

The psychology of memory and recollection : read to the Psychological Society of Great Britain, June 1st, 1876 / by Mr. Serjeant Cox.

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Publication/Creation

[London] : Psychological Society of Great Britain, 1876.

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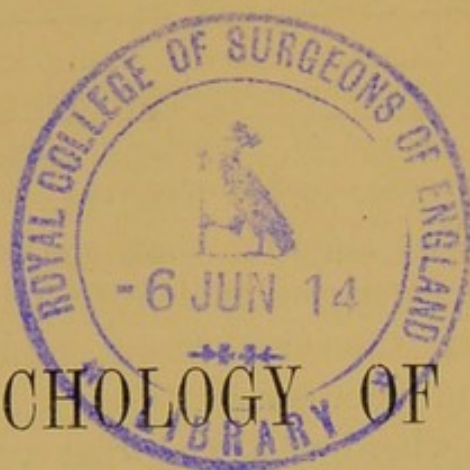
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THE PSYCHOLOGY OF MEMORY
AND
RECOLLECTION.

Read to the Psychological Society of Great Britain, June 1st, 1876, by MR. SERJEANT COX, the President.

Is our sense of identity due to memory and to memory alone?

BROWN and some others assert that so it is. If, they say, a rose be presented to the sense of smell, removed, and again presented, we recognise our identity by the recollection we have in the second presentation that the like object had been presented before. *Identity is a repetition of consciousness.* They add that, but for this faculty of memory and recollection, there would be no conscious identity. If, when the second sensation occurred, we had no consciousness of any previous sensation, we should have no sense of personal identity. Practically, we should have a new existence with every new sensation.

It may be well questioned if we have not some other con-

sciousness of identity than memory gives. Awake or asleep, we never lose the sense of identity: even in dream we do not for an instant cease to be ourselves. Waking suddenly from the profoundest slumber that was or appeared to be dreamless, the consciousness of identity is not lost for a single instant. So it is when recovering from delirium, from somnambulism and from trance.

We may doubt where we are or what we are and have but imperfect perception of objects about us, but we never doubt that we are ourselves, nor forget that we have existed before. Identity is not an act of memory recalling some past sensation; it is an extended consciousness of personal *oneness* (if the coining of a term may be permitted) and of a continuous existence.

It is not positively proved, but it is highly probable, that the mind preserves the memory of every impression, however slight, made upon the brain, and this although, at the moment of its reception, there was no consciousness of such an impression having been made. This conjecture is confirmed by many facts not otherwise to be explained. There is the familiar instance of the servant girl who, in the delirium of a fever, talked excellent Hebrew, which was afterwards found to be the reproduction from memory of readings aloud in that language by a former master while she was engaged in household duty and neither giving heed to nor understanding what he was muttering. Nevertheless, although unnoticed and no attention paid to them, those sounds had been impressed unconsciously upon the brain and conveyed to the memory, whence they were recalled by some unexplained excitation of the fever. Many cases of insanity are on record in which young girls tenderly nurtured have given utterance to the most obscene and vulgar expressions, which could only have fallen upon their ears rarely and by accident, when they had not been listening

nor were even conscious of hearing them ; nevertheless, they had been borne to the brain by the sense of hearing, and either preserved in the brain or by the brain conveyed to the *memory*, whence they were recalled and reproduced under some abnormal conditions, the diagnosis of which is as yet undiscovered.

What then is MEMORY ?

Is it a faculty of the material mechanism of the brain, or of the Conscious Self, whose organ the brain is for holding communication with the external material world ? This is another much vexed question in Psychology. But the earnestness of the debate upon it is not greater than its importance to our Science.

The contention of the Materialists may be shortly stated thus : "The brain is the organ for secreting thought, sensation, and emotion, precisely as the stomach secretes gastric juice and the liver bile. As the function of the stomach is to digest food, so the function of the brain is to make *Mind*—using the term *Mind* to express all of the operations the sum of which we so designate. The process may be thus described. Impressions of things without us are made upon the brain through the medium of the senses. The brain is impressed also by its self-actions. Whether brought from without or generated within, those impressions are nothing more than certain motions of the molecules of the brain, which motions appear to *its own* perceptive faculties as ideas, thoughts, and feelings—the operations, in fact, of the *intelligence*. According to this theory, Memory is a capacity of the brain to reproduce past impressions, upon the suggestion of something formerly associated with those impressions. Physiologically considered, Memory is the power the brain has to place itself in a certain series of molecular motions that have at some former time exercised it, and this upon the accidental

as well as upon the voluntary recurrence of any one of that series of positions or actions."

This Materialistic theory of Memory would be intelligible and plausible if the impressions made upon the brain were few and far between. But they are infinite in number and continual of recurrence. In an average lifetime many millions of different impressions are made upon the brain, probably no two of them being ever precisely identical. Marvellous indeed would it be if the *conscious* impressions alone were the subjects of Memory. But seeing that the most probable office of Memory is to register *every* impression, however slight, at any time made after the brain has become strong and active enough to receive it, whether there was or was not consciousness of the impression, it is difficult to accept the conclusion that all these multitudes of molecular positions or actions could be retained for reproduction within the structure of the brain itself. The more popular and general notion, that so many photographic pictures are printed, as it were, upon the brain in microscopic minuteness and there stored away, pile over pile, to be brought forth again when wanted, is too impossible to be seriously refuted.

The Psychological theory of Memory is less fraught with difficulties and will commend itself by its simplicity. It is based upon the assumption that the phenomena of Memory go far to prove that the Conscious Self is not the molecular mechanism of the body, but that the Man is compounded of something other than the ever-changing brain, bone, and muscle—something that is conscious of that brain, bone, and muscle as being other than itself—something that has a *will*, that thinks, and feels, faculties which neither experience, nor reason, nor any stretch of imagination can attach to molecular substance in any form in which it is cognizable by us. Psychology does not attempt to

define what that something is. As yet it can offer nothing beyond conjecture. But it asserts confidently that it is not of molecular structure. Therefore it is imperceptible to the senses, which are constructed to perceive only the structure that is molecular. Psychology does not call this something *Soul*, or *Spirit*, because these are misleading names, which have been so used that different ideas are attached to them by different persons and having no common definition. But Psychology reasonably suggests that this *Something*, the evidence of whose being is so cogent, is probably constructed of some combination of particles other than that which makes molecules (the molecule being the ultimate particle of matter perceptible by the senses). Hence it is that our senses have no perception of that something, and that its existence can be proved only by its action upon the molecular structure our senses can perceive. We find Something that is imperceptible to our senses setting this perceptible molecular mechanism in motion, and directing its motions by intelligence, and having consciousness of individuality and a will to do or not to do, and ideas, thoughts, emotions. Although no sense can show us that Something in form, we have no more reason to question its existence, as proved by its *actions*, than to question the existence of magnetism, which is imperceptible to us, and which we know only through its action upon the molecular substances our senses are constructed to perceive. I repeat, that we contend only for the existence of this *Something* which constitutes the Conscious Self—the individual Man. But of what this Something is composed, in what manner it is united with the material mechanism, by what process it moves and directs the machinery, how the impressions made on the material brain are communicated to it, and how it conveys its Will to the mechanism, are problems as yet unsolved, which hitherto have received very

little practical investigation by scientific observation of and experiments upon the phenomena of Psychology, but the discovery of which is not hopeless, now that, according to the plan and purpose of this Society, inquiry is set upon the scientific pathway of exploration by fact instead of by vain metaphysical speculation—as hitherto has been the practice.

We admit that the brain is the organ of the mind—the mental mechanism: that it receives the impressions conveyed by the senses and has self-induced action. We admit that those brain impressions are molecular motions of the substance of the brain. But we contend that the process does not end with the motion of the brain. We say that the impression so made upon the brain by the sense is communicated to that *Something* (not being the brain so moved) which we call the Conscious Self; that by this Conscious Self the impression so received is preserved and stored away (that is Memory) to be recalled under conditions and according to certain fixed laws. According to this suggestion of Psychology, Memory is a faculty of the non-molecular Conscious Self and not of the molecular brain structure.

