ARTICLE II.

IS SOUL A BASELESS HYPOTHESIS?

BY THE REV. JAMES T. BIXBY, PH.D., YONKERS, NEW YORK.

"THE constant element of every observation of nature," says Langel, "is that we are the observing consciousness of an unconscious world. Among these outward objects we trace similarities; we classify them by various likenesses, one to another. But we can find nothing there that is like the inward self. The farther this self carries its irrepressible surveys, its ordering conquests, the more it opposes, to all that it meets, the point of its own tenacious unity. By whatever name it be called, through whatever phases it may run, it feels that it is something else than plant or mineral."[1]

What is the source of this difference? What is it that enables us, nay, compels us, to speak ceaselessly of self, consciousness, mind, and will?

Philosophy and religion have answered (believing that not only faith, but sound logic required and justified such a solution), "That which constituteth thee what thou art, O man, is a soul, an active, intelligent, immaterial power, different from ordinary matter and force. Thy intelligence is its intelligence, thy will is its will. Through matter and force thou canst express thoughts, but it is this soul that entertains thoughts. Through thy material organs thou movest and actest, but in the soul is the feeling, the will, the knowledge, that starts and guides these actions and movements, by laws that matter knows not, to ends of which it is all unconscious. Nay! though the elements overwhelm thee, the sea drown thee, the moun-

[1] Les Problèmes de l'Ame.

Digitized by Google

tain crush thee, yet art thou greater even in thy defeat than thy vanquisher. For thou alone knowest what is done."

Such is the lofty distinction, the unique prerogative, with which the attributes of conscious mind invest its possessor. But in these latter days all this would be changed. The same tendencies of thought that would explain the phenomena of life as but more complex and refined results of the laws of matter and motion, would include in the same physical theory the higher phenomena of mind.

Consciousness, these physical theorizers would tell us, is but a function of matter, one of its many modes of motion. Sensation is an impression on a nerve. Hope, fear, and aspiration are but subtler vibrations of the gray stuff within the skull. The thinking being is a mechanical automaton, to which consciousness is but an accidental, inessential accompaniment, each mental state being determined by some physical change and governed by some physical law. "The soul," bluntly says Büchner, "is the product of a peculiar combination of matter." "Will," in his view, "is the necessary result of the strongest motive." Maudsley describes memory as, "the organic registration of the effects of impressions on the brain substance." Ideas, according to him, are formed by the cerebral cells out of the residual force of sensory vibrations. The self or the Ego is an abstraction.

Herbert Spencer tells us that sensations, emotions, thought, are transformations of heat, light, electricity, in the brain-cells.

Similarly says Professor Huxley, in one of his lectures, "The thoughts to which I am giving utterance and your thoughts regarding them, are the expressions of molecular changes in that matter of life which is the source of our

Digitized by Google

positions as those which they occupy in the body; if they have the self-same forms and distributions of motions, this organized concourse of molecules," he inclines to believe, "would stand before us a sentient, thinking being."

Such is the result of the modern physical theory of mind. What now are the arguments that are supposed to teach this view of mind? 1st. First and foremost, the fact that mind is never known by us to exist except in combination with a material body or organism, more particularly with the brain and nervous system. 2d. The general fact, of which such numberless illustrations are to be given, that the mental manifestations stand in significant relations to their physical supports.

The soul without the brain, is, for earthly purposes at least, helpless. It is dependent for its energies upon changes in the body. In proportion to the size, weight, firmness, depth of the furrows, and quantity of phosphorus in the brain, so does the intelligence vary. Through the whole series of animal life there exists a gradual elevation of intellectual power corresponding to the increase in the size and weight and development of the brain. In insane patients, there is, in nine cases out of ten, as dissection has shown, some disease, injury, or loss in the brain. An anatomist, by injuring the peduncles of the cerebellum and certain points of the brain, can make an animal move constantly in any direction he chooses,—to right or left, forward or back, or round and round. Similar aberrant movements from similar brain injuries have been noticed in man. Professor Ferrier, by a long and carefully conducted series of experiments upon animals, has shown that all the principal sensory and motor faculties have special seats in the middle lobes of the brain, wherein they are localized, and that, by artificial lesions, any one of these powers may be destroyed at will by the experimenter; or, by artificial stimulation at the brain surface, acts and movements are produced such as usually occur through the stimulus of external objects and sense impressions.

Digitized by Google

Again, by removing layer after layer of the upper parts of the brain in animals of strong vitality, such as chickens and rabbits, their intelligence has been in a similar degree reduced till, at last, though still living, they seemed to have lost all sense. But nourished by artificial feeding, the brain has sometimes grown again, and, as it has redeveloped, the sense and mental activity of the animal has reappeared in the same ratio. Malnutrition of the left frontal convolution destroys or injures the recollection of words. A blow on the head will not only momentarily destroy consciousness, but often permanently disorder the mind. In a case given by Dr. Beattie, the patient lost all his knowledge of Greek. In a case narrated by Dr. Carpenter, a youth had all knowledge of the music he had learned knocked out of him by a blow on the head. Attacks of apoplexy, epilepsy, or fever similarly disorder oftentimes the memory and the intelligence. Even when the brain remains apparently in all its integrity, slight material disorders will injure the mind. Inflammation in its substance causes delirium. Any considerable pressure upon it will produce unconsciousness; and a very slight pressure, even that of a drop of water or blood, continuing for a length of time, may engender weakness of memory or loss of mind. Contrariwise, there are instances in the annals of science in which the accidental loss of a portion of the brain gave a musical faculty, unknown before; in another case, an attack of cholera changed a cross-grained, stolid man into one with lively fancy and literary capacity; and, in a third case, an injury to the head brought back the recollection of a language used in infancy but long since forgotten.

And just as the action of the mind in general is dependent on the state of the brain, so in particular, there is no mental process which is not accompanied or preceded by

Digitized by Google

In view of these facts, must we not recognize, it is urged, that the brain is a machine in which the energies of heat, electricity, chemical affinity, and so on, are converted into mental states? If, under certain conditions, motion is transformed into heat, as we now know it to be, why may it not, asks Strauss, be transformed into sensation? The vibration of the nerve and the sensation always accompany one another. The chemical change and the thought are ever co-present in the brain. Why not look upon them, then, as cause and effect to one another, or as opposite sides or states of one and the same thing? What use is there, in the hypothesis of the soul, or call to believe longer in it?

Such is, I think, a brief but fair presentation of the chief arguments for the physical nature of the mind. The similarities and close connections between body and soul, matter and mind, which by it are shown to exist, are, indeed, very striking, and worthy of consideration and explanation. But the materialistic interpretation fails to satisfy more than a part, and that the minor part, of the elements of the problem. There are differences, most noteworthy, radical, and irreducible, which put their veto upon any such explanation.

Put the material by the side of the mental, and compare them. Compare the reasonings of a geometrician and the blackboard he draws upon; the affection of a mother and the heat of a fire; the moral resolution of a rejecter of bribes and a magnetic repulsion; nay, take the simplest state of consciousness and compare it with the attendant oxidation of tissue or nervous vibration, and what wide and numberless incongruities separate them! As Alexander Bain, in his "Body and Mind," admits, "Mental states and bodily states are utterly contrasted; they cannot be compared; they have nothing in common except the most general of attributes, degree and order in kind."

1. The phenomena of matter are outward; they may be perceived simultaneously by several observers, and

Digitized by Google

their existence corroborated by camera, thermoscope, audiphone, and balance. The phenomena of mind are inward, and can be observed directly by no instrument and only by one observer, the subject in whose consciousness they occur. Matter has all the properties which fall under sense; it is visible, tangible, divisible, odorous, perceptible by ear or taste. The phenomena of mind have neither color nor shape; they can neither be handled nor tasted; they are neither warm nor cold, odorous nor inodorous. Matter is never aware of its own changes. The essence of consciousness is that it is thus aware of its changes.

2. Physical phenomena have a definite relation to space; they have always a certain dimension or local extended movement. Physical phenomena have also a definite relation to other physical forces. As a consequence they are quantitative, and can be weighed or measured. The phenomena of consciousness, on the contrary, have no definite relation to space, but only to time. They do not have extension, but only duration. They are not quantitative, but qualitative. They can neither be weighed nor measured with any approach to scientific precision. To speak of a thought as square or round, an inch or a foot long, as black or as white, or as weighing so many pounds, would be perfectly absurd unless it were meant merely as an adventurous figure of speech. The quantity of every material substance and every physical force known can in some form be definitely measured by reference to some conventional measuring unit. The reason why all kinds of physical force are now regarded as modes or transformations of the various motions of matter, is that when one form of force disappears and another form succeeds, the quantity of moving force still measures the same, i. e., it will raise a pound weight the same number of feet.

Now, if thought be, as is maintained by the new school, a mere transformation of physical force, a mere mode of

Digitized by Google

motion, then we ought to be able to measure it (as we do other transformations of motion) in terms of motion, and we ought to find a certain quantity of thought in the mind always answering to a certain receipt of physical force; we ought to be able to say how many foot-pounds this and that idea are equal to, and how many horse-powers of thought we shall get from a philosopher in a day by supplying to him thirty ounces of food or twenty degrees of heat to transform. That this is not an unwarranted demand upon the scientific theory might be illustrated by the fact that a few years ago a scientific writer, holding to the physical theory of the mind, soberly argued in a scientific magazine that the question as to the mental equality of the sexes was easily settled by bringing it to the physical test, and it would then be seen that the masculine machine was adapted to converting many more ounces of food, daily, on the average, than the feminine, and therefore the masculine *mind must* be superior to the feminine. But neither experience nor sound logic supports this view of the measurability of mind by the sum of physical force consumed. Were it so, the elephant ought to be the superior of man; and Barnum's giants of double intellectual calibre to an Emerson or a Martineau. Thought cannot be measured in any way by units of physical force. In the mental life there is an element of spontaneity which resists all calculation. "The nerve-cell," as one of the best modern expositors of scientific laws, Frederick Papillon, says, "is not like a muscle. It is not dependent on the outward stimulus. It is not limited to the obedient transformation of the force assigned to it, into a measurable amount of work; but it has a sovereign power which it exerts in its own way and time, through a series of operations that escape all estimates of their force and heat."

Of course, it is true that the degree of impression on the sense, is, in a certain degree, measurable. According to the weight of the body is the feeling of the pressure that it gives. But what is measurable here is the impression

Digitized by Google

upon the material organ, not the mental cognition. These two must not be confused; and when they are not, it will always be found that *pure mental action* is never measurable in terms of physical force. It cannot be measured either against a definite, fixable quantity of itself. No means for measuring it have ever been suggested. "No such means," indeed, as the late President Barnard, of Columbia College, has well said, "can be conceived." Was it not with good reason, then, that he in consequence maintained, that "a thing which is unsusceptible of measure cannot be a quantity; and that a thing which is not even a quantity cannot be a physical force"?

3. The laws of matter and mind are radically different. The law of matter, e. g., is inertia; the law of mind is spontaneity. The one is moved, the other moves. The action of the one is always the effect of some antecedent action, a transmitter of some force given to it; but it is never a cause, properly speaking. Mind, however, has such causative force and power of initiation.

Physical forces, again, in correspondence with this absolute dependence upon their antecedents, are invariable in their action. Under given conditions, they always act in the same way, and cannot be conceived as having power to act otherwise than as they do. But consciousness, on the contrary, is distinguished by its freedom. It has the power to choose; to will or not to will; to stop in full career and deliberate; weigh opposing motives; strengthen some tendencies, weaken others; form a decision and a plan and bend all things around to that.

This moral freedom is the direct testimony of consciousness. If all the phenomena of consciousness are but modes of motion, each necessarily and invariably following its antecedent; unconditional movements of a mechan-

Digitized by Google

est of all the intuitions which constitute our mental life.

4. A still further and if possible more significant contrast is to be noted. Matter is divisible. Physical forces are separable. We cannot conceive any smallest portion of either but that might be further divided. A material body, our own organism, e. g., is but an assemblage of parts. Its unity is but that of the association and action of its portions, not a unity of substance. But consciousness is indivisible. It is not transmissible, even in part, where, if possible, it certainly would be, viz., from the mother to her child. The conscious self cannot conceive itself as separable. You can conceive of an arm, a leg, or any part of your body being separated from you. There is no difficulty in that. But you cannot conceive of yourself as divided into two persons, or a third or a quarter of yourself being taken off from you. The individual self has various faculties,—perception, memory, love, judgment. But these are not separable parts of the conscious self, but simply different aspects or modes of action of one and the same conscious agent. The conscious self is not a compound, made up of certain attributes, feeling, understanding, and will, but it is the one self that feels, that understands and wills. A man's self is not a collection of sensations, a series of mental states, but it is he himself, his one self, that observes, compares, judges, divides, or unites these sensations; suppresses or fosters these mental states; turns back upon itself to refresh them or reflect upon them; and judges of previous actions or states, or plans concerning future ones.

The materialists, however, tell us that the self is simply the brain, performing its functions; and the brain, as we know, is no simple continuous substance or unit, but an organ with a multiplicity of parts, an infinity of molecules. Some six hundred million of nerve-cells, says Maudsley, are combined in the cortex of the cerebral hemispheres, and each cell itself is composed of a countless multitude of atoms. The mind, on the physical theory,

Digitized by Google

so far from being a single spiritual being, is the sum of the properties and activities of these innumerable parts, the last combination and effect of the motions of this infinitude of atoms.

But how comes it that these millions of separate parts and actions, this host of vibrations and consequent sensations, possess that *unity of consciousness* that is such a fundamental fact of all mental experience? The thoroughgoing materialist will probably answer, that this feeling of conscious unity is but an illusion, that consciousness is really but a series of states, a succession of feelings.

But the very idea of consciousness involves something more. It is self-knowledge. If, however, the consciousness be only a succession of feelings, it is impossible for any one of this series of feelings to be conscious of the whole series as itself, and equally impossible for each and all of these separate members of the succession to have, as self-knowledge, a cognition of the other feelings in the series outside of itself. Before a succession of separate, passing feelings can be recognized as a succession, the various members must be grouped together in a single thought, the receding members of the procession must be distinguished from the approaching, and the flux of the whole be measured by something that contrasts itself with this flux as, at least in relation to this flux, unchanging. A consciousness which was only a succession could never be aware of itself. The condition of self-knowledge, then, is the belief in a unity and permanence to our self, enclosing and underlying all the changes of our mental states.

Moreover, every particular process of knowing is and must be a synthesis. To constitute a perception or a judgment, we must have the various manifold qualities of the object, united by comparison and classification into a single whole. Now for the simplest synthesis, the knowing subject must have an absolute unity of consciousness. If we might suppose the nerve-cells and cerebral centres of smell to be united into one closed circle of consciousness;

Digitized by Google

and the nerve-cells and cerebral centres of taste, similarly, to be united into an entirely different consciousness within us,—it would be impossible for us to compare and cognize odors and tastes as different. We can do so now only because the consciousness in which both present themselves is one and the same. So for two sounds, an exceedingly shrill and an exceedingly low one, to be compared and judged to be different, and yet to be classified as belonging to the general class of sound sensations as opposed to sensations of taste or smell, both these sounds must enter into one consciousness, and that, too, a consciousness which also has remembered experience of the other two classes of sensations. If the self, however, be only an aggregate of successive, but in reality discrete, states of feeling; if it be but the effect of the combination and arrangement of a host of nerve-cells or other material particles,—how is this singleness of our consciousness to be explained? How is it possible? There are four alternative hypotheses, each one of which has been advanced by one or another theorist. Let us see if either of them is satisfactory.

(1) Shall we suppose each one of the material parts to have a separate consciousness, a substantial individuality, and when thinking takes place, each atom or material particle to entertain the whole of a thought? This seems to be the view that not a few of the scientific materialists (at least to judge by their language) incline to. Dr. Maudsley, e. g., distributes consciousness amongst the six hundred million of nerve-cells which form the cortical layer of the brain, and each particular cell seems to be regarded by him as the centre of its own particular idea. According to this theory there is a host of consciousnesses, of selves, in a single man. It follows necessarily that it would be impossible for this host of separate consciousnesses to have that sense of a single personality which each man feels. There would be, then, as many separate thoughts and feelings in the brain, at each instant, as there are atoms, and in place of its present unity of action, we should

Digitized by Google

have an endless anarchy. Comparison, judgment, will,—none of these essential mental acts would be possible, for they all imply a centre or a single tribunal before which all sensations, feelings, and thoughts come; where all are brought into relation to the single conscious subject, and simultaneously grasped in a single act of knowledge, so that their mutual relations may be perceived, and the necessary decisions be made.

(2) Shall we say, then, that the separate atoms, cells, or parts possess in themselves no full consciousness, but that consciousness exists in the parts in merely an elementary or potential form, in a grade too low to allow of self-knowledge, and that from the aggregation and interaction of these rudimentary portions of consciousness the full consciousness, properly deserving the name, somehow results? This is the view held by Taine, Bain, Clifford, and the other advocates of mind-stuff or double-faced units,—material, when viewed objectively; sentient, in greater or less degree, when viewed subjectively.

But by this view, consciousness and thought are made divisible things. The consciousness which results from the action of all the parts, is, in these parts themselves, parcelled out in portions too small and rudimentary to possess true consciousness. It is supposed that these parts possess each of them a bit of mind-stuff; a subjective side; but it is only on the lowest, hardly distinguishable, grade of sentiency, a promise and potency of mentality, but a promise which is not and cannot be realized in themselves. Imaginative speculation may, of course, indulge the fancy that these separate unconscious parts, by mere aggregation and closer knitting together, may become a single conscious self. But to sober thought and sound logic such a production of the highest out of the

Digitized by Google

ceived as able to have that unity of consciousness by which it knows itself as an "I" and all its thoughts and feelings as belonging to that "I," still less can an aggregate of originally unconscious atoms by any new combination come to such self-consciousness.

A plurality of parts may, to be sure, form a unity at the point of view of one who looks at them from the outside. The two hundred parts of a watch have such a unity, but the watch is not and cannot be a unity to itself. It cannot feel itself as one being. For that conscious unit, that interior self-knowledge, there must be a real, continuous, inward unit, and human reason can never conceive that a plurality of separate parts, external to one another, such as exists in every material body (except the ultimate single atom), can conceive itself as a conscious unity. Even if the separate parts possess a rudimentary sentiency, that does not help at all in giving the knowledge of self and of all one's various states as belonging to that self, that is involved in consciousness.

(3) It is, then, impossible to get unity of consciousness from a multiplicity of atoms. To escape this difficulty and yet avoid the spiritualistic explanation, Ueberweg has made the supposition that the subject of feeling and thought is a structureless, an indivisible substance, existing in the brain, capable of sensation, and acting equally in all directions. In this, the ideational images lie embedded, and in this structureless matter the various sensations received are united in the unity of consciousness.

But in the first place, anatomy and microscopic science have no countenance to lend to this theory. The researches of the physiologists tend rather to make them believe in the supreme importance and even necessity of multiplicity and complexity in the organ of the mind, if we are to have any order of thought. M. Taine, in his work "On Intelligence," says: "The more extensive the cortical matter of the brain, the more elements has it, ca-

Digitized by Google

pable of setting one another in action. The more elements it has capable of setting one another in action, the more delicate an instrument of repetition it is. The brain, then, is a repeater of the sensitive centres, and it will the better fulfil this office, the more numerous the repeating elements of which it is itself composed" (p. 176).

Moreover, this hypothesis of Ueberweg's, supposing, as it does, an indivisible, feeling, and thinking matter in the brain, is a purely uncorroborated and, indeed, unverifiable hypothesis. Matter as we know it, is divisible, composed of parts, and exhibits neither feeling nor thought. This continuous, feeling, and thinking matter of Ueberweg's is a hybrid conception, formed by arbitrarily putting together contradictory qualities, taken partly from the realm of mind and partly from the realm of matter. It is a jumble of words rather than a coherent thought, and is burdened with all the difficulties of the theory of soul-substance which it would supersede, without any such advantages as should make it preferred.

(4) The only alternative left to the advocates of the physical theory of the soul is to limit consciousness and thought to a single central particle, so small as to be indivisible; for if the central seat and substance of the soul has magnitude sufficient to be a multiple of parts, its multiplicity of parts, as we have seen, is inconsistent with its conscious unity, and we should be obliged to seek a centre of that centre and we could not stop until we reached the indivisible atom.

Not a few philosophers and anatomists of former times believed in, and searched for, some such an indivisible

Digitized by Google

But all the researches of modern physiology and anatomy unite to disprove the existence of any one point or single particle in which alone mental activity has its seat. The elaborate experiments of Ferrier on the localization of brain-functions, which have acquired such celebrity, localize only the motor and sensory functions, not the strictly intellectual function. Ferrier thinks it probable that the seat of these higher intellectual acts is in the frontal lobes; but he does not profess to have any proof of this. The functions of these frontal lobes could not be determined either by the method of electrical excitation or by that of destruction. The removal of the frontal lobes, he found to cause no motor paralysis or other physiological effects, but simply a form of mental degradation, which may be reduced in ultimate analysis to the loss of the faculty of attention. The experiments of Goltz and Brown-Sequard show that all the parts of the gray matter of the brain are indifferently and interchangeably the instruments of consciousness. When portions of the cortex of the anterior or posterior lobes are lost or removed, it only reduces the general strength of the mind; it never takes away special faculties of consciousness, such as thought, judgment, will, comparison, and generalization.

Professor Luys, though himself strongly materialistic in his tendencies, admits this. "So far, it has been found wholly impossible to arrive at exact statements of the real constitution and topographical situation of the field of intellectual activity, properly so called."[1] If all the conscious functions were seated in a single point or particle, the numberless cuttings and removals of every possible region of the brain, made by the vivisectors in their various experiments on the brain, ought long ago to have brought the fact to light, instead of tending, as they do, to show that, in reference to thought and consciousness, all parts of the anterior and posterior lobes, if not of the middle lobes also, act as one.

[1] The Brain and its Functions, p. 181.

Digitized by Google

We find, then, by a detailed examination of these four alternative hypotheses, that none of them is satisfactory. The conscious oneness of the self can only be understood by recognizing the thinking being as immaterial in its essence.

5 A still further fact of consciousness leads to the same conclusion. As consciousness affirms of itself that it is one, so does it affirm its identity. As we cannot refer to several simultaneous selves the multiplicity of phenomena which we perceive at one and the same time, so we do not refer to several successive selves the manifold states which succeed one another upon the changing camera of consciousness. We refer all, on the contrary, to one and the same self which does not multiply itself with them and which remains as they roll by, one possessor, observer and judge of all, identical with itself throughout the long succession of the intellectual life. Not only is this personal identity, the affirmation of conscience, but it is the necessary condition of intellectual life. Without it, memory would be impossible. For a man can remember only himself, what *he* has done, and what he has been. Were not the self which remembered, the same self whose previous states were remembered, recollection would be impossible. To remember directly and actually what another has experienced, is to remember that you were not yourself but somebody else; that is, to affirm and deny at once your own identity—a plain absurdity.

