

ance of grave furniture, we are permitted a more intimate insight into the life and habits of Palæolithic man.

It is an interesting yet readily intelligible reflection that, although the mass of the deposits postulates a long period during which the layers gradually accumulated, although the fauna changed considerably during that time, yet the same weapons are found in the upper as in the lower beds. The explanation, of course, is that at all periods the dwellers in the caves were hunters, and the same weapons were required, although the animals which they hunted might and actually did differ. Another conclusion to which we can, we think, with reason arrive is that there was no very great lapse of time between the end of the Moustier period and the middle of the Aurignac period; in other words, the first of the divisions into which this last period has been divided does not, at Grimaldi at any rate, appear to have been of sufficient length to have made its presence felt.

It is to the middle of the Aurignac period that the graves, of which there were no fewer than thirteen, should be ascribed. Further, the graves were clearly of the same date, judged by the character of the associated relics, although it is curious to find the methods of burial were not identical; for example, the dead were in some cases disposed at length, at other times they were found in contracted positions.

Like its predecessors, the volume is perfectly produced and illustrated. An admirable bibliography concludes the volume, and the fact that the literature dealing with these caves covers a period stretching from 1786 to 1912 is perhaps sufficient evidence of their infinite power to stimulate interest and investigation.

The text of the volume at present under review, while as strictly scientific and accurate as possible, is warmed by many sympathetic references, M. Cartailhac having, from his lifelong labours in this field of archæology, acquired no little affection for these long-forgotten followers of the chase, no little insight into their habits and life.

WILLIAM WRIGHT.

THE DIVINING ROD.

WITHIN the last few years many experiments have been performed in various countries to test the claims of water diviners, and among those who have published papers on the subject are Graf Karl von Klinckowstroem, of Munich, and Dr. Armand Viré, director of the Laboratory for Underground Biology in Paris. A series of experiments at Guildford has also been organised by the editor of *The Sanitary Record and Municipal Engineering*, under the auspices of a number of scientific men, including Prof. Henry Adams, Dr. Herbert Lapworth, and Dr. Samuel Rideal.

Graf von Klinckowstroem, in a paper published in parts 1, 2, and 3 of the *Zeitschrift des Vereines der Gas- und Wasserfachmänner in Oesterreich-Ungarn* for 1913, gives, in the first instance, an

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account of certain supposed successes in water-finding, which Dr. Achille Poskin, of Spa, has gathered together from various sources. These are not very interesting, as the observations do not appear to have been controlled by impartial witnesses possessing some knowledge of scientific methods.

But Dr. Poskin also includes an account of five experiments undertaken by him, in which the diviners indicated places where water was found. Dr. Poskin believes that he himself possesses the power of detecting water by means of the divining rod. In any case, it is quite certain that "dowsers" are frequently successful in indicating points where water is subsequently found; the real question is, whether these indications are produced by anything outside themselves, or whether they are purely subjective.

In the same paper Graf von Klinckowstroem has translated into German a paper describing my own experiments, accounts of which were published in *The Times* and in *The Journal of the Royal Society of Arts* in 1911. He admits that the experiments were performed with all reasonable care, and without any prejudice, but he describes them, using stronger language than I did, as a fiasco for the diviners who were tested, and then gives a number of possible reasons why the experiments may have failed. He does not give enough weight to the fact that in every case the experiments were conducted under conditions which the dowser in question thought reasonable, and were directed to test powers which he alleged he possessed. This seems to be the only reasonable way of attacking the question from a scientific point of view; it is not for the investigator to say what the dowser can do, or under what conditions he can do it, but when the dowser has stated what his powers are, to arrange an experiment which shall test the alleged powers.

M. Armand Viré (*La Nature*, April 19, pp. 332-338) has conducted a series of experiments in order to ascertain whether the diviners could determine the existence of underground cavities which did not contain water; the results given by M. Viré include a considerable number of "successes," but he passes over too lightly the cases in which the indications given by the diviners are inaccurate. It will be interesting to await the result of an experiment which he proposes to undertake later, in order to discover the shape and extent of caves or grottoes the existence of which has not yet been proved, and the plans for which will only be prepared after the diviner's plans have been reduced to paper.

The series of experiments recently performed in the neighbourhood of Guildford have now been completed, and the committee of investigation has published its report. The members point out that, while there appeared to be some evidence that certain persons may be sensitive to underground water, their sensitiveness "is not sufficiently definite and trustworthy to be of much practical value." They also allude to the lack of

agreement with each other which the results show, and they take this as evidence that the movements of the rod are due to subjective and not to objective causes. These are precisely the opinions formed as a result of my own series of experiments; and it may still be assumed that no adequate evidence has been produced in favour of the existence of something acting outside the dowser which causes his twig or other indicator to move when it is over water.