Other considerations go far to confirm this conclusion. If Memory be merely, as the Materialists assert, the reproduction of certain positions or actions of the molecular structure of the brain, this difficulty presents itself. The substance of the brain is continually changing. The molecules of which it is made are not the same from year to year, or even from day to day. How, then, do *they* preserve a molecular position or action unchanged? It is comprehensible how this might be if all of such actions or positions were frequently reproduced. But how is it conceivable when many memories are preserved without being recalled for years? Again, the brain of the child is very much smaller than the brain of the mature man. But the brain

of the Man, although differing much in structure, and altogether in substance, not only preserves perfectly the impressions made upon the brain of the child, but reproduces them more rapidly and more vividly than the impressions of its own maturity, or even than the impressions made upon itself yesterday. These considerations appear to be conclusive objections to the materialistic theory of Memory, and no other has been so much as suggested, save this for which I am now contending, that Memory is a faculty of the non-molecular Conscious Self. Nay, more. Does it not supply one of the most cogent proofs of the existence of that Conscious Self as some entity distinct from the brain, of whose action it takes cognisance? Psychology may boldly challenge the Materialists to explain the phenomena of Memory by any theory consistent with the action of brain alone or of any molecular structure.

It is necessary here to guard against an error so frequent that few persons succeed in freeing themselves from it entirely. *Memory* and *Recollection* are not only taken as synonymous terms, but the two processes are almost universally assumed to be the same. This confusion of thought and language has produced serious results in practice. They are in fact two wholly different processes. *Memory* is the faculty by which the impressions made upon the brain are retained either by the brain itself or by something receiving the impressions made upon the brain. *Recollection* is the process by which these impressions are recalled. *Memory*, as suggested above, is probably a Psychic process. *Recollection* is usually, perhaps not always, a brain process. In the normal state of the relationship between the Self and the body, the Self can restore the memories it has through the mechanism of the body alone. The brain must probably prompt the process of recollection, and certainly must receive and

communicate the memories that have been so recalled. This mutual action is exhibited in the phenomena of dream. In that condition, the brain does not receive its impressions from without and works without the direction of the Conscious Self. Its action being so self-induced, the recollections so arising are confused, conflicting and wild, differing entirely from the memories that come to it directly from the Conscious Self. The like condition occurs in some diseased states of the brain, as in delirium and insanity. From these it may be reasonably inferred that the process of *Recollection* is not, like that of Memory, always a purely Psychic act, but that sometimes, in abnormal states, *Recollection* is conducted through the mechanism of the body, without the action of the Conscious Self.

But the Conscious Self works by means of a material mechanism, and therefore can express itself only according to the conditions of that mechanism. The brain is the machine through which it works for all those actions we call the "intelligence," and the extent and character of the action must therefore be determined by the character of the brain. As the Conscious Self can receive only what the brain imparts, and the brain can receive only impressions for which its structure is adapted, so *Recollection*, which is a restoration of those impressions, can be made only through the brain and therefore must be dependent upon the capacity of the recipient brain at the time of recollection.

Hence it is that although *Memory* receives and retains every brain impression, and possibly some received through other media than the brain, the capacity to recal those impressions varies greatly. Some persons recal rapidly and vividly; others slowly and imperfectly. We say of the first that they have *good*, and of the others that they have *bad*, memories. But these are improper uses of the term. It is not the *Memory* that is good or bad but the

capacity for *Recollection*. This is proved by abundant experience. The act of storing in the memory is performed at one time, and the act of reproducing those stores is performed at another and later time, and often after intervals of many years. Now it is a familiar fact that in certain states of brain excitement, as in fever, insanity, under the influence of alcohol, or even of ordinary pleasurable emotions, the faculty of *recollection* becomes vastly more rapid and vivid in its flow. From this fact we learn that the process of Recollection, which can be thus stimulated by a present accidental influence to the revival of impressions made long ago, cannot be the same process as that of Memory, which was engaged in that far past in storing away the ideas that are now recalled.

Another question in relation to Memory has been often mooted and is still in dispute among Psychologists. GALL, and his successors, who have maintained the phrenological theory of the dedication of distinct parts of the brain to distinct mental faculties, have held, in strict accordance with their theory, that each mental faculty has its own memory. The metaphysicians, who have contemplated mind but as an abstraction only, consistently held, and still hold, the memory to be one mental faculty and one act of the whole mind denying the existence of various mental memories, as they deny the existence of various mental faculties, the many facts to the contrary notwithstanding. Their contention is, that these apparent diversities of memory are due to the accident of the particular memory having been more employed for one purpose than for other purposes, and they assert that, with equal practice, the memory would have been equally good to whatever subject it had been directed. The fact is indisputable that there are many varieties of memory. One man has a memory for words, another for figures, another for facts, another for music, and so forth. The Phrenologists

contend that these varieties of memories are dependent upon the capacities of the several mental faculties to whose province those mental actions are consigned.