Personal and continuous identity is then the condition of memory. So is it also the condition of almost all judgments, and of all inferences and reasonings. For in them all, the course of thought passes successively from one member to another. One object or proposition must be held in memory, while that with which it is compared is

Digitized by Google

If the mental subject were not really one, the simplest syllogism would be impossible. If *I* think only the major premise and *you* the minor, I get no conclusion. I must think both myself, and hold the two before consciousness in conjunction, before the conclusion can be inferred. All reasoning implies this identity of the subject to whose consciousness the successive steps of the inference appear.

Again, this identity and persistence of the self is implied in our consciousness of personal responsibility. Were it not the same self which subsisted throughout the whole of a man's existence, no man would be responsible for what he did in the past; our feeling of personal responsibility for former actions would be inexplicable; for one is responsible, evidently, for what he himself does, not for what another self did before his self came into existence.

If this other consciousness dwelt in his body, that no more makes him responsible than if it dwelt a thousand miles away. This identity of consciousness and persistence of personality is, then, one of the most fundamental of mental phenomena.

Yet while the knowing self remains unchanged, the bodily organism is in a continual state of change; a continuous stream of matter and of force is continually entering and departing. In seven years, it is said, every part is removed. In six months, nine-tenths of the body, all its softer parts, are exchanged. In the brain, the exchange is still more rapid. Every slightest thought, we are told, involves more or less disintegration of tissue. Now if consciousness is but a mode of motion of these shifting atoms, successive transformations of these successive motions; if there is no permanent spiritual being remaining through all these changes, whence this consciousness of the identity and persistency of the self, and this power of memory, involved in all reasoning, and valuable experience? How can these distinct atoms that successively pass into and out of the brain, bear in mind what their

Digitized by Google

forerunners did, desired, or planned? How is it that these various physical forces or material particles that one after another rise for a brief space into consciousness, like sea-water into the white wave-caps, and then plunge down again into the realm of unconscious matter, can remember what their predecessors felt or thought, or hand down to their own successors the memory of their experience?

It has been said that, just as a line of balls may transmit from one to the other the same movement, so may a succession of substances transmit from one to the other the same consciousness. But this is to fail to grasp the true idea of consciousness, viz., that of a *felt* continuity and identity. By transmission of the same stimuli or causative forces to the successive particles of brain-matter, similar states of feeling or thought might be evoked in the later substance as in the earlier. But these states would be merely similar; never one and the same continuous consciousness. Each would be a new and separate phenomenon, and could not stretch back to tell anything, by its personal experience, of the past.

Again, the illustration of the scar on the body has been adduced. In spite of all changes of the constituent particles, the scar remains unchanged; for each particle takes up the same position as the particle that departs, and hence preserves the form unaltered. In a similar way, the brain, it is supposed, remembers. Each sensation or thought makes a material record on the sensitive tablets of the cerebrum, and when the present atoms, composing this record, by disintegration of tissue pass away, the new ones that replace them take up the same position, and keep the character, and functions, and reactions of the brain-cells the same. Such an explanation may account for identity of shape, for identity to external inspection, but it supplies no inward, *felt* identity. It avails nothing to explain that conscious identity of the mind as one and the same

Digitized by Google

serving traces of past thought, might be retained unchanged, still there is needed an intelligent agent to read off these records. There is needed a continuing spiritual unity to bind together this series of separate conscious states.

When we try to recollect a past idea or thought or sensation, even granting that it is by some material registration or form of structure that the power to revive the idea is preserved, what is it that searches among the million impressions in the cerebral storehouse of the brain, and picks out any one called for at random? What is it that sits in judgment upon the names or ideas that troop before us, and rejects this as not the one sought for, and recognizes that as the one desired? Can matter or motion do that? Whatever material registrations may exist in the brain to facilitate the processes of memory, they are no more sufficient of themselves to account for the mental act of remembering and the knowledge we have of the past, than a card catalogue in a library is sufficient by itself to give a knowledge of the contents of the library. If there is no librarian, no reader, no understanding intelligence, to decipher, interpret, and comprehend the inscriptions, the catalogue is but a mass of waste paper. If the interpreting intelligence has no persistent identity, but is a transient state of feeling, called forth by each fresh sensory stimulus, and then retiring, to give place to a new state of feeling, as psychologists of the modern school would have us believe, then no conscious experience, and none of that progressive power and growth that come by it, would be possible. We should be as helpless before the mental work required of us as the green boy in his first five minutes in a mammoth warehouse. We should be as incapable of rational thought, self-direction, and progress, as the automaton that repeats his one or two mechanical movements whenever the string is pulled, and then drops back in his box, incapable of further action till the string is pulled again.

