found this doctrine making way, while even art and poetry had caught the infection, and were coming down to the mere level of pounds, shillings, and pence. Thus they saw that in all classes of society this Materialism was undermining morality, and he could not do otherwise than believe that it would have a most injurious effect, not only on us as individuals, but also as a country and a people.

Mr. D. HOWARD, V.P.I.C., said that there were one or two points in connexion with the subject which he thought worthy of special attention ; not that there was anything new in them, but there seemed perpetual need of repeating an old story. He believed the popular confusion which prevailed as to the words "cause" and "force," and the fact that we habitually used the word "force" for "energy," and constantly spoke of "force and the correlation of the physical forces" where we undoubtedly meant energy, while we employed the word "cause" in the most lax manner possible, was the reason for a great deal of the Materialism of the present day. Of the evil of all this he thought there could be no doubt. Even with reference to the phrase which had been used with regard to the consistency of Hume and his school, the real explanation of this was to be found in the very lax use made of the word "science," which, with them, meant merely physical science. The fact was that the Materialists and the Semi-materialists were allowed to apply the word "science" solely to physical science ; why, he did not know. Aristotle did not admit such a distinction, and no Greek or Latin thinker could possibly have allowed such a confusion of ideas with regard to human knowledge being confined to material phenomena. The very expression "scientific," nowadays, was habitually used in contradistinction to "metaphysical," and even the word "philosophy" was very often used as meaning physical science, while, behind this, there was much confusion as to the real origin of force, which, to many people, was entirely a new proposition. One objection, and in his opinion a fatal one, to the theory that thought is but a form of molecular motion, was, he thought, well put in the paper. If thought, and feeling, and life were the result of the molecular motion of atoms, it was evident that there must be caused thereby a loss of some other form of energy. The theory of the conservation of energy was, that any one of the "physical forces" might be converted into another, the total amount of force remaining unchanged, and that thus one might be measured in terms of another. Thus, to produce the electric light, a perfectly definite amount of engine power must be exerted beyond that required to overcome friction and that lost as heat, and a definite amount of light expressed in candles required a definite amount of power expressed in foot-pounds ; on the other hand, in an electric railway

a definite loss of electricity was needed to produce a definite motion of the train. If mental energy was of the same nature, if mental force was simply the result of the molecular motion of atoms, it stood to reason that a loss of forces must result when mental thought was produced. Undoubtedly every mental process was accompanied by organic changes of the brain, and, just as when it was said that the food a man consumed kept him warm, so it might be said that food caused thought. With regard to the statement that had been made, that phosphorus was required for the production of thought, he should have been the more struck with this if it were not that some of the lowest forms of fungoid life absolutely required a plentiful supply of phosphorus. If they wished to grow a certain low type of fungus, they must put phosphate into a solution employed for the purpose. If they supposed that the perfection of thought was derivable from the mere presence of phosphorus, let them endeavour to conceive the immense amount of mental energy that must reside in yeast. It was much nearer the mark to suppose that phosphorus was more closely connected with life in some way or other than with thought; but, even if this were so, life was not expressible in terms of motion; that was to say, phosphorus is burnt in the brain, and there was less of the phosphorous compounds in the brain, and more of the highly oxydised compound in the body, after thought than before. But there was a certain amount of heat produced in the burning of that phosphorus, and it did not matter whether the brain thought it or a spore of fungus consumed it. Throughout the whole of the changes of the body they could not find the faintest trace of connexion between the amount of physical energy and the amount of mental energy. It had been well put by Professor Tyndall that there was no such connexion, and it would be well to keep this before the mind, because if it were true it was absolutely fatal to the idea that thought was simply the result of molecular motion,—it might be accompanied by it, but it simply ran alongside of it, if this were true; for, if the doctrine of the correlation of the physical forces were to be accepted as a fact, it was perfectly certain that no mental thought could be produced into the bargain. If physical energy could produce physical energy, it could not produce mental energy without suffering loss, and thus the large universities must greatly interfere with the molecular motion of the universe, and, he should think, must ultimately materially diminish the temperature.

Mr. HASSELL urged the gratuitous distribution of such papers as the one just read; the "Secular Propagandist Society" were sowing broadcast publications aimed against Religion, distributing them even at the doors of places of worship.

Rev. J. FISHER, D.D., said that some years ago a learned judge, who was on circuit in Wales, had to speak of certain cases springing from socialistic combinations in that part of the country, and expressed his regret that such effects should have arisen from the so-called philosophy, which, from being the study of the higher classes, had permeated down to the lower ranks until it had brought about results which, if not counteracted, would produce a very sad and serious state of things throughout the country. He (Dr.

Fisher) moved a good deal among the working classes on the south side of the water, and he knew many who a few years ago were steady church-goers who would now say to him,—“We are Materialists, and do not believe a word of what you say.” The author had stated at the end of his paper that the difficulties to be overcome in connexion with this question were enormous ; but these difficulties were all built on the assumption that nature was body and void. But he would ask, What moved the body ? They were told that nothing was done without a cause. What was it moved the atoms ? A cause was needed. Then, again, atoms had all the appearance of being manufactured articles. Motion could not be produced without a cause, neither could life, instinct, mind, conscience, nor the moral faculty. Even the scientific theorist assumed everything. “Give me a cause of life or of organisation,” was very much like saying, “Give me a fulcrum, and I will move the world.” The scientist was without the fulcrum. How to counteract the antagonist views that had been spoken of was no easy matter. It must be remembered that such views were more agreeable than the truth ; they released the mind from ties that would otherwise be binding, and gave freedom. It was the old cry over again ; men wished to be like God, and to have no superior.

Mr. T. K. CALLARD, F.G.S., referring to the second page of the paper, said that, although the author seemed to accept Darwin's data, yet that his statements in regard to Darwin's hypothesis were in half irony.

Mr. DIBDIN said that was so, and the author put it that even if what he had stated as to Darwin were granted, still, he adds, “the question of original causation is not even approached by the physical researches to which I have alluded.”

The meeting was then adjourned.