

subject in London about twenty-five years later. Sir Oliver Lodge and Mr. J. W. Clark in 1884 investigated the dust-free space in the neighbourhood of hot bodies—a phenomenon to which is attributed the blackening of walls, ceilings, etc., in the neighbourhood of gas flames and electric light bulbs (p. 24)—and suggested the use of an electrical discharge as a means of dissipating fog and smoke. In 1885, Messrs. Walker and Hutchings, in association with Lodge, attempted the commercial exploitation of the electrical cleansing of gases. In those days the methods of producing high-tension discharges were primitive, and the difficulties of securing efficient insulation were insufficiently appreciated. The attempt was ultimately abandoned.

The subject was revived by Cottrell in 1906 and the practicability of the system definitely established. The first successful commercial plant was erected by the Selby Smelting and Lead Company at San Francisco Bay. The Lodge and Cottrell financial interests were amalgamated by the formation of Lodge-Cottrell Limited, now working in friendly co-operation with the Metallbank u. Metallurgische Ges. A.-G. The scale of the operations may be gauged by reference to the first successful plant erected at Queen's Ferry by the Ministry of Munitions in connexion with a Gaillard sulphuric acid tower. Here about 64,000 cubic feet of gas at 80° C. flow per minute past the discharge and collecting electrodes and carry about 4 grains of SO₃ per cubic foot. The operating voltage is about 100,000 volts, and about 30 tons of sulphuric acid are recovered a day.

The practical difficulties have not as yet, in all cases, been overcome. There are troubles connected with the dislodgment of the deposited dust from the electrodes. The hygroscopic character of the dust introduces difficulties in some cases; the shape of the electrodes is of paramount importance in others. The plant is necessarily on a large scale. Thus a plant erected to operate in conjunction with a number of blast furnaces was, on account of its size, popularly known as "the cathedral." Even with plant on such a scale, difficulty was experienced in purifying the gases, originally containing 5 grams of dust per cubic metre, to such a degree as to render them fit for use in gas engines. However, progress is being made, and the process is nowadays applied in a variety of directions, there being about 200 plants operating in conjunction with plants for the recovery of products from acid fumes, waste gases from metallurgical processes, combustible gases and miscellaneous dusts. The average efficiency of the plants is such that about 95 per cent. of the dust content is deposited. Cleaning costs amount on the average to about 1s. per 100,000 cubic feet of gas treated.

J. S. G. THOMAS.

NO. 2929, VOL. 116]

The Art and Life of Early Man.

Prehistory : a Study of Early Cultures in Europe and the Mediterranean Basin. By M. C. Burkitt. Second edition. Pp. xxvi+438+48 plates. (Cambridge : At the University Press, 1925.) 35s. net.

IT is not surprising that Mr. Burkitt's treatise on pre-history should so soon have reached a second edition. It is a unique summary of the handicraft and art of the successive races of Palæolithic man in Europe, with some references to Neolithic and Bronze Age man. It is based on personal observation, guided by one of the foremost pioneