

tubercle, which a little higher up gives origin to the greater root of the trigeminus. Another group was found in the middle of the anterior pyramid of the left side, as it ascends through the pons. In the upper part of the medulla oblongata similar cavities were observed, but they were neither so large nor so numerous. On the left side, a *smooth*, cylindrical and longitudinal canal traversed the gray tubercle, as if it had been bored by a carpenter's tool. Neither the *lower* part of the medulla oblongata, nor the spinal cord presented any appreciable deviation from the normal state.

Although it was only in the *white* substance of the convolutions that these cavities were found, yet certain other morbid changes were observed in their gray substance. In some places the nerve-cells were unusually loaded with pigment-granules; in other places they had undergone, to a greater or less extent, the process of disintegration; while here and there were scattered, over areas of variable extent, irregular masses of fat-particles of different shapes and sizes.

Consciousness. By H. CHARLTON BASTIAN, M.A., M.D. Lond., F.R.S.

"All theories of the human mind profess to be interpretations of Consciousness: the conclusions of all of them are supposed to rest on that ultimate evidence, either immediately or remotely. What Consciousness directly reveals, together with what can be legitimately inferred from its revelations, compose by universal admission all that we know of the mind, or, indeed, of any other thing. When we know what any philosopher considers to be revealed in Consciousness, we have the key to the entire character of his metaphysical system."

John Stuart Mill.

"Aristotle, Descartes, Locke, and philosophers in general, have regarded Consciousness not as a particular faculty, but as the universal condition of intelligence. Reid, on the contrary, following probably Hutcheson, and followed by Stewart, Royer-Collard and others, has classed Consciousness as a co-ordinate faculty with the other intellectual powers; distinguished from them not as the species from the individual, but as the individual from the individual. And as the particular faculties have each their peculiar object so the peculiar object of Consciousness is the *operations of the other faculties themselves to the exclusion of the objects* about which these operations are conversant."

Sir William Hamilton.

THE above quotations may suffice to impress the majority of readers with the conviction that those who wish to investigate the problems of Mental Science, should not engage in their task till they have sifted, to the best of their ability, all obtainable evidence as to the nature and mode of evolution of this mysterious something known as 'Consciousness.'

They will probably inspire many, also, with a feeling of the desirability of bringing all available evidence to bear upon the possible solution of the much disputed problem which we have presented to their notice in the words of Sir William Hamilton. Consciousness being the indispensable basis of all real knowledge, surely no subject can be more interesting than an enquiry—merely tentative though it may be—as to its nature and mode of evolution, including as this does a consideration of the question as to what parts of our organism gave rise by their activity to this universal condition of sentiency. But the subject is as difficult and as subtle as it is interesting—and is rendered all the more complex because it has been so often written about by men who, though great philosophers and abstract thinkers, have not always possessed an adequate knowledge of Physiology, wherewith to test the possible truth or falsity of their theories. The subject is strictly, in all its most important aspects, one pertaining to the physiology of the nervous system; still it is common ground for philosophy and for physiology—belonging to neither exclusively, though to both in part. The more it receives a strictly scientific treatment, starting from a basis of physiological data, the more hope will there be for the stability of the super-imposed theories. The subject must not be delivered over too exclusively to the one or to the other set of workers. There must be joint labour and co-operation. And there has, indeed, been springing up of late a rapidly growing tendency to recognise this importance of studying mental philosophy from a purely physiological standpoint, so that indications are not wanting that the subject will thus soon be cleared from the obscuring influence of many ancient and false theories—these gradually disappearing to make room for others, which, as products of a double solicitation, will be as much in harmony with the generalisations of physiology, as they are with those of philosophy.

What does or can Consciousness actually reveal to us? This is one of the questions that has agitated the minds of philosophers in all ages, and which on account of its extreme interest and difficulty of solution has given rise to the various metaphysical systems. Are we directly conscious of a *non-ego*, and if so, what is its nature—or does the *ego* itself limit the sphere of our Consciousness? In accordance with the different answers that have been given to these questions, so there have arisen different solutions of the great metaphysical problem as to

the proof of the existence or non-existence of a material world. These are just the very problems, however, which physiology, in its present stage, can and would help philosophy to solve. In fact, this has been so ably, and so exhaustively shown by Mr. Herbert Spencer in the recently issued numbers of his *Principles of Psychology*, that from our point of view nothing more would seem necessary to be said on the subject. What we now propose to do is to endeavour to reconcile some of the principal modern doctrines concerning Consciousness; to examine into the nature of the two theories alluded to in the words of Sir W. Hamilton, from a physiological point of view; and by the help of such conclusions as we may arrive at, to show how imperatively the ordinary definition of Mind needs to be widened.

Philosophers in general, we are told, and amongst them Sir W. Hamilton himself, "have regarded Consciousness not as a particular faculty, but as the universal condition of intelligence;" whilst Reid, Dugald Stewart, and others, "have classed Consciousness as a co-ordinate faculty with the other intellectual powers." No clearer exponent of the first theory can be selected than Mr. James Mill, when he says*:—"If we are in any way sentient,—that is, have any of the feelings whatsoever of a living creature, the word conscious is applicable to the feeler, and Consciousness to the feeling: that is to say, the words are generical marks, under which all the names of the subordinate classes of the feelings of a sentient creature are included. When I smell a rose, I am conscious; when I have the idea of a fire, I am conscious; when I remember, I am conscious; when I reason and when I believe, I am conscious; *but believing and being conscious of belief are not two things, they are the same thing*: though this same thing I can name at one time without the aid of the generical mark, while at another time it suits me to employ this generical mark." Now the only part of this quotation concerning which there is the least room for any suspicion of dubiousness is that which we have placed in italics—"believing and being conscious of belief are not two things, they are the same thing." How is this to be explained? Mr. Mill had really given the necessary explanation in a preceding paragraph, when he said:—"Having a sensation and having a feeling are not two things. The thing is one, the names only are two. I am pricked by a pin. The sensation is one;