Digitized by Google

6. The most elementary powers and properties of the mind, then, its consciousness, its unity and identity, its powers of judgment, memory, and freedom of will, and our sense of responsibility for our past,—all are inexplicable as transformations of matter and physical force. Still more so are those higher attributes of reason and the spiritual nature which glorify man. Consider those conditions of pure mental action when we pass from objective regards and material impressions to states where extension or place exists no longer for us. Such are the striking examples offered by experiences of intense pleasure or intense pain, by fits of engrossed reflection, and by the strange phenomena of ecstasy or trance. In these states there is no longer any place. "The material world," as Bain well describes it, "is blotted out, eclipsed;—for the moment unthinkable." The soul, concentrated in itself, abstracts itself, as it were, from the body, leaves it as useless, and, launching into higher regions, seems to strip itself of all higher conditions.

The information given by the senses is of the outward properties of things. The knowledge given by experience is finite, confined to the limited circle where our survey alone can reach. But man has an imagination, a reason, that discerns the inner nature, the ideal relations of things. He has conceptions of the Eternal and the Perfect, beyond all experience or observation. He has desires, instincts, ambitions, which point to realities transcending anything in this finite and earthly universe that we know. Sensations may supply the raw material and occasions of this higher knowledge, the lenses through which we see. But through them we discern something beyond them. We disengage and purify the intuitions of time and space, axioms of geometry and number, laws of logic, scientific postulates, primitive convictions of cause, of design, of persistence, of uniformity, of divinity, which supply the eternal foundation beams alike of all science and all religion. Scientific psychology itself has abun-

Digitized by Google

dantly disproved the favorite simile of Locke, that the soul is at birth as a sheet of white paper, on which circumstances may write anything they may happen to. Rather are we justified in likening it, with Papillon, to a paper, "whereon is written from the first, in sympathetic ink, dim marks and confused shapes which the fire of sensation tints and brightens." "In the soul," he says with as much truth as beauty, "dwells a miniature picture of the whole universe, and by some mystic grace of God, a dream, as it were, of that God himself. Thought consists in becoming acquainted with all the details of that picture in little, and unfolding its meaning."

Thus not only the poet's vision, but that of the true savant, reads sermons in stones, and books in the running brooks, which are not less, but more real, than the outward qualities which the boor alone sees. The scientific imagination unriddles the hieroglyphics of nature, divines with prescient glance what only later ages, with long and hard drudgery, can prove. Before the facts required for a demonstration have been but half found out, the method is forefelt, the law surmised, perhaps rudely formulated. Empedocles anticipates Darwin in teaching the doctrine of development and survival of the fittest. Democritus divines, long before Dalton or Tyndall, the atomic constitution of matter. Newton beholds in his mental sky the law of gravity, to which by a long series of calculations, he at last finds the planets actually answering. The laws and properties of Plato's conic sections, thought out by logical deduction, unsuggested by observation, are found, two thousand years afterwards, to have been embodied from the first in the heavenly bodies. Long before the investigations of the physical realm or the reasonings and analyses of metaphysics began to furnish their logical justifications, the religious intuition in ancient seer and prophet revealed the divine oneness, and eternity, sublime intelligence and fatherly love of the Infinite Power, and even in the benighted mind of the savage, spoke of a Great Spirit and of a life beyond the grave.

Digitized by Google

One more faculty still belongs to the human spirit, which ought not to be forgetten, the moral sense, the instinct of righteousness that commands the noblest of our races so absolutely. There is a faculty perhaps still nobler than any yet mentioned, which prescribes to a man devotion, honesty, and virtue. It imposes upon him suffering for the welfare of others. "It sacrifices him," as the French philosopher, Margerie, has well said, "to his family, country, truth, justice. It immolates him upon the altar of truth and duty. Under the profound action of the religious sentiment, it subdues him, suppresses the revolts of the flesh, triumphs over the most imperious instincts, and puts him, a cheerful servant, into the hands of his God. This moral law we do not derive from observation nor from experience. These tell us what is. The moral law tells us what ought to be,—the right, distinct from the fact, often quite contradictory to it. Experience tells us *how* we *may* be *happy*. The moral law tells us how we *must* be true, pure, and good, no matter what unhappiness we go through, to be so.