In *La Nature* for May 10 (p. 379), M. Gustave Le Bon has published an article recording the success of certain diviners in discovering the metals contained in five envelopes (viz., aluminium, copper, silver, lead, and zinc); but, as he admits, the method of experiment was not satisfactory, since he thinks he may unintentionally have given signs of approval while the diviners consulted together as to what metals were contained in the envelopes, and since the method of procedure involved the displacement of the envelopes by the diviners, thus giving them an opportunity of forming an opinion based on the different weights, &c., of the metals. He also mentions that M. Coupaux, who performed similar experiments, only had one success out of five, but that the diviners objected to these experiments because the metals were enclosed in glass tubes, and, as they allege, the glass prevents their feeling the influence of the metals.

On the whole, M. Le Bon is of opinion that there is enough evidence to warrant further examination into the claims of diviners; he thinks, however, that the commission appointed by the Académie des Sciences to examine into the question so far as it relates to the discovering of springs ought to do more, and he asks that this commission may also undertake experiments similar to those which he has performed. My own experiments in this direction went to show that the experienced diviners with whom they were tried were not able to discover gold or silver by means of their rods; for though one diviner scored a remarkable success in a single instance, he was absolutely wrong in the other experiments of the same kind which he performed. Nevertheless, this single success (fortuitous as I believe) confirmed an intelligent friend who witnessed it in his belief that the powers of the diviners are real!

J. WERTHEIMER.

DR. P. L. SCLATER, F.R.S.

ZOOLOGISTS throughout the world will join with their English brethren in lamenting the death on June 27—albeit at the advanced age of eighty-four—of Dr. Phillip Lutley Sclater, F.R.S. The second son of the late Mr. W. L. Sclater, of Hoddington House, Hants, the deceased naturalist was born in 1829, and received his education first at Winchester and subsequently at Corpus Christi College, Oxford, where he graduated first class in mathematics, and subsequently became honorary fellow of his college. In 1855 he was

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called to the Bar as a member of Lincoln's Inn, and in 1875 he acted as private secretary to his brother, the Hon. G. Sclater-Booth (afterwards Lord Basing), when President of the Local Government Board. So early as 1850 he had commenced to write on zoology. Soon after his call to the Bar he devoted himself mainly to natural history, and he was elected secretary to the Zoological Society of London in 1859, which important post he retained till 1902, when advancing years led to his voluntary resignation.

During the greater part of that prolonged period Dr. Sclater was the ruling spirit of the society, and it was to his organising capacity and untiring energy that the menagerie in Regent's Park attained the pre-eminent position it occupied, both as a zoological centre and a place of popular resort, at the time of his retirement. He was also editor of the society's numerous publications, to which he communicated an extraordinary number of valuable papers and memoirs; and it was during his term of office that the Proceedings became entitled to rank as one of the very foremost zoological journals in the world.

But the executive and scientific work connected with the Zoological Society by no means sufficed to absorb all the energies of its secretary, for in 1859 he became editor of the *Ibis*, a then newly started ornithological journal, and held that post until 1865, to resume it, in conjunction with the late Mr. Howard Saunders, in 1883, and to hold it, either alone or associated with others, throughout the rest of his working career. Dr. Sclater was also one of the founders of the British Ornithologists' Union, of which body he long occupied the presidential chair. Of even more importance, perhaps, was Dr. Sclater's share in the foundation and maintenance of the "Zoological Record," as without that wonderful work of reference zoology at the present day would be an absolute impossibility.

Dr. Sclater was also one of the pioneers—if not the actual founder—of the modern science of geographical distribution; and it is to him that we owe such now familiar terms as "Palæarctic" and "Nearctic," which are excellent examples of the classic form of scientific nomenclature in which he delighted.

The prodigious amount of scientific work, more especially in ornithology, produced by Dr. Sclater may be inferred from the fact that a record of his career published some years ago contains entries of something like 1200 different papers and memoirs. From a popular point of view one of the most attractive works with which he was connected was Wolf's "Zoological Sketches," while his monographs of various groups of South American birds are models of their kind.

For the greater part of his long life Sclater was a man of intense activity and energy, and only during the last few years did he show signs of failing health. Injuries received in a carriage accident a few weeks ago hastened the termination of a long life devoted to the advancement of zoological science.

R. L.