Bernheim says that when the intense expectance of the subject has produced a compliant condition, a peculiar capacity is developed to change the idea that has been received into an action as well as a great acuteness of acceptation, which together will produce all those phenomena that we should call by the name of 'pathological sleep,' since they are only separable in a gradual way from the ordinary sleep and dream conditions Bernheim is particularly strenuous that psychology should appear in the foreground of hypnotism, and on this point has been strongly upheld by men like Professors Beaunis and Richet.

The possibility of suggestion in waking conditions, and also a long time after the sleep has passed off (*suggestions posthypnotiques ou suggestions à (longue) échéance*), as well as the remarkable capacity of subjects to change their personality (*changement de la personnalité, objectivation des types*), have been made the subject of careful investigation. The voluntary production of bleeding and stigmata through spiritual influence has been asserted, particularly by Messrs. Tocachon, Bourru, and Burot. The judicial significance of suggestion has been discussed by Professor Liégeois and Dr. Ladame. Professor Pitres in Bordeaux is one of the suggestionists, though differing in many points from the Nancy school.

This whole tendency brings into prominence the psychical influence, while it denies the production of these results from purely physical phenomena, endeavoring to explain them in a different manner. These explanations carry us into two realms, the first of which has been lately opened, and at present seems to abound more in enigmas than in solutions.

Metallotherapie, which was called into existence by Dr. Burg, and further extended by Dr. Gellé, contains a special point of interest, — the so-called transferrence in the case of hysterically or hypnotically affected persons. Transferrence is caused by electro-magnetism, which has this peculiarity, — that in the case of specially sensitive persons it can transfer the bodily affection from left to right, and *vice versa*. The transferrence of paralysis, the cures attempted on this plan, and the so-called 'psychical transferrence,' which contains special interest for graphologists, are at the present time still open questions, as well as the closely connected theory of human polarity; and the odic experiments of Dr. Chazarain are yet waiting for their confirmation. At present the problem of the connection between magnetism and hypnotism is under investigation, and in such a manner that we may hope for a speedy solution.

Still stranger than these reports, are the accounts of the distant operation of certain bodies; at least, they seem strange to those unacquainted with psychometry and the literature of the past century relating to this subject. Two physicians in Rochefort, Professors Bourru and Burot, in treating a hystero-epileptic person, found that gold, even when at a distance of fifteen centimetres, produced in him a feeling of unbearable heat. They continued these experiments with great care, and, after a number of trials, came to this conclusion, that in some persons certain substances, even when carefully separated from them by long distance, exercise exactly the same physiological influence as if introduced into their organism. In order to explain these phenomena, they refer to the radiating force of Barćty, an explanation neither satisfactory to themselves nor to others. Lately the distinguished Parisian physician, Dr. Luys, has confirmed by his experiments the existence of these phenomena, but he thinks the explanation referable to hyper-sensitiveness of the "*regions émotives et intellectuelles de l'encephale*," yet even he has not reached the kernel of the difficulty.

In close connection with action at a distance is the question of distant production of hypnotic sleep. For an answer to this problem, they are experimenting in both France and England; and Frederick W. H. Myers has thrown an entirely new light upon the subject by the investigations he is making upon a purely experimental basis. In Italy they have limited themselves to the study of isolated cases of hystero-hypnotism, except as the phenomena of magnetic fascination investigated by Donato have given rise to further research; but all the books I have seen upon this subject, as well as many by French authors, suffer from ignorance of the latest English discoveries.

With this I think that I have given a slight outline of the history of hypnotic investigation to the end of the year 1886. I shall attempt a criticism of this whole movement at some other time, as space is not afforded to me here; but I should like to make this statement now, that two of the characteristic indications of this period are of the gravest import, — first the method ("Our work," says Richet, "is that of strictly scientific *testing, observation* and *arrangement*"); and, secondly, the result. Hypnotism has been received into the realm of scientific investigation, and with this the foundation of a true experimental psychology has been laid. MAX DESSOIR.

WALCOTT ON THE CAMBRIAN FAUNAS.

