

THURSDAY, DECEMBER 21, 1882

DISEASES OF MEMORY

Diseases of Memory; an Essay in the Positive Psychology.

By Th. Ribot. International Scientific Series, Vol. XLIII. (London: Kegan Paul, Trench, and Co., 1882.)

WORK on such a subject as this from the pen of M. Ribot, cannot fail to be a good work, and although in the one which he has published there is not much originality either in respect of facts or of theories, it is of value as a clearly arranged account of what we know concerning the psychology of memory, united with philosophically wholesome views of interpretation.

It is first shown that the word memory, as ordinarily used, has a triple meaning: "the conservation of certain conditions, their reproduction, and their localisation in the past" (recollection). The third element here, which is most purely a part of consciousness, appears to be an element superadded to the other two. Neglecting it therefore in the first instance, the author seeks to "reduce the problem to its simplest terms, and try to discover how, without the aid of consciousness, a new condition is implanted in the organism, is conserved and reproduced; in other words, how memory is formed independently of all cognition." Here it is well shown that all analogies drawn from inorganic sources are misleading—such as the facts of insolation, photography, &c. "Conservation, the first condition of recollection, is found, but that alone; for in these instances reproduction is so passive, so dependent upon the intervention of a foreign agent, that there is no resemblance to the natural reproduction of the memory. Hence, in studying our subject, it must never be forgotten that we have to do with vital laws, not with physical laws; and that the bases of memory must be looked for in the properties of organic (? organised) matter, and nowhere else."

The first true analogy to be found is that of muscular fibre responding more feebly at first to the excitation transmitted by a motor nerve than it afterwards does when it has frequently been stimulated, allowing natural periods of repose. This is taken to be a true analogy, because in nerve as in muscle, "everywhere we perceive, with an increase of activity and proper intervals of repose, an increased power of organic functions." But even here, we think, the objection might fairly be made that the analogy is scarcely sound, inasmuch as there is no evidence to prove that the increase of power in a muscle due to use, is due to an increase in the power of the individual fibres. We think some better parallels might have been chosen from the region of muscle physiology—such, for instance, as the effect of the constant current in leaving behind it for several minutes after it has ceased to pass through a muscle a change in the excitability of the fibres, so that they are less responsive to a renewal of the current in the same direction, and more so to its passage in the opposite direction. The following paragraph, however, is in our opinion above all criticism, and should be well burnt into the memory of all who write about memory.

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"The true type of organic memory—and here we enter the heart of our subject—must be sought in the group of facts to which Hartley has given the appropriate title of secondary automatic actions, as opposed to those automatic functions which are primitive or innate. These secondary automatic actions, or acquired movements, are the very basis of our every-day existence. . . . In a general way it may be said that the limbs and other sensorial organs of the adult act with facility only because of the sum of acquired and co-ordinated movements which forms for such part of the body its special memory, the accumulated capital on which it lives, and through which it acts—just as the mind lives and acts in the medium of past experience. To the same category belong those groups of movements of a more artificial character which constitute the apprenticeship of the manual labourer, and are called into action in games of skill, bodily exercise, &c."

The first requisite to the formation of these automatic movements is association, the original material being provided by primitive reflex actions, which require by frequent repetition or practice to be properly grouped, some combined and others excluded. Such organic memory resembles psychological memory in all but one point—the absence of consciousness. Thus all the following features are common to both: "acquisition, sometimes immediate, sometimes gradual; repetition of the act necessary in some cases, useless in others; an inequality of the organic memory according to individuals—it is rapid with some, slow, or totally refractory with others (awkwardness is the result of a deficient organic memory). With some, associations once formed are permanent; with others, they are easily lost or forgotten. We observe the arrangement of actions in simultaneous or successive series, as if for conscious recollection, and here is a fact worthy of careful notice; each member of the series *suggests* what is to follow."

Touching the changes produced in nerve-tissue, which constitute the objective side of memory, M. Ribot properly observes that it is scarcely safe to speculate, as they are beyond the reach of histology or of histo-chemistry, though facts in abundance prove that some such changes take place, and the probability is, as expressed in a quotation from Maudsley, that "every impression leaves a certain ineffaceable trace; that is to say, molecules once disarranged and forced to vibrate in a different way, cannot return exactly to their primitive state." But over and above this particular modification, which may be supposed to be impressed upon the molecular constitution of the nervous elements concerned in an act of memory, M. Ribot points out that there must be a "second condition, which consists in the establishment of stable associations between different groups of nervous elements." This, we think, is a most important point, and one which, in our author's opinion, has not hitherto received the attention that it deserves. In his own words, "It is of the highest importance that attention should be given to this point, viz. that organic memory supposes not only a modification of nervous elements, *but the formation among them of determinate associations for each particular act*, the establishment of certain *dynamic* affinities, which, by repetition, become as stable as the primitive anatomical connections. In our opinion, the important feature with regard to the basis of memory is not only the modification impressed upon each element,

but the manner in which a number of elements group themselves together and form a complexus." Thus it follows that "a rich and extensive memory is not [merely] a collection of impressions, but [also] an accumulation of dynamical associations, very stable and very responsive to proper stimuli."