* Analysis of the Human Mind, I., p. 172.

but I may call it sensation, or a feeling, or a pain, as I please. Now, when having the sensation, I say I feel the sensation, I only use a tautological expression; the sensation is not one thing, the feeling another; the sensation is the feeling. When, instead of the word feeling I use the word conscious, I do exactly the same thing—I merely use a tautological expression. To say I feel a sensation, is merely to say that—I feel a feeling, which is an impropriety of speech. *And to say, I am conscious of a feeling is merely to say that I feel it.* To have a feeling is to be conscious, and to be conscious is to have a feeling.” All this seems to show clearly enough that what Mr. James Mill means by Consciousness is nothing else than what is ordinarily understood by ‘self-consciousness;’ that a person could ‘feel’ or could ‘know’ without being self-conscious, he would deny—the very words themselves would have no significance unless they implied this element of self-consciousness.

And this also seems to have been the opinion of Sir W. Hamilton. He said*—“Consciousness comprehends every cognitive act, in other words, whatever we are not conscious of that we do not know. It is not one of the special modes into which our mental activity may be resolved, but the fundamental form, the generic condition of them all.” And his exact view is perhaps rendered even more obvious by the following sentences †:—“*Consciousness is not to be regarded as aught different from the mental modes or movements themselves.* It is not to be viewed as an illuminated place within which objects coming are presented to, and passing beyond, are withdrawn from observation; nor is it to be considered even as an observer—the mental modes as phenomena observed. *Consciousness is just the movements themselves rising above a certain degree of intensity.*” But though the mental state and consciousness are one and indissoluble, because nothing—that is, no nerve action—is called a mental state unless accompanied by Consciousness; still Sir W. Hamilton professes to be able to regard them as different aspects of the same fact, or as the same fact regarded in different relations. “Consciousness,” he says, ‡ “is the self-affirmation that certain modifications are known by me, and that these modifications are mine.” Now although it will be a question needing subsequent consideration as to what is the nature of these “modifications” which are “known” to the “me” or Consciousness,

* Dissert. on Reid, p. 810. † Supplem. to Reid, p. 932. ‡ Discussions, p. 48.

it seems evident that by this latter word Sir W. Hamilton attaches no other meaning than that which is understood by 'self-consciousness:' this being a conclusion which is still further strengthened by his definition of the word. Consciousness with him * "is the recognition by the mind or *ego* of its own acts or affections." And it is necessary to insist upon this point, because so many other passages occur in various parts of Sir W. Hamilton's writings, which would seem to imply something quite different. These actual or seeming contradictions being, however, more explicable if we read them by the light of Sir W. Hamilton's Realistic doctrines of Perception. Thus, he says †:—"In an act of knowledge my attention may be principally attracted either to the object known, or to myself as the subject knowing; and in the latter case, although no new element be added to the act, the condition involved in it, *I know that I know*, becomes the primary and permanent matter of consideration." Now, in this illustration, Sir W. Hamilton deliberately makes use of the word 'attention,'—a word which by many is considered synonymous with self-consciousness, and which would, we suppose, be universally admitted to connote Consciousness as its most fundamental quality. Hence we may use the two words almost interchangeably; and if in the above quotation we make such an exchange, we shall find Sir W. Hamilton saying that, in an act of knowledge (existing and itself a conscious state only by reason of the co-existence of self-consciousness) his self-consciousness may be principally attracted either to the object known or to himself as the subject knowing. But what meaning is there in such a statement? His self-consciousness (attention) may be directed to the subject knowing! Is not the "subject knowing" this very self-consciousness itself? What else are we to conclude when he tells us that consciousness is "the self-affirmation that certain modifications are known by me, and that these modifications are mine;" or that it is "the recognition by the mind or *ego* of its own acts and affections?" We may ask also what are these "acts and affections," or "modifications," of which we become conscious? Whatever they are, they must be similar to that which he alludes to above as the "object known," and to which he says his attention (consciousness) may be directed. But until Consciousness *has been* directed to them, there is nothing existing which, in

* Lectures, Vol. i., p. 193.

† Lectures I., p. 195.

the ordinary acceptation of the words, can be named either an "object known" or an "act or affection" of the "mind or *ego*." To one who is not a Natural Realist, nothing could be supposed to exist but a mere (unconscious) nerve action. Thus we find Sir W. Hamilton using language and modes of expression which would be only justifiable if, with Reid and Stewart, he had believed, rather than had contemptuously rejected the notion, that Consciousness is a special faculty, whose business it is to take cognizance of the operations of the other faculties—that is, that it is the result of the action of a special organ, which is subject to be called into activity by molecular disturbances arising in other nerve elements.

Thus it seems quite evident that by the word Consciousness Mr. James Mill and Sir W. Hamilton mean nothing different from what is understood as 'self-consciousness;' so that when they maintain that Consciousness is the fundamental condition of all intelligence or feeling, they mean, simply, that if we are not self-conscious we cannot in any way be said to know, or feel, or have what is called knowledge. Whether right or wrong, or however inadequate the view may be, this is obviously their conclusion.