Referring to the physiology of memory suggested above, it will be seen to be in entire accord with the contention of the Phrenologists, so far as it relates to the distinct offices of the various mental faculties. But the Psychological theory carries it one step further. According to the suggestion I have ventured to advance, that memory is an act of the Conscious Self and not of the brain merely, the process may be thus described : The various mental faculties, through their material organ the brain, impart their impressions to the Conscious Self, by which they are stored away. Inasmuch as the number and vividness of the memories so stored are dependent upon the capacity of the brain organ of those faculties, the power of recollection—that is to say, the capacity for recalling those stored-up memories—would be proportioned to the power of transmission. The memory, thus understood, is a faculty of the entire individual Conscious Self, which receives and retains all the brain impressions brought to it by the brain, and, therefore, is dependent upon the various capacities of the brain that brings them. With the Metaphysicians we hold Memory to be one faculty of the Conscious Self—the individual entity we recognise as “I” and “You.” With the Phrenologists we hold that each mental faculty conveys to that Conscious Self its own impressions and that the process of Recollection is performed through the same mental faculty. The process of memory and that of recollection are consequently alike dependent for power upon the capacity of the brain organ that conducts them.

The mechanism of *Memory* and the manner of its action may, therefore, be thus described :

The brain receives all sense impressions, which it carries

to the Conscious Self. Moreover, the brain is also subject to self-induced impressions ; and these also it conveys to the Conscious Self.

But the whole brain is not employed in receiving and conveying every impression, whether coming from without, or induced within. Each mental faculty, having a corresponding agent in the mechanism of the brain, is the exclusive agent for the conveyance to the memory of its own impressions. Hence it is we find that the capacities of Memory so much vary, not only in various persons, but in the same individual. If memory were one act of the whole mind there might be difference in the degree of memory among different persons, but there would be no, or only very slight, difference in the degrees of memory in the same mind. But in fact we find the most extraordinary diversity in this respect in the same individual. The same person often possesses an extraordinary memory for facts and none for words ; another can remember words accurately, but not music, and so forth.

So it is with Recollection, which is quite a distinct process from memory. It is accomplished through the same mechanism. The same brain organ that conveyed the impression can alone receive it again from the Conscious Self and cause it to be expressed when recalled.

That being the mechanism, let us endeavour, by some familiar instance, to trace its action.

Something was said yesterday which I desire to recollect to day. I direct my attention to it and it comes back to me. By what contrivance ?

Let us closely and carefully follow it.

Certain waves of the atmosphere, which we translate into words and which suggest thoughts, came to my sense of hearing and were conveyed to the central brain by a nerve which extends from the point that receives the impression

to the other extremity in the brain at which the impression is communicated to the Conscious Self—this nerve being in fact, an extension of the brain. We can only conceive of this action as being performed by motions of the molecules of the brain, which motions suggest to the *Conscious Self* (of which the brain is the molecular organ for communication with the molecular world) the words so impressed upon the sense of hearing. The Conscious Self takes cognizance of this motion of the brain and *retains the consciousness of it*. This is what we call *memory*, and thus it is that we “commit to memory.”

Years afterwards we desire to recal the words so consigned to the memory. How is this process of recollection accomplished? Thus:

The Will goes to work and calls into action that part of the brain which performs the functions of the mental faculty of language, (for each mental faculty has its own memory). The process by which the required words are found when not immediately reproduced is by recalling other words or objects with which the desired words had been associated; a process well called by the Mental Philosophers “simple suggestion.” This brain action is received by the Self, and the past impression is revived, or, as we say, recollected.

This is the Psychological view of the Mechanism of *Memory* and *Recollection*, and it is equally good as an explanation of it, whether the brain be the Conscious Self, as the Materialists contend, or whether the Conscious Self be something other than the brain, as Psychology contends. Even if the brain be the ultimate agent, no other reasonable explanation of the mental action of Memory and Recollection has been yet suggested.

