

fer of its name to the doctor who employs it," and that "it has been suggested, however, that the term was applied rather by way of analogy." Again, in reading of the intelligence of the land-leeches of Ceylon we learn that "they may ascend herbs and shrubs to gain a better outlook when they are aware of an approaching footstep." The most valuable part of Mr. Beddard's account of the Hirudinea is his discussion of their relationships with the Oligochata.

The chapters of Mr. Shipley on the Gephyrea and Phoronis are among the best in the book, and his treatment of the affinities of these troublesome forms is most full and impartial. The account also includes a table of genera and species.

The excellent final chapter by Mr. Harmer on the Polyzoa is restricted to British forms, and concludes with a detailed table for the determination of British genera.

As a whole, the work is to be most highly commended and is the best general account of 'worms' that has appeared. If the scope of the book had been somewhat more extended so as to include, in all classes, other than British forms, its value and usefulness would have been much enhanced. In criticism it can be said that the book is not altogether well balanced as to the space allotted to the different classes, and that a general introduction on affinities and classification in addition to the tables which precede the text would have been of value for the student. The illustrations, with a few exceptions, are of the highest order and include many new ones; as exceptions may be mentioned Figs. 8 and 14, which are little more than caricatures.

W. MCM. WOODWORTH.

The Swastika. By THOMAS WILSON. Washington, Government Printing Office. 1896.

This extensive monograph of about 250 pages, with 25 full plates and 374 figures in the text, is from the report of the National Museum for 1896. The author is the Curator of the Department of Prehistoric Archaeology in the Museum, and well known to students in that branch. His subject is the hooked cross, that figure called in English the 'fylfot' (four footed), and in the East Indies, *swastika*. This the author, in his sub-title and throughout his

volume, claims as 'the earliest known symbol,' and prepares to point out its 'migrations.'

The subject is by no means a new one, as Mr. Wilson's appended bibliography abundantly shows; but there have been so many explanations of the origin and significance of this figure, and so many claims made for it as of historic value in indicating early migrations or relations of tribes, that it was quite desirable that a calm survey and clear analysis of them should be made. Mr. Wilson, by his wide reading and acquaintance with prehistoric archaeology, is eminently qualified to accomplish this task; but by reason of his general theories on the origins of culture has, it must be said, failed in his presentation.

Not that his volume lacks in thoroughness, or that it is not of very high value to anyone who would trace the prevalence of this figure in both the Old and the New World. In these respects the work is satisfying; it overflows with quotations, and is accurate and attractive in its numerous illustrations. But all this wealth of resource is, in the opinion of many close students of the topic, seriously injured by two hypotheses of the author which continually interfere with the accuracy of his perspective.

These are, first, that the *swastika* is always to be regarded as a symbol; and, secondly, that it 'migrated' from one or two centers and was in some sense a racial or ethnic figure.

Both of these hypotheses have been shown to be unquestionably erroneous by the latest researches in the decorative art of both hemispheres. The 'fylfot' in American, Polynesian and Asiatic art has been proved by Von den Steinen, Stolpe, Regnault and others to be as purely decorative as it is in modern wall paper. It has been found in Semitic and Egyptian art, whence scholars of Mr. Wilson's school have tried to exclude it. Like other simple linear figures, its origin is not single but multiple; and both as a picture and a symbol it has stood for widely diverse objects. The mysteriousness which has been thrown about it disappears on an examination of its origins and meanings in many different tribes wide apart in geographic location; and had the author of the volume before us, so excellent in many respects, sur-

veyed his vast aggregation of facts in their purely objective relations, we are sure he also would have reached this conclusion.

D. G. BRINTON.

L' Origine de la Nation Française. By PROFESSOR GABRIEL DE MORTILLET. Paris, Felix Alcan. 1 vol. Pp. 336. With 18 maps and 158 illustrations. Price 6 francs.

In this work Professor Mortillet means to begin at the beginning, so that he passes as merely modern the classical writers and even the dispersion of the Aryans, commencing his history of the French people about 230,000 years ago, and not willingly admitting any fundamental alteration since in the racial type.

His volume is divided into several parts, the first embracing a review of what the Greek and Roman writers said about the area he is discussing. He recognizes the Ligurians as a distinct people, representing, probably, what might be called the autochthonous type. On the other hand, he believes that Gauls, Celts and Germans were a single and exotic type, one that at various remote as well as modern dates invaded the soil of France and made much noise in history, without profoundly affecting the primitive inhabitants.

His chapter on the languages is the least satisfactory of the book. He does not present accurately or even fairly the principles or the results of the best school of linguistic ethnology. His treatment of the Aryan question—one all-important in the prehistory of Europe—is quite inadequate, and is chiefly occupied with the opinions of authors now antiquated (Pictet, etc.).

A chapter on the ancient forms of writing and alphabets which have been discovered in France is abundantly illustrated and full of interest. His conclusion is that neither history, language nor etymology can solve the problem of the origin of the French peoples, so he turns toward prehistoric discoveries.

These occupy the latter half of his work. Here the author is thoroughly at home with his subject. He explains in clear and forcible language the doctrine of the development and transformation of organic forms up to the semi-human *Pithecanthropus*, and finally, to man, in the early Quaternary. This remote ancestor

is traced on the soil of France through his oldest 'Neanderthaloid' condition, when all his tools were of rough stone and his skin still hairy, down to a date when he was rudely assaulted by some people of higher culture arriving from the distant East, bringing with them more murderous weapons of polished stones and the far-killing bow and arrow. These were Neolithic tribes, brachycephali, from somewhere between Thibet and Asia Minor. They were followed in later days by another Asian invasion, from a remoter point of the Orient, who introduced bronze and the knowledge of tin.

From the commingling of these various streams on the soil of France, Professor de Mortillet would derive the present French nation, allowing, in addition, the known historic alliances. His principal point is, that from remotest antiquity, unerased by boreal glaciers or Roman swordsmen, by Semitic pirates or Allemanian war-lords, there has lived in the fertile valleys and on the green mountain sides of France the same 'patient, industrious democracy,' which, by its tenacious energy and unflagging labor has placed their nation as the leader in the van of modern civilization.

There is much in these theories of prehistoric migration in conflict with prevailing opinion in France itself—much that the author fails to support by convincing arguments. But apart from all questions of opinion, no reader can be disappointed in the remarkable amount of accurate information gathered in his pages and presented in a bright, pleasing style, which will render the volume attractive even to those who are but incidentally interested in the problems it undertakes to solve.

D. G. BRINTON.

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SCIENTIFIC JOURNALS.

AMERICAN CHEMICAL JOURNAL, JUNE.

The Constituents of Pennsylvania, Ohio and Canadian Petroleum between 150° and 220°: By C. F. MABERY. The author refers to the conflicting statements published with regard to the composition of Pennsylvania petroleum based partly on the results of investigations on the Rûs-