And now, if we turn our attention to the opinions of Dugald Stewart, as the best exponent of that doctrine of Consciousness to which Sir W. Hamilton objects, we shall be able to see how far there is any real difference between the views of the two schools, and in what the difference consists. Stewart maintained* that Consciousness "denotes the immediate knowledge which the mind has of its *sensations and thoughts*, and in general of *all its present operations*." Now this is a definition precisely similar in its scope to that of Sir W. Hamilton, and it is as obviously incompatible with the main doctrine of which it formed part as his will prove to be. We still require to ask what is the nature of a "sensation" or of a "thought" before it becomes an object of immediate knowledge by the mind—that is, before we become conscious of the one or of the other. Obviously whatever they may be, we are not warranted in applying these names to them; since such names are only applicable to certain conscious states. The "sensations and thoughts" before they are immediately cognized by the mind through the intervention of consciousness, must, however, be in every

* Elements of Philos. of Human Mind. Vol. i., p. 13 (Hamilton's Ed.)

way comparable to what Sir W. Hamilton speaks of as the mental "acts and affections" that are cognized by the *ego* in consciousness. And as we have before suggested, it would seem almost impossible that these could represent anything else than mere unconscious nerve changes. But when we find Stewart adding:—"Of all the present operations of the mind, consciousness is an inseparable concomitant," it may seem still more surprising why Sir W. Hamilton should so strongly object to Stewart's doctrine.

Thus Stewart is quite in accord with Sir W. Hamilton and Mr. James Mill as to the real meaning of consciousness; and, moreover, just as the former says it is "the fundamental condition of all intelligence," so Stewart maintains that it is an "inseparable concomitant" of all the present operations of the mind. But the real cause of disagreement lies in this: Stewart, following Reid, did *classify* Consciousness as one of the intellectual faculties, co-ordinate with Attention, Conception, Memory, &c., and regarded it as "distinguished from them, not as the species from the individual, but as the individual from the individual." Sir W. Hamilton adds,* however, in his statement of Stewart's theory:—"As the particular faculties have each their peculiar object, so the peculiar object of Consciousness is the *operations of the other faculties themselves, to the exclusion of the objects* about which these operations are conversant." This was the portion of Stewart's doctrine which more especially stirred up Sir W. Hamilton's antagonism.

His objections were expressed in this way:—"This analysis we regard as false. For it is impossible: in the *first* place to discriminate Consciousness from all the other cognitive faculties, or to discriminate any one of these from Consciousness; and in the *second*, to conceive a faculty cognizant of the various mental operations, without being also cognizant of their several objects."

Now with regard to the *first* part of Sir W. Hamilton's criticism, it may be said that although Stewart did classify Consciousness as one of the intellectual powers, this can really be considered as significant only—that he *conceived the possibility* of Consciousness being itself an independent function; though his definition of this state clearly showed that, with Sir W. Hamilton, he believed it to be practically impossible "to discriminate Consciousness from all the other

* Essay on Philosophy of Perception.

cognitive faculties, or to discriminate any one of these from Consciousness." He expressly stated that of all the present operations of the mind Consciousness is an inseparable concomitant. And, therefore, he certainly had not sufficient grounds for *classifying* Consciousness as an independent function, although he might have been quite justified in suggesting the possibility that it was really such in its origin, or, as we should prefer to frame it, that it might be the function of a distinct organ, even though that organ was always called into activity in conjunction with some other. By separating Consciousness altogether in his classification from the so-called mental faculties, he at the same time deprived these latter of all right to be entitled mental faculties. Having lost their conscious element, they had lost that which, in the ordinary acceptation of the term, alone entitled them to be called mental. Not to speak of the confusion likely to result from classifying Attention as a something different from and co-ordinate with Consciousness, it must be seen that the words Memory, Imagination, and Judgment had no title to be considered as names of Mental faculties, unless these several words were intended to imply, in each case, the co-existence of Consciousness as a fundamental attribute, in addition to that which was peculiar to the several faculties themselves. These names are, in fact, the appellations of different kinds or states of Consciousness; and that which is peculiar to each, that which in conjunction with Consciousness gives rise respectively to Memory, Imagination, or Judgment, has received no name in Stewart's philosophy—though in his definition of Consciousness he altogether unwarrantably speaks of such processes as "sensations and thoughts," or, more generally, as "present operations" of the mind. But all such processes, so long as they had not been comprehended within the sphere of Consciousness, would, in accordance with Stewart's views, have been beyond the pale of Mind—Consciousness was, in his opinion, an "inseparable concomitant" of all states and operations which were entitled to be called mental.

Sir W. Hamilton's *second* objection is, that it is impossible to conceive a faculty cognizant of the various mental operations, without being also cognizant of their several objects. But this is an objection which loses all its force with those who are not believers in his particular doctrines of Perception. Reid said, "I am conscious of perception, but not of the object I perceive; I am conscious of memory, but not of

the object I remember," and though at the same time he wisely offered no arguments to *prove* the existence of a material world, he took it for granted, on the faith of a "belief," which he considered "as an ultimate fact in our nature." But this uncertainty would not do for Sir W. Hamilton—he could not rest his faith in an External World upon a mere belief; with him it must be a matter of absolute Knowledge; and he, accordingly, vehemently proclaimed as infallibly true a theory of Perception, which very many of his successors as unhesitatingly reject. Perhaps nowhere has he more explicitly and forcibly stated his own doctrine than in the following passage* :—"We are immediately conscious in perception of an *ego* and a *non-ego* known together and known in contrast to each other. This is the fact of the Duality of Consciousness. It is clear and manifest. When I concentrate my attention in the simplest act of perception, I return from my observation with the most irresistible conviction of two facts, or rather two branches of the same fact; that I am, and that something different from me exists. In this act I am conscious of myself as the perceiving subject, and of an external reality as the object perceived; and I am conscious of both existences in the same indivisible moment of intuition. The knowledge of the subject does not precede, nor follow, the knowledge of the object; neither determines, neither is determined by the other. Such is the fact of perception revealed in Consciousness." And that in the act of perception, he *must* be conscious, or have an immediate knowledge, of the object of perception seemed to Sir W. Hamilton to be a matter of axiomatic certainty. For, he says, † "The assertion that we can be conscious of an act of knowledge without being conscious of its object is virtually suicidal. A mental operation is only what it is, by relation to its object; the object at once determining its existence, and specifying the character of its existence. . . . It is palpably impossible that we can be conscious of an act without being conscious of the object to which that act is relative." But this latter reasoning, so firmly relied upon by Sir W. Hamilton, has been shown ‡ by Mr. John Stuart Mill to be in reality utterly fallacious. He says, "If it be true that 'an act of knowledge' exists, and is what it is 'only by relation to its object,' this must be equally true of an act

* Lectures I, p. 288.