The explanation offered by some, that all mental action is merely a motion of the molecules of the brain, and that

memory is a capacity of the brain to reproduce any of its former molecular motions in the order in which they occurred, is so incomprehensible in itself, and so entirely inconsistent with all the phenomena of memory and recollection, as scarcely to call for serious refutation.

The suggestion offered in this paper may not be accepted as sufficient, and may not endure the test of further examination. On a subject so obscure, and upon which our knowledge is as yet so imperfect, it should not be rejected merely because it is new. If any thinking man can see in it anything that commends itself as true, I venture to hope that some thought may be given to it. The subject is certainly one that well deserves investigation by this Society, which is founded expressly to promote Psychological science by collection and investigation of *facts*.

It is no part of the argument, but I may be excused for directing attention to some interesting conclusions that appear to flow from it.

If Memory be the Treasury of the Conscious Self, and not of the molecular brain alone, and if that Conscious Self preserves its individual existence, with consciousness, after the garment of the molecular body has fallen from it, it follows that every the minutest thought and action of its world life will be then present to it, and this, not as they are now recalled, presented in slow succession, according to the conditions of the structure of the material organ by which they are conveyed and restored, but all together—the good and the bad—the whole life, in fact,—thus of itself making a heaven or a hell.

And if it be (as some hold, because it is a notion difficult to sever from an immortality in the future) that the Conscious Self has pre-existed, it follows also that, when disembodied, the Memory of the Conscious Self would

contain and *present*, not merely the entire of its latest life, but the life history, also, *of all its past existences!*

What greater incitement than this to Man to lead a life that may be viewed at one glance by the disembodied Self with satisfaction and not with sorrow?

POSTSCRIPT.

IN the discussion that followed the reading of this paper the question was put to me in what manner I supposed that the Conscious Self was united with the material body, so that the impressions made upon the brain could be conveyed to it.

Obviously the answer to this question could be nothing but mere conjecture. It was impossible to do more with so obscure a problem than show any suggested solution of it to be within the limits of the possible and the practicable. It was in substance thus :

The body is constructed of molecules, which are the ultimate particles of the matter that alone is perceptible to the human senses.

But there can be no reasonable doubt that molecules are not the ultimate particles of created matter, nor that the aggregation of atoms that makes molecules is not the only form of atomic structure. On the contrary, the reasonable *probability* is that molecular structure is but one of an infinite number of structures in creation.

Yet, inasmuch as our senses are constructed to perceive only that form of matter which is made of molecules, the other infinite varieties of atomic structures must be absolutely imperceptible to us, even though all space about us may be filled with them.

Our bodies made of molecules are not solid bodies; no two of the molecules that form them are in actual contact. There is ample space for them to be interfused, as easily they might be, by any other non-molecular structure. If the Conscious Self be composed of some combination of atoms other than that which makes molecular structure, it might easily permeate and possess the whole body.

This is a simple solution of what, on first presentation, appears to be an insoluble problem. I have shown *how it might be*. Is not the suggestion *reasonable* and *probable*?

But my own views of the nature and manner of this relationship were requested. I answered to this effect: "Conclusions on such a

theme are impossible. We have no facts on which to found them. The subject has not been sufficiently considered with a view to a definite and practical conception of it. But observation of the phenomena of Psychology, and continued reflection upon the theme, incline me more and more to the conclusion that the connection of the Conscious Self and its material mechanism (or that which in conventional language we term "soul" and "body") is not, as we have been accustomed to consider it, the occupation of one structure by another structure, the junction of two distinct entities—a soul, in short dwelling in a body—but the Mechanism of Man is that of a Self (or Soul) clothed with a body; that we are Souls, of which our molecular structure is merely the garment, our bodies being as it were incrustations at the point of contact with the molecular world; that the thing we call *spirit* is in fact the *substance*, and matter only so much of spirit as is presented to our senses, and which alone our senses are competent to perceive. If there be any truth in this suggestion, all that our senses can perceive is *matter* to ourselves, and all that the vastly larger portion of creation our senses cannot perceive is *spirit* to us. A new sense bestowed upon us would instantly convert much we now deem to be spirit into matter. The deprivation of one sense would instantly convert much we now call matter into that which now to us is spirit. Such an explanation solves many problems of Psychology and Physiology otherwise insoluble, and removes a thousand difficulties which attend every theory yet mooted of the relationship of a non-molecular Conscious Self to the molecular structure it moves and directs.