The explanations of the materialists and empiricists are often very ingenious, but these higher attributes of the spirit are beyond the reach of explanation by any natural evolution or production from the mere forces of matter. What microscopic gyration of atoms or complex combination of neural tremors; what automatic sorting and packing away of impressions into cubby-holes of the brain, according to number and similarity; what up-piling, refining, or fusing of the lower impulses of matter and sense can account for such lofty attributes of the mind, such sublime far-reachings of the reason? Only a spirit

Digitized by Google

reach a gap across which no bridge of fact or reason is to be found. They who pass it, do so on no stronger support than the wings of imaginative speculation. Büchner, though an out and out materialist, admits, nevertheless, that consciousness cannot be explained from the physical relations of force and matter.[1] So Herbert Spencer asks, "Can the oscillation of a molecule be represented in consciousness side by side with a nervous shock and the two be recognized as one?[2] No effort enables us to assimilate them. That a unit of feeling has nothing in common with a unit of motion, becomes more than ever manifest when we bring the two into juxtaposition." Professor Tyndall maintains what he calls "scientific materialism." Nevertheless he feels constrained to say, "Granted that a definite thought and a definite molecular action in the brain occur simultaneously; we do not possess the intellectual organ nor apparently any rudiment of the organ, which would enable us to pass by a process of reasoning from the one to the other. They appear together, but we do not know why."[3]

Or if we turn from English science to German, we may receive from its foremost representative, Professor Du Bois-Reymond, of Berlin, still more emphatic testimony. "With the first feeling of pleasure or pain experienced at the beginning of animal life by the most elementary creature, an impassable chasm was made, separating it from the material world." "What imaginable connection is there," he goes on to ask, "between certain movements of certain atoms in my brain, on the one hand, and on the other, of facts primitive for me, incapable of farther definition, beyond all possibility of denial; facts like these, I feel pain, I feel pleasure, I taste something sweet, I smell the aroma of a rose, I hear the tones of an organ, I see something red, and the assurance just as directly flowing

[1] Force and Matter. Collingwood's translation, Introduction, p. lxiv.

[2] Psychology, p. 158. American edition.

[3] Fragments of Science, p. 120.

Digitized by Google

from these things, 'therefore I am.'" The great German naturalist regards these two orders of facts therefore as incapable of fusion into a unity, and the question of the relation of the two as unanswerable.[1]

To the testimony of these eminent savants we might add, if we had space, the similar declarations of Helmholtz, Donders, Johannes Müller, Professor Allman in his address as President of the British Association for the Advancement of Science, Professor Tait, Professor Ferrier the psychologist, and Professor LeConte the geologist. Even Taine, though advocating as a theory that matter and mind are but two aspects of one and the same substance, yet admits that the contrast between the two classes of phenomena is an absolute one.

We have here, then, the most eminent leaders of philosophy and science uniting in recognizing the inerasible contrariety of matter and mind and the inexplicability of thought and feeling by any combination of material particles, properties, or forces. But if the universal consciousness not only of mankind in general, but of the most eminent thinkers who have specially examined this question, affirm such an irreducible contrast between material and spiritual phenomena, why refuse to believe it? Why credit theories that are flatly incompatible with it? Is it not evident what inconsistencies and incredibilities such theories lead to?

If we have at the first, or there intervene at any stage of development, other elements than matter and physical force, then the theory falls. We must begin with matter and physical force alone, and say that all subsequent phenomena and events are but their developments. These developments must then be necessary; their results, the logical and perfect outcome of the primal elements.

Digitized by Google

ness. Our minds, thus, being produced by the interaction and development of matter, according to fixed laws (those conditions always surviving in the struggle for existence which best adjusted the inner conditions to the outer realities), the result must be true to its beginning. Our intuitive convictions, at least, should not be errors. On the materialistic theory, then, these intuitions and laws of thought ought to make materialism our native belief. How utterly inconsistent that our natural belief should be exactly the reverse! How incomprehensible this general trust of man in soul and in free will!

Man, say the materialists, is only a product of matter, and this matter develops and turns out its results by its own fixed, necessary laws. These results, then, must be true. There has been no free will to disarrange the necessary result of the mechanical and chemical combination. Yet when this matter, at length, wakes to feeling and thought, and these motions and chemic combinations are transformed into consciousness, we get from the conscious self, instead of beliefs and instincts in harmony with this material origin, the most stubborn and irremovable conviction of a chasm, intellectually impassable, between itself and that matter and physical force out of which it has just arisen. Why is it that this piece of mechanism turns out constantly such awkward errors for the materialist to explain away?

If thought be really, as we are assured by the materialists that it is, a form of physical force, developed simply by the laws of nature and strictly observing them, the laws of thought being only the laws of matter risen to consciousness,—why does this force, as soon as it becomes aware of itself, protest vigorously against being degraded to matter and mechanism, and declare that so far from being the helpless effect of physical changes, it is what decides, suspends, checks, and governs them? Here is an incompatibility in the theory, so radical, so utterly inexplicable, that it would of itself be decisive against the reception of the theory by any consistent reasoner.

Digitized by Google