† Philos. of Perception.

‡ Examination of Sir Wm. Hamilton's Philosophy, pp. 120—125.

of belief; and it must be as 'manifest' of the one act as of the other, 'that it can be known only through the object to which it is correlative.' Therefore past events, distant objects, and the Absolute, inasmuch as they are believed, are as much objects of immediate knowledge as things finite and present: since they are presupposed and implicitly contained in the mental fact of belief, exactly as a present object is contained in the mental fact of perception." Thus, by applying the same theory to belief and the objects of our belief, we the more easily comprehend the full extent of the weakness of Sir W. Hamilton's theory: so that if we can be conscious of an operation without being conscious of its object, it no longer follows as a certainty that we *must* be conscious, in the way that Sir W. Hamilton supposes, of an external object in every real act of perception. And, notwithstanding his positive and reiterated statements concerning the nature of the facts of Perception revealed in Consciousness, it must be evident to all candid enquirers that his declaration of our having an immediate knowledge or Consciousness of the *non-ego*, is a sheer assumption, and one which begs the whole question in dispute as to the proof of the existence or non-existence of material objects.

Nothing can prevent me or any other physiologist from affirming with equal positiveness, and seemingly with more than equal plausibility, that inasmuch as, and just as, all states of feeling or Consciousness are functional products of molecular change in cerebral nerve tissue, so in the state of knowledge with its accompanying Consciousness constituting any given perceptive act, the Consciousness is not a separate and independent entity, but rather an appanage or attribute of this very state of knowledge itself, resulting from the functional activity of certain definite nerve elements. This conscious state itself, therefore, seems all that it is possible for us to know, either at the time or by any subsequent introspection. But as the very existence of this state is attributable to, or is the product of, certain functional and molecular nerve changes (which can only be regarded as *symbols* related to the external possibilities), how can we ever hope to know anything even of these nerve changes themselves which have given origin to the conscious state? And is there not still less chance or probability that this conscious state should tell us aught as to the absolute existence of the Thing without which is presumed to produce the molecular movements in our nervous system, when it fails to give us

any information as to the nature of the molecular changes themselves ?

Thus Sir W. Hamilton's criticisms of Stewart's views concerning Consciousness lose much of their force and weight—so much so, in fact, that in all other respects, except in regard to Stewart's *Classification*, we believe his theory will be found more in accordance with the truth than that of Sir W. Hamilton. We can more easily account for various mental phenomena if we adopt Stewart's hypothesis, that Consciousness is a distinct faculty, or, as we prefer to express it, the function of a distinct organ. We have shown, indeed, that in some of his illustrations, and also, moreover, in his definition of Consciousness, Sir W. Hamilton has used language (although he apparently did not perceive it himself) which tacitly implied some such hypothesis* ; and then we find him also explicitly stating his belief in the existence of "Unconscious mental modifications," notwithstanding his numerous other contradictory statements to the effect that "Consciousness comprehended every cognitive act." Whilst Stewart (who might have believed in such "Unconscious mental modifications" much more consistently) did his best to explain the facts and difficulties in question by reference to what have been termed the Laws of Obliviscence.

Why Sir Wm. Hamilton was so frequently compelled to use language contradictory to his own theory, will be better understood if we state in physiological terms the nature of the difference between the rival doctrines of Consciousness, since this then becomes more obvious, whilst at the same time other questions of the greatest interest also arise. The doctrine that Consciousness is the fundamental condition of all knowledge, that it is inseparable from every feeling or mental state, since it is but "the mental modes or movements themselves rising above a certain degree of intensity," could only be realised in a physiological sense, if we supposed the Consciousness and the knowledge (these being only different aspects of one and the same thing) to be evolved by the molecular action taking place in a single set of nerve elements ; whilst Stewart's doctrine would seem better represented by the supposition that the

* He is contradicting his other statements, for instance, when he represents that his attention or Consciousness may be directed more especially to the "object known" in an act of knowledge ; thus making this so-called "object known" (a mere unconscious nerve action) something different from the Consciousness to which it is revealed, as to an observer ; when he had previously said that Consciousness was not "to be considered even as an observer—the mental modes as phenomena observed."

existence of a conscious mental act or state depends upon the operation of two distinct nerve centres, or sets of nerve elements; the molecular action in the one set sufficing to produce the particular mental mode, so far as it can exist minus the accompaniment of Consciousness (or the *potential knowledge* as we shall term it), whilst the almost simultaneous molecular action in the nerve elements of the other gives rise to the phenomena of Consciousness. This conjoint operation of two such centres would, in Stewart's view, be necessary for the production of any mental mode, since those modes of nerve action only are called "mental," which are conscious modes. The limits of Consciousness were, in fact, generally held to be the limits of mind, and to talk, therefore, of "Unconscious mental modifications," as Sir W. Hamilton did, was, strictly speaking, a contradiction in terms.

But with the aid of this physiological illustration it will now become more obvious what is the precise difference in opinion on this head, between Stewart and Sir W. Hamilton. In addition to the fact that the phrase itself was suicidal, Stewart would have objected to it because he did not believe in what are termed "Unconscious mental modifications." He did not believe that the organic centres for any mental acts (comparable to those in which what we have termed potential knowledge may be evolved) were ever excited without the simultaneous activity of the organic centre of Consciousness—the conjoint and never separate, rather than necessarily inseparable, action of the two centres giving rise to the conscious mental act. Sir W. Hamilton, however, when he advocated the doctrine that "Unconscious mental modifications" did exist, though he used a self-contradictory phrase, and though he then deserted his own previous position, and announced a theory which was only really* compatible with the doctrine of Stewart, seemed to say, simply, that one of the two centres which Stewart presumes to be called into simultaneous activity may on certain occasions act alone, so that in each case there is wanting the element of Consciousness, this only causing the result to differ from otherwise similar mental states.

* For we do not think that, in the present state of our knowledge, we are warranted in believing that the presence or absence of Consciousness with the activity of certain nerve centres is dependent only upon the degree of intensity of action occurring in these centres alone, or upon the duration of their activity, though Sir W. Hamilton and others seem to intimate that it may depend upon some such cause.

These are the physiological issues to which the questions may be reduced, and there cannot be a doubt as regards the last of them, that a vast number of nerve actions do go on of an intellectual character, which are never accompanied by Consciousness. We may know and be conscious of the first term of a complex intellectual operation, and we may know the last, whilst all the intermediate stages may be a blank to us. Take, for instance, the phenomena of voluntary recall or *recollection* of a name or word at the time forgotten. We are conscious only of an effort and of an inward groping, but we really know nothing of the manifold molecular actions taking place in the organic seats of old associated ideas, until there suddenly starts to our lips and to our Consciousness, from the unknown depths, the missing word.* And yet it must have been by action and inter-action taking place from seat to seat of past impressions, according to a principle of association (dependent upon actual organization), similar to what occurs consciously at other times, that a molecular movement was at last aroused in the appropriate units, and that the name was then flashed into Consciousness. Since these operations are not conscious operations, they are not entitled to the name 'mental' so long as this word retains its present signification. There cannot be a question, however, as to the frequency and importance of such nerve actions of which we are unconscious in feeding and supplementing the nerve actions which produce our conscious states, and the conscious Mind characterising any individual is the joint product of both modes of activity—of our

* On this subject Dr. Carpenter makes the following interesting remarks :—“When we have been trying to recollect some name, phrase, occurrence, &c., and after vainly endeavouring all the expedients we can think of for bringing the desiderated idea to our minds, have abandoned the attempt as useless, it will often occur spontaneously a little while afterwards, suddenly flashing (as it were) before the consciousness; and this, although the mind has been engrossed in the meantime by some entirely different subject of contemplation, and cannot detect any link of association whereby the result has been obtained, notwithstanding that the whole train of thought which has passed through the mind in the interval may be most distinctly remembered. Now it is difficult, if not impossible, to account for this fact upon any other supposition than that a certain train of action has been set going in the cerebrum by the voluntary exertion which we at first made; and that this train continues in movement after our attention has been fixed upon some other object of thought, so that it goes on to the evolution of its result, not only without any continued exertion on our own parts, but also without our consciousness of any continued activity.”—*Human Physiology*, 1855, 5th Ed., p. 608.

“*Unconscious Cerebration*,” as it has been termed by Dr. Carpenter, as well as of our conscious acts and states.*

Besides the “Unconscious mental modifications” of which we have been speaking, Sir Wm. Hamilton refers to two other kinds, or degrees, of “mental latency.” In the first category he places all the knowledge that we may possess, which, not being present at any given moment, is nevertheless at any time recoverable by an act of voluntary memory or recollection. Whilst, “The second degree of latency exists when the mind contains systems of knowledge, or certain habits of action, which it is wholly unconscious of possessing in its ordinary state, but which are revealed to consciousness in certain extraordinary exaltations of its powers. The evidence on this point shows that the mind frequently contains whole systems of knowledge which, though in our normal state they have faded into absolute oblivion, may, in certain abnormal states, as madness, febrile delirium, somnambulism, catalepsy, &c., flash out into luminous consciousness, and even throw into the shade of unconsciousness those other systems by which they had for a long period been eclipsed and even extinguished.”† All intermediate degrees of recoverability, in reality, are to be met with between these extremes; but, as Mr. John Stuart Mill says, in all these cases it is not, “the mental impressions that are latent, but the power of reproducing them”—the power which we retain of re-inducing molecular nerve actions of certain kinds in definite parts of the brain.

It is the third form of mental latency, however, which is best entitled to the name—that of which we have previously been speaking, and such as occurs when “one idea *mediately* suggests another into consciousness—the suggestion passing through one or more ideas which do not themselves rise with consciousness.” This is obviously what Dr. Carpenter means and has so fully illustrated under the name of “Unconscious Cerebration;” and we are most glad to find Mr. John Stuart Mill saying‡—“I am myself inclined to agree with Sir W. Hamilton, and to admit his unconscious mental modifications, in the only shape in which I can attach any very distinct meaning to them—namely, unconscious modi-

* This view has been ably and forcibly advocated in the opening chapter of Dr. Maudsley's *Physiology and Pathology of Mind*.

† Lectures, vol. i., pp. 339—346.

‡ Exam. of Sir W. Hamilton's *Philosophy*, 1865, p. 285.

fications of the nerves. . . . In the case, for instance of a soldier who receives a wound in battle, but in the excitement of the moment is not aware of the fact, it is difficult not to believe that if the wound had been accompanied by the usual sensation, so vivid a feeling would have forced itself to be attended to and to be remembered. . . . In like manner, if we admit (what physiology is rendering more and more probable), that our mental feelings, as well as our sensations, have for their physical antecedents particular states of the nerves; it may well be believed that the apparently suppressed links in a chain of association, those which Sir W. Hamilton considers as latent, really are so; that they are not even momentarily felt; *the chain of causation being continued only physically by one organic state of the nerves succeeding another* so rapidly that the state of mental consciousness appropriate to each is not produced." This we cannot but regard as a most important admission, and it will, we hope, tend to justify us in the eyes of many for speaking of feeling and Consciousness so freely from a physiological point of view in terms of nervous action. Though, if any still doubt as to the legitimacy of so doing, we would strongly recommend them to read the physiological exposition with which Mr. Herbert Spencer has thought it necessary to commence his *Principles of Psychology*, and which he concludes by saying*:—"Thus, impossible as it is to get immediate proof that feeling and nervous action are the inner and outer faces of the same change, yet *the hypothesis that they are so harmonizes with all the observed facts.*"

So farthen, we have met with no really contradictory opinions as to the nature of that which is termed Consciousness—all have meant by it 'self-consciousness,' a condition which, if not the very same thing, is, at least, the fundamental component of that mode of mind known as Attention. A 'Sensation' also has been understood to mean one form of such Self-Consciousness. But two writers of great influence in this country—Professor Bain and Mr. G. H. Lewes—have given expression to views different in some respects from those to which we have hitherto referred, and therefore to views which require consideration in this place.

In the last edition of his *Senses and Intellect*, Prof. Bain has endeavoured to alter the acceptance of the term Consciousness. And as we think we shall thus best represent

* System of Philosophy. No. 21, p. 128. (Oct. 1868).

his views, we will quote the following passages* :—“I have also departed from the use of the word ‘Consciousness’ employed in the first edition as another synonym for feeling. . . . I now prefer to give the word a greater extension than mind proper, and make use of it to include our object states as well as our subject states. The object and subject are both parts of our being, as I conceive, and hence we have a *subject-consciousness*, which is, in a special sense, mind (the scope of mental science), and an *object-consciousness*, in which all other sentient beings participate, and which gives us the extended and material universe. Such a mode of employing the term I consider as highly serviceable in dealing with the great problem of Metaphysics.” This state of *object-consciousness* is, however, limited to the discrimination of the degree of energy expended during muscular activity of any kind, and Mr. Bain says :*—“In this state we usually cease to attend to the feeling as feeling proper ; we are rather occupied with the purely intellectual functions of discrimination and agreement ; we think of the present expenditure as greater or less than some other expenditure, or as agreeing with some previously known instances. This is to be intellectually engrossed, and under such an engrossment in the case of muscular exercise we assume the *object* attitude [of consciousness] ; we are not self-conscious, but are engaged in knowing certain purely object facts called force, extension, &c.”

Now, these statements of Prof. Bain are equivalent to a deliberate assertion that Consciousness (in its ordinary acceptance of self-consciousness) and Knowledge can be separated ; that a person can ‘know’ without being ‘self-conscious.’ This, as we have seen, is what Reid, Stewart, Mr. James Mill, Sir Wm. Hamilton, and many other philosophers strenuously deny ; still, of course, it is quite open to Prof. Bain to doubt the validity of their conclusions. He seems inclined to maintain that the state of Consciousness involved in a mere act of intellectual discrimination—which is an altogether neutral state as regards pleasure or pain—is separated by the greatest possible interval from that other mode in which we experience some simple pleasurable or painful sensation. Such a position seems intelligible enough, and if it had led to the conclusion that a mode of Consciousness named Intellectual ought to be distinguished from Self-Con-

* Senses and Intellect, 3rd Ed. Appendix, p. 669.

† Idem, p. 83.

consciousness, which is more especially related to our Emotional states, there would, at least, have been a logical consistency in such a deduction, however much the desirability of marking this difference by distinct names might have been open to question. But although Prof. Bain separates his so-called *object-consciousness* from his *subject-consciousness*, on the general ground that when in the former condition "we usually cease to attend to the feeling as feeling proper; we are rather occupied with the purely intellectual functions of discrimination and agreement," we find, nevertheless, that this state of *object-consciousness* has only reference to one particular kind of intellectual engrossment—to that which occurs when we are engaged in discriminating amounts of muscular energy expended. Under what mode of Consciousness we are when engaged in other kinds of discrimination, or purely intellectual activity, Prof. Bain does not tell us: at least, he proposes a division of Consciousness into two modes—tacitly giving us to understand that in so doing he had compassed the whole sphere of Consciousness—and then we discover that he has either made a most arbitrary division, or else that he has altogether left out of consideration and nameless, a third mode of Consciousness which ought to be almost as distinct from his *subject-consciousness* as he deems his so-called *object-consciousness* to be.

If it be asked why Prof. Bain has picked out this one kind of activity from all other kinds of intellectual discrimination (which, in accordance with his own general reasoning, would be equally entitled to be distinguished by a separate name from the self-conscious or *subject-attitude* of mind), some sort of answer, it is true, can be given—but an answer accounting only for the reason which induced Prof. Bain to make a distinction between such discrimination of degrees of muscular energy expended and all other discriminations; though it gives no account whatever of the reason why he did not range all these other intellectual acts under some third mode of Consciousness: the explanation of this last apparent inconsistency remains undiscoverable. The discrimination of the degrees and modes of muscular energy expended is deemed worthy to be ranged under a separate mode of Consciousness, because Prof. Bain thinks that in this sense of energy exerted there is constituted "a something in vital contrast to all the rest of our mental experiences." But we believe Prof. Bain altogether over-rates the degree of contrast

between our sensations resulting from muscular activity and our other more passive states of sentiency; and we have elsewhere* attempted to show that great as the difference may be, very much of the physiological and pathological evidence obtainable is opposed to the notion that any *such* fundamental distinction can be drawn as Prof. Bain has sought to establish. Wrought up with and organically related to all our sensory states there is so much of inference, that in an advanced stage of our mental life it is almost impossible for us to know how much of any given perception is due to inference, and how much would represent our rudimentary experiences from the same kind of impression. Thus, although the notions of "resistance" and of "force" which we have now acquired may seem to carry with them a speciality of their own; although they may seem to give us a "something in vital contrast to all the rest of our mental experiences," we must not too hastily conclude that the impressions from which they have been derived are so fundamentally different from our other sensory impressions, till physiology and pathology have been probed to the utmost.