IN a recent English geological work there occurs the remark, that, "in spite of the excellent work done by many American geologists, the true se-

quence of their oldest fossiliferous rocks still remains to be determined." The reason of this uncertainty is not far to seek: it lies in the exceedingly complex arrangement of these rocks along the Atlantic seaboard of the United States, where till lately they had alone been studied. Now, however, this reproach is beginning to be taken away from us, and one of the most valuable contributions to the solution of the problem is given by Mr. Walcott in the paper before us.

In the introduction the stratigraphical relations of the Cambrian rocks in Vermont, New York, various parts of Canada, Nevada, Utah, and Arizona, are described and illustrated with sections, and this part of the work is of peculiar interest. The great development of these rocks in the west, and their almost undisturbed position, render them of the utmost importance in deciphering the early history of the continent. Especially is this true of the region of the great Colorado Cañon in Arizona, where is found an immense thickness of unaltered strata which Mr. Walcott considers to be of pre-Cambrian age. The elucidation of its fossils will be awaited with great interest by all biologists as tending to bridge over the great gap between the archean and paleozoic eras.

Mr. Walcott's studies lead him to the same results reached by the English geologists; namely, the division of the early paleozoic series (omitting the supposed pre-Cambrian) into three systems, — the Cambrian, Ordovician (lower Silurian), and Silurian (upper Silurian). On this head Mr. Etheridge remarks, "The recognition of a tripartite grouping of the faunas and strata between the base of the old red sandstone and the Harlech series cannot be disputed: each is characteristic and possesses a broadly marked aspect or facies." In the Cambrian system Mr. Walcott recognizes three series, — a lower, middle, and upper, — which correspond respectively to the St. John's group, the lower and upper Potsdam of Sir William Logan. The lower Cambrian fauna is not known to occur west "of a line passing north-east through eastern Massachusetts, New Brunswick and Newfoundland;" being kept out of the internal basin, Mr. Walcott believes, by a barrier extending from Lake Superior south to Texas, and west to Arizona. The middle Cambrian fauna would seem to be peculiar to America, not being represented in Wales, Scandinavia, or Bohemia: its nearest representative in Europe is on the island of Sardinia. If these results are confirmed, a great advance will be gained.

Most of the paper is taken up with a systematic account of the middle Cambrian fauna of North America, by far the most complete yet given. Forty-two genera (three of them new) and ninety-six species, of which sixteen are new, are fully described and figured. Especially interesting are the curious archeocyathoid sponges, which have so many features recalling certain paleozoic corals, the remarkable primitive pteropods, Hyolithes and its allies, the oldest known cystidean, and the great series of trilobites (fifteen genera). Mr. Walcott has accomplished much with fragmentary material, but the *morphological* results of the study of these early faunas are not very promising.

A gratifying aspect of this paper is its substantial confirmation of Emmons's work on the Taconic system, — a work which must ever excite admiration when its difficulties are considered. "Dr. Emmons deserves great credit for the work that he did. Struggling under adverse circumstances, at a time when there was almost nothing known of the pre-Potsdam strata of North America, and when geologic methods were yet in their beginnings, he accomplished a work in one of the most complicated regions of American geology, the central idea of which . . . we now know to be correct."

It should be remembered that in this paper Mr. Walcott has given a study, and not a complete and final expression of his views. Only a beginning has been made in a great undertaking, but it would be difficult to exaggerate the value of the work already done, which now offers a series of well-defined questions for solution, instead of the chaos which reigned but a few years ago.

Second contribution to the studies of the Cambrian faunas of North America. (U.S. geol. surv., bull. No. 30.) Washington, Government. 8°.

TRICHINAE have been discovered in a human body which was being prepared for anatomical demonstration at the University of Camerino. The man had lived for many years in a neighboring commune, and died without the presence of the trichinae being suspected. Peculiar interest attaches to the case for the reason that it is said to be the first case of trichinosis ever observed in Italy.

— Professor Poncet of Lyons recently had under his care a man whose tibia had been broken and had failed to unite. Between the ends of the broken bone he attached the half of the first joint of a great toe, taken from a limb which had just been amputated. The piece thus attached formed adhesions, at one end fibrous and at the other bony. Whether the bone thus strengthened was of use, the report does not state.