

of a chamber of ammonite from the chalk, which Mr. Reid Moir still thinks has been touched up by man to give it the semblance of a mammoth.

To complete his account of the Old Stone Age, Mr. Reid Moir adds a short chapter on the known human remains from other localities, and concludes with some reference to East Anglian discoveries. It is difficult to believe that the very modern type of human lower jaw from Foxhall dates back to the period of the Red Crag in which it was found. The claims of the so-called Ipswich man to Palæolithic antiquity are also somewhat doubtful.

One chapter is devoted to the Neolithic period in East Anglia, with beautiful illustrations especially of the discoveries at Grime's Graves. Mr. Reid Moir suggests that these flint mines may have been begun in Palæolithic times, and includes a good photograph of the flint incised with the outline of an elk, which was discovered by Mr. Leslie Armstrong.

The men of the Bronze Age and later times in East Anglia are known chiefly from remains in burial mounds and cemeteries. There are still flint implements in some of the mounds of the Bronze Age, and a flint implement was found in each hand of a skeleton in one of the Roman cemeteries. In the latter case the implements were well patinated and clearly much older than the Roman period.

In a concluding chapter, Mr. Reid Moir discusses the place of origin and the progress of man. He thinks that England is just as likely as central Asia to have been his original home, and he pleads for a more intensive examination of the later geological deposits in Britain. He himself has long pursued the research with indefatigable zeal and with "well ordered imagination" (as he terms it), and his new book should stimulate others to follow his example. A. S. W.

Our Bookshelf.

A Graphic Table combining Logarithms and Anti-Logarithms: giving directly without Interpolation the Logarithms to Five Places of all Five-place Numbers and the Numbers to Five Places corresponding to all Five-place Logarithms; also a Graphic Table as above reading to Four Places. By Adrien Lacroix and Charles L. Ragot. Pp. xi+46. (New York: The Macmillan Co., 1926.) 6s.

THIS volume presents a 5-figure logarithmic and a 5-figure anti-logarithmic table in graphical form. A typical page is that providing the logarithms of the numbers 40,000 to 43,000. Twenty-five

horizontal lines are divided on their upper side into 3000 parts, each about one mm. long. Every tenth division is numbered, thus forming a linear scale from 40,000 to 43,000. The lower side of each line is graduated logarithmically, these graduations extending from 0.60206 to 0.63347. Hence the logarithm of a number may be found to five decimals without interpolation by locating the point in the upper scale corresponding to the number, and then reading the lower scale at this point. The reverse process serves for the finding of a number from a given logarithm.

Although suggestive of the slide rule, the graphical table is merely one of logarithms and anti-logarithms. The advantages claimed are the elimination of interpolation, and compactness, for the table occupies only 40 pages as against 380 for a fully printed 5-figure table. The authors do not seem to be aware that such a table actually exists in Scott's "Tables of Logarithms and Anti-Logarithms to Five Places," which, incidentally, is sold at exactly the same price as their table. The choice between the two tables is entirely a matter of temperament. One computer will find the graphical table easy to use, while another will find the reading of scales irksome, as it calls into play faculties which he does not usually exercise in his profession, and so will prefer the extra labour of turning over more pages, with its compensation of the fully printed result opposite a fully printed argument.

At the end of the volume is a similar 6-page graphical table giving directly 4-figure logarithms and anti-logarithms, which would meet the needs of most workers in engineering, the field in which graphical methods are most in vogue. L. J. C.

Memoirs of the Geological Survey, Scotland. The Oil-Shales of the Lothians. Third edition. Part 1: *The Geology of the Oil Shales Fields.* By R. G. Carruthers, based on the work of H. M. Cadell and J. S. Grant Wilson. Part 2: *Methods of Working the Oil-Shales.* By H. Caldwell. Part 3: *Chemistry and Technology of the Oil-Shales.* By E. M. Bailey. Part 4: *History of the Scottish Oil-Shale Industry.* By H. R. J. Conacher. Pp. x+274+12 plates. (Edinburgh and London: His Majesty's Stationery Office; Southampton: Ordnance Survey Office.) 5s. 6d. net.

THIS memoir was first published in 1906, revised in 1912, and is now in its third edition. It deals fundamentally with the geology and technology of the Scottish oil-shales, and now, as hitherto, constitutes the standard authority on the subject, especially concerning Scottish retorting practice. Much of the section on the chemistry and technology of the shales has been rewritten by Mr. E. M. Bailey, while the methods of working the raw material have been revised by Mr. W. Caldwell. An interesting part has been added by Mr. H. R. J. Conacher on the history of the industry since its beginning in 1858 up to the present day. In other respects the volume is not greatly changed, except for the addition of several excellent illustrations and a decidedly improved version of the geological map. A sheet