And, with regard to the general question, although when engaged in a pure act of intellectual discrimination, we do seem to be at the furthest remove from a state of simple feeling, either of pleasure or of pain, it must not be forgotten that these two modes of Consciousness are simply representatives of the first and last terms of a series, between which lie an infinite number of transition states. Any sensation, even the simplest, cannot exist as a mode of Consciousness without an intellectual element of discrimination; and there are numberless states presenting the most insensible gradations between this comparatively simple state of feeling and an altogether neutral act of intellectual discrimination.† But whether we are experiencing one of these simple states of feeling or are engaged in an intellectual discrimination, we may be equally removed from another attitude of mind for which, perhaps, the term 'Self-Consciousness' ought to be more especially reserved. This is a condition in which the notion of an *ego* makes its appearance—in which we become conscious that *this ego* is affected in such and such ways, owing to the present impression blending with a number of wholly or partially revived memories of the past

* On the 'Muscular Sense,' and on the Physiology of Thinking.—*Brit. Med. Jnl.*, May, 1869.

† See article on "*Sensation and Perception*" in "*Nature*," Dec., 1869.

to a sufficient extent to revive an idea of personality. To be self-conscious to the fullest extent, in this sense of the word, it is necessary that the attention should not be deeply engrossed either by any simple state of feeling or by any mere work of discrimination. Just as these latter conditions of mind meet in, or diverge from, one common state in which intellect and feeling of pleasure or pain exist in equal proportions, so do we find that these states, variously compounded out of discrimination and mere feeling, may be accompanied more or less by the self-conscious attitude of mind pure and simple. We are most self-conscious when the light of Consciousness is diffused over many more or less completely realised memories of the past, whilst we are at the same time percipient of not too vivid present impressions; and we are least self-conscious when our attention is most concentrated upon any one present feeling or act of discrimination—entire engrossment in either of these ways would remove us equally from this third mode of Consciousness of which we are speaking. All these, however, are differences of degree rather than differences of kind.

These different states seem, in reality, to be different modes of Mind (unconscious) rising into the light of a Consciousness which is one and indivisible. But this distinction between the mental modes with which Consciousness is concerned at different times, to which Prof. Bain more particularly has called our attention, is one which it is important to remember, and, at the same time, to understand correctly. It is the mental modes that differ, whilst the Consciousness, though differently directed, remains the same. We can easily comprehend that the discriminative mode is very different from the emotional mode of conscious Mind, and that both are different from the more peculiarly self-conscious attitude of Mind; though we cannot see the advisability of attempting to divide the sphere of Consciousness, as Prof. Bain has done, into an *object-consciousness* and a *subject-consciousness*. We cannot regard this as a strictly psychological division; it is one principally devised for the settlement of a metaphysical problem—and yet one which, as we believe, metaphysicians would not care to recognize. Metaphysically speaking, Prof. Bain has no right to assume the existence of other sentiences who are to hold with him an *object-consciousness* in common; and in a psychological point of view we believe such a conscious state, pure and simple, to have no real existence. As a consequence of this latter difficulty, which Prof. Bain

is himself almost obliged to admit (*loc. cit.*, pp. 382, 383), his use of the term becomes most vacillating. He sets out with the notion that we are in the object-attitude of Consciousness only when we are engaged in discriminating degrees and kinds of muscular energy expended; and he ends by apparently applying this term to any act of external perception,*—simply because a certain amount of muscularity may have been consciously involved, though in spite of the other modes of mental activity mixed up with this discrimination of resistance. And then, finally, we become almost hopelessly mystified when we find Prof. Bain saying in an *Appendix* (p. 682):—"My object-consciousness is as much a part of my being as my subject-consciousness is. Only when I am gone, other beings will sustain and keep alive the object part of my consciousness whilst the subject part is in abeyance." Is this intended to be a psychological doctrine, or is it a statement appertaining to pure metaphysics? We must confess we find it quite incomprehensible under either aspect.

In his "Physiology of Common Life," Mr. Lewes has furnished us with a most admirable and original view of the physiology of the Nervous System, in the justness of which we, for the most part, thoroughly agree. He has taken this occasion, however, for making a vigorous attack against the ordinarily received meanings of the words 'Sensation'

* In order more clearly to point out what are the exact respects in which Prof. Bain's view differs from our own, we cannot refrain from quoting this additional passage. He says (*loc. cit.*, p. 376):—"In Sensation we seem to have the sentient mind, and the thing felt—*sentiens* and *sensum*. Some account must be rendered of this twofold nature of sense and knowledge. If the something that knows, feels, perceives, be called Mind, what is the other something that is known, felt, perceived?" This other something, in an act of perception, Prof. Bain believes to be *object-consciousness*, or the external world in the only sense which it can exist for us.

