

Egypt to the End of the Old Kingdom

By Cyril Aldred. (The Library of Early Civilizations.) Pp. 143 (illustrations). (London: Thames and Hudson, 1965.) 30s.

Early Mesopotamia and Iran

By M. E. L. Mallowan. (The Library of Early Civilizations.) Pp. 142 (illustrations). (London: Thames and Hudson, 1965.) 30s.

BOTH these authors are front rank authorities on their subjects, and both are able to write clearly and simply. In neither case is it the intention to offer a book for the specialist; what is intended is to provide a short, clear, up-to-date account of the story of both these regions, so vital to the development of human civilization. Both volumes are profusely illustrated, not a few examples being in colour.

The Egypt volume starts with a detailed chronology and a map. Chapter one deals with the beginnings of human settlement, and rightly mentions finds of early palaeolithic date. An actual date of 200,000 years ago can only be guess-work; they may well be older! The change-over from hunting to farming is next dealt with. This was one of the great stages in human development. For the first time community life was possible and village life evolved. There follows a brief account of the early pre-dynastic period, mention being made of such early cultures as those from the Fayum, Merimde and Badari. Illustrations of the typical tools and pottery are given. In the same way the later predynastic period is dealt with in the next chapter, and following this there is an account of the transition to the Dynastic Age. The Dynasties I-VI next pass under review, and there is a concluding chapter on the sculpture of the Old Kingdom. For anyone wishing to know the essentials of early Egyptian archaeology, and what has been unearthed, this book can be strongly recommended.

Much of what has been said about Cyril Aldred's book on Egypt can be said about M. E. L. Mallowan's *Early Mesopotamia and Iran*. Once again the volume is profusely illustrated, not infrequently in colour. There are chronological charts and a map. The first chapter deals with the urban development in Uruk and Iran somewhere round about 3500 B.C. Many examples of the painted pottery from this early period are indeed lovely. We pass on to an account of the temples in the plains and their associated finds and sculptures. At this time we can note the invention of writing, which has had so profound an influence on civilization. There is an interesting account of the daily life at Uruk. Next we pass to the early Sumerians and their culture, followed by the early dynastic period when we note a considerable improvement in architecture and ornaments of all kinds. For example, the well-known Royal Standard of Ur, which illustrates the activities of the King and his court both in peace and in war, is an object of great beauty. Some of the sculptures, too, show an amazing control over the medium when the early date is remembered. Once again this is a volume to be read by anyone wishing to know something of the fundamentals of the early civilizations in Mesopotamia, an area which has played such an important part in the growth of civilization as we know it to-day.

M. C. BURKITT

Tensors in Mechanics and Elasticity

By Prof. Leon Brillouin. Translated from the French by Robert O. Brennan, S.J. (Engineering Physics: an International Series of Monographs, Vol. 2.) Pp. xviii+478. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd. 1964.) 89s. 6d.

TENSORS in *Mechanics and Elasticity* is a translation from the French of the 1938 edition of Prof. L. Brillouin's well-known text-book. It is, of course, a classical book in this field and nowadays forms an excellent introductory text. Although, to-day, there are many

text-books (in English) which describe the use of tensors in physics in great detail, there is still room for the broad introductory treatment. The clarity of Prof. Brillouin's writing has been carried through the translation. On the whole the text is given in good clear English, although there are places where it is slightly stylized.

Unfortunately it is inevitable that this book is dated both in the subject material and in the reference list, neither of which has been brought up to date during the translation. However, because of the basic work covered, this is not too great a disadvantage. The material covered runs from a description of vector geometry, affine geometry and Riemann space to wave mechanics and elastic waves in solids. The idea of a tensor is introduced before proceeding to a discussion of the role of tensors in physics. The reader is led through the mathematical analysis step by step. This part of the book occupies the first seven chapters. A discussion of problems in mechanics and elasticity then fills the remaining five chapters. This discussion demonstrates how tensors form a natural basis for, and so simplify, the treatment of these subjects. Altogether it is a useful addition to the English booklist.

The production is good and the print is clear and easy to read; unfortunately this seems to have kept the price high.

P. A. EGELSTAFF

Radioactive Isotopes in Instrumentation and Control

By N. N. Shumilovskii and L. V. Mel'tser. Translated by R. F. Kelleher. Translation edited by P. J. Blaetius and G. A. Young. (International Series of Monographs on Nuclear Energy. Division 4: Isotopes and Radiation, Vol. 3.) Pp. xiv+198. (London and New York: Pergamon Press, 1964.) 70s. net.

UNTIL recently the application of radioactive isotopes to control engineering was mainly confined to a few simple techniques such as the use of tracers, and the measurement of thickness or level. At present there is an increasing interest in more sophisticated techniques which permit the measurement of fluid flow, pressure, humidity, and chemical composition. Descriptions of single techniques, or brief reviews of specialized applications, are scattered in the literature, making the subject difficult to include in formal studies. The present monograph, by authors who have an international reputation in the field, not only rectifies this but will also probably do much to stimulate the imagination of instrument designers and manufacturers.

The introduction, which occupies a quarter of the book, is unsatisfactory since it assumes no previous knowledge and yet attempts too briefly to cover nuclear physics and statistics up to the point of practical application. However, for a reader with previous knowledge of conventional nuclear instrumentation the introduction may prove useful for its formulae, arranged in convenient form for numerical interpretation.

Other chapters are concerned with measurements of thickness and density by absorption and backscattering methods, the measurement of level and flow of liquids, and the measurement of flow and pressure of gases. There is also a chapter on composition control by a variety of interesting techniques, including ionization methods, absorption and scattering, radiation spectrometry, and neutron activation. Two chapters are devoted to system analysis. One of them gives a most useful analysis enabling the radioactivity of the source to be minimized for a particular dynamic response. The other gives an analysis of electromagnetic relay operation.

The misprints are few, and most of them are obvious. However, a few could be misleading to a reader without previous nuclear knowledge (for example, "neutron" for "neutrino" on p. 3). The uncustomary symbols in the equations were found stimulating rather than annoying, and the book can be recommended for the inspiration it will give to instrument designers in industry.

B. M. WHEATLEY