The essay then proceeds to consider more especially the case of conscious as distinguished from organic memory:—"The brain is like a laboratory full of movement, where thousands of occupations are going on at once. Unconscious cerebration, not being subject to restrictions of time, operating, so to speak, only in space, may act in several directions at the same moment. Consciousness is the narrow gate through which a very small part of all this work is able to reach us. . . . What has been said of physiological memory applies in a general way to conscious memory; only a single factor has been added." But "dynamical associations have a much more important part to play in conscious memory than in unconscious memory."

These we think are the more important of M. Ribot's preliminary considerations. We have no space to consider others which follow, or to enter into the details of those diseases of memory which constitute the main subject of his work. These diseases are classified under the divisions of General Amnesia, Partial Amnesia, and Exaltations of Memory. Each of these divisions is abundantly illustrated by examples, which, while being adduced in corroboration of philosophical views on the mechanism of memory, furnish in themselves reading of a curiously entertaining kind. We may conclude by rendering, in the words of the author's own summary, the general conclusions which he deems his study of the diseases of memory to have established:—

"1. In cases of general dissolution of the memory, loss of recollections follow an invariable path; recent events, ideas in general, feelings, and acts.

"2. In the best-known case of partial dissolution (forgetfulness of signs), loss of recollection follows an invariable path; proper names, common nouns, adjectives and verbs, interjections, gestures.

"3. In each of these classes the destructive process is identical. It is a regression from the new to the old, from the complex to the simple, from the voluntary to the automatic, from the least organised to the best organised.

"4. The exactitude of the *law of regression* is verified in those rare cases where progressive dissolution of the memory is followed by recovery; recollections return in an inverse order to that in which they disappear.

"5. This law of regression provides us with an explanation for extraordinary revivification of certain recollections when the mind turns backwards to conditions of existence that had apparently disappeared for ever.

"6. We have founded this law upon this physiological principle: Degeneration first affects what has been most recently formed; and upon this psychological principle: the complex disappears before the simple, because it has not been so often repeated in experience.

Finally our pathological study has led us to this general conclusion: Memory consists of a process of registration of variable stages between two extreme limits, the new state, the organic registration."

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EASTERN ASIA

Im Fernen Osten, Reisen des Grafen Bela Szechenyi in den Jahren 1877-1880. Von Gustav Kreitner, Mitglied der Expedition. Two Vols. (Vienna, 1881.)

AFTER rambling for more than three years over a great part of Japan and China, the forerunners of Count Szechenyi's party reached the Irawadi delta in March, 1880, in such a plight that they were actually refused admission to Jordan's Hotel in Rangoon. The expedition was undertaken, not to seek the cradle of the Magyar race in Central Asia, as was given out at the time, but simply to seek distraction from a heavy domestic affliction experienced by the Count in 1876. It was organised with the disregard of economic considerations so characteristic of the open-handed Hungarian nobility, and consisted originally of four members—the Count, Balint de Szent Kotolna, philologist, Ludwig von Loczy, geologist and Gustav Kreitner, geographer. Unfortunately Balint got no further than Shanghai, where his health completely broke down. Hence the linguistic results were *nil*, notwithstanding the sensational story circulated in some American papers regarding a Magyar-speaking nomad tribe said to have been discovered in the Gobi desert. These marauders were stated to have captured and condemned the whole party to death. But on overhearing them casually exchange a few words in Hungarian, the nomad chief, overcome with emotion, fell on his knees, and addressed Count Bela "in the purest Magyar," acknowledging him and his associates as their long-lost brethren, descendants of the warlike hordes, who migrated westwards ages ago, but whose memory was still kept alive in the yurts of their Asiatic kinsmen. This story throws a curious light on the analogous statements long current in popular writings touching the Irish, Welsh, and Basque-speaking Delawares, Algonquins, Guaranis, and other American aborigines. The only difference is that in these critical times such veracious accounts have no longer much chance of surviving their authors.

The expedition has found a competent historian in its geographer, Gustav Kreitner, whose chief fault is perhaps an excessive Teutonic conscientiousness, which omits nothing, and leaves little to the imagination of the reader. Hence these bulky volumes, mostly going over tolerably beaten ground, are apt to grow all the more tedious that the journey was on the whole singularly free from stirring adventures. The camp was broken into and looted during the night by some prowling Tanguts in Mongolian Kansu; a terrific sandstorm nearly overwhelmed the caravan on the skirt of the Gobi; Herr Kreitner on one occasion got entangled in the intricacies of the loess region in North China; an attempt to penetrate into the precincts of a Buddhist monastery at Batang was met by a shower of stones from the doughty but inhospitable llamas; lastly the train conveying the explorers from Prome to Rangoon narrowly escaped the flames of a burning jungle in Pegu. But there was little else to record of an exciting character, beyond the ordinary incidents, mishaps, and hardships of eastern travel.

On the other hand many opportunities were afforded for original observations on the lands and peoples visited by the expedition, which has certainly materially increased