

depends. The fact is brought out in several papers that the interfacial tension between slag and metal determines the separation of non-metallic inclusions, but only in the instance of the formation of metallic "fogs" when fused metals are in contact with their halogen salts have any actual determinations of this important factor been made. In welding and soldering, the efficiency depends on the wetting of the metal by the liquid, as well as on the solvent power of the flux for oxides, but neither the chemical nor the physical factor has been studied in any systematic way. Aluminium, the oxide of which is very difficult to eliminate, has received more attention than most metals, but much of the work remains merely qualitative. The papers, although technical in character, should be of interest to chemists and physicists who are concerned with problems of solubility and of surface tension. The importance of non-metallic inclusions is shown by a study of their influence on the resistance of metals to fatigue, and any work which would tend to lessen the frequency of these undesirable constituents would be of great value to the metallurgical industries.

*Tulum: an Archaeological Study of the East Coast of Yucatan.* By S. K. Lothrop. (Publication No. 335.) Pp. vii + 179 + 27 plates. (Washington: Carnegie Institution, 1924.) n.p.

IN this volume, Dr. Lothrop has placed on record the results of three expeditions of the Carnegie Institution of Washington to the east coast of Yucatan under the leadership of Dr. Sylvanus G. Morley in 1916, 1918, and 1922. The main objective was Tulum, the most important ruin in this region, but other sites also were visited. Dr. Lothrop, however, has not confined himself to the work of these expeditions, but aims at giving a complete account of present knowledge of the archaeology of this area by summarising previous publications covering sites not visited on these occasions. The Maya culture of this part of Central America presents certain peculiarities in architecture, art, and religion which mark it off from the rest of Yucatan. Such are, for example, an absolutely new type of building—the shrine, and the sanctuary, the latter occurring in structures here called "palaces," as they appear to have served as residences rather than as temples. The frescoes, of which a large number have survived, are comparable with the drawings of the codices and are regarded by Dr. Lothrop as but little inferior to the Dresden codex which is the high-water mark of Maya art. Dr. Lothrop's detailed and lavishly illustrated account of this localised development of Maya civilisation, and his analysis of its cultural and ethnical affinities, is a contribution to American archaeology which will rank high.

*Outlines of Medical Zoology: with Special Reference to Laboratory and Field Diagnosis.* By Prof. Robert W. Hegner, Prof. William W. Cort, and Francis M. Root. Pp. xv + 175. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1923.) 11s. net.

THE "Outlines of Medical Zoology," which has recently been published by Prof. Hegner and his colleagues in the Johns Hopkins University, is a convenient little book for the use of medical men in the field, and for

teachers of zoology in schools and universities where the economic applications of the science are included in the curriculum, but it is too concentrated for the elementary student and not sufficiently detailed in description for those who are seriously engaged in the study or the practice of the subjects. There is, perhaps, some danger lurking in these little books that the student, who has not much time to devote to it, may imagine that he has mastered the subject by learning off the tables and diagnoses by heart. They should only be used after or associated with a course of practical work in the laboratory accompanied by some further instruction in the morphology of the animals described.

We must acknowledge, however, the great care and skill with which the authors of the three parts—on protozoology, helminthology, and entomology—have condensed their wide knowledge and practical experience of their subjects, and recognise that the book will prove to be extremely valuable to many zoologists and medical men.

*Theories of Memory.* By Dr. Beatrice Edgell. Pp. 174. (Oxford: Clarendon Press; London: Oxford University Press, 1924.) 7s. 6d. net.

THIS admirable and valuable little book brings together in short compass, but in clear and comprehensible terms, the leading theories of memory, in particular the attempts to give precision and definition to the term "memory-image." Theories of memory, like theories of colour-vision, are baffling to the student in their numerical variety and diversity of principle. Miss Edgell reviews the biological theories of Hering, Butler, Semon, and Jennings, the behaviourist theory of J. B. Watson, and Lloyd Morgan's variation of it; she gives a general outline of philosophical treatment of the problem from Hobbes to the present day, discusses the views of Alexander, Bertrand Russell and Holt, criticises Bergson, and finally offers what she terms a psychological conception of retentiveness. Although it is a brief account of sometimes elaborate theories, the book bears throughout the mark of long and earnest study of the problem.

*Exercises and Problems in Practical Physics: with Notes on the Theory.* By G. N. Pingriff. (Bell's Natural Science Series.) Pp. xxii + 199. (London: G. Bell and Sons, Ltd., 1924.) 4s.

MOST of the practical work, with the exception of the most elementary, likely to be carried out in school physics laboratories is covered by this little volume. It is no mere compilation of recipes for securing "results," although of course adequate directions are given for performing the experiments, some of which are refreshingly original while evidently practicable and instructive. Most valuable, however, are the accompanying comments, suggestions, and queries, which are well calculated to arouse the interest of the student and encourage him to think for himself. There is in addition a good deal of useful information of a practical nature which is evidently the fruit of a wide experience in teaching physics. In short, the book may be confidently recommended to student and teacher alike.