As the reader will perceive, however, more fully presently, our interpretation of Sensation is quite different. We believe that *sentiens* corresponds with Consciousness rather than with Mind; and that *sensum* can only be a mere unconscious cerebral nerve action—in this sense only should we be able to recognize the existence of an External World, even under its modified guise of an *object-consciousness*. States of Consciousness are our all in all; and the difference between what Mr. Herbert Spencer calls *centrally initiated* and *peripherally-initiated* feelings is quite capable of being explained physiologically. But as for an *object-consciousness* "in which all other sentient beings participate," we must confess we cannot understand it. If it is the discrimination of 'resistance' to muscular energy, surely this discrimination is as much an affection of our own Sentienty or Consciousness, as the most passive appreciation of an odour would be; whilst if it is really something beyond the pale of Consciousness (subject-consciousness of Bain), then with us it could be nothing but a mere nerve action, such as we have termed unconscious.

and 'Consciousness,' and on this head we can neither agree with him as to the necessity, nor as to the advisability of making the changes which he proposes. His fundamental position is:—"That Sensibility is the *property inherent in ganglionic tissue*—the one peculiar 'force' belonging to all nerve centres, as neurility belongs to all nerves." Then, out of the various meanings which, he says, have been ascribed to the word Consciousness, Sensation is the most essential attribute, that which is most generally implied, and which he elects as a representative of the meaning of the word in his own pages. Therefore Sensation and Consciousness (meaning almost the same thing, or, at all events, always going together) are the functions not of any one particular part of the brain, but rather the property of ganglionic tissue generally, wherever it may exist, throughout the whole Nervous System. Thus what most people would term a mere *impression*—an unconscious nerve action—Mr. Lewes says should be named a Sensation; and just as the molecular changes in the ganglionic cell are said to produce a Sensation, so Consciousness is said also to be an attribute of this mere molecular change, whether it takes place in the spinal cord, or in any other nerve centre whose molecular actions alone are quite incapable of arousing the attention of the individual. The one word 'Perception' is used so as to include what most other writers mean by Sensation as well as Perception. And although the word Consciousness, as employed by Mr. Lewes, has scarcely any intelligible meaning, it seems evident that he understands by the word 'Attention' what other people mean when they speak of Consciousness.

These changes which Mr. Lewes wishes to bring about in the acceptance of such words as Sensation and Consciousness would, we think, tend in practice to create so much confusion, that only as a matter of dire necessity should such a modification be adopted. We are unable to go into Mr. Lewes's reasonings in detail, though we think it would be quite possible to show that there is no logical inconsistency in retaining these words with their old meanings, whilst at the same time we fully appreciate the importance of the reasons which induced him to advocate the change. But we consider that all the principal improvements (leading to the clearing away of misconceptions concerning the mental phenomena of man and the lower animals) which Mr. Lewes is anxious to bring about, may be secured in a less costly manner and with-

out sacrificing the meaning of two words in such constant use—words whose implications are so deeply rooted in our thoughts. Let us rather begin the reform by enlarging our conception and definition of Mind. Let us openly profess that which has already been tacitly implied by many. Instead of supposing that Mind and Consciousness (in its ordinary acceptation) are co-extensive, let us make Mind include all unconscious nerve actions, as well as those which are attended by Consciousness, and then in accordance with Mr Lewes's* own views, the whole Nervous System would become the organ of Mind, and the brain only its chief seat. We must inevitably come to this: and the doctrine of "Unconscious Cerebration" has served to pave the way for it. In default of such a doctrine, as we have seen, both Sir W. Hamilton and Dugald Stewart were unable to define Consciousness without contradicting their own narrower conceptions of Mind.

Thus, although we cannot admit with Mr. Lewes that the "Nervous system has one general property—Consciousness," we do consider that it, as a whole, should be looked upon as the organ of Mind, whilst Consciousness should be regarded as a special function of some part or parts of the brain—the principal organ of mind. Thus we would change the meaning of one word instead of that of two. And the change proposed in the acceptation of this one word would, after all, not involve any such radical alteration of meaning as might at first sight be imagined. Mind is generally supposed to be constituted by our conscious states or nerve actions only; but as these conscious states are themselves only the last terms of a series of molecular actions taking place in ganglionic and other nerve tissue, we now simply maintain that the components and not the resultants alone ought to be considered as elements entering into the composition of Mind. And similarly we would make the sum total of the seats of these molecular changes—the whole Nervous System—rather than the seats of the resulting conscious states alone, constitute the organ of Mind as now understood. Unconscious mental modifications do undoubtedly exist—that is, real mental actions, which though they do not reveal themselves in Consciousness, seem to be in all other respects precisely similar to those which do so manifest themselves. And seeing that Mind,

* *Loc. cit.*, vol. ii., p. 4.

even in its ordinary acceptation, is the product of all 'potential' as well as of all realised knowledge, the word cannot, without the intervention of a fundamental error, be considered as a convertible term for realised or realisable knowledge only. That which is realisable now, or capable of being recalled to Consciousness, may and often does after a time cease to be so—and yet the essential nerve actions themselves may still go on, may still noiselessly, though none the less surely, work their influence upon our fleeting succession of conscious states. Thus has it been with the race, thus is it with the individual. And shall we cease to call a given nerve action mental when by frequent repetition it has become so habitual that it no longer arouses Consciousness? If so we should retain the name for all that is new, uncertain, and vacillating, and should reject it for all that is old, invariable, and easy. As Mr. Herbert Spencer says* :—“Memory, Reason, Feeling, and Will simultaneously disappear in proportion as by their habitual recurrence any psychical changes become automatic;” so that “a new and still more complex order of experiences is thus rendered appreciable; the relations they present occupy the memory in place of the simpler ones; they become gradually organized, and like the previous ones, are succeeded by others more complex still.” Such are the transitions from Consciousness to Unconsciousness ever taking place in the evolution of Mind; and the more fully such phenomena are recognized as parts of an orderly succession by which alone greater and greater complexities of thought and feeling, are rendered possible, the more will it become evident that the sphere of Mind cannot at any time be circumscribed by the then present or possible states of Consciousness—the more it is obvious that in our conception of Mind we should also include all past stages of Consciousness which now in the form of unconscious nerve actions are, from moment to moment, manifesting themselves potentially, if not actually, in all our present thoughts, feelings, and volitions.

* Principles of Psychology, 1855, pp. 616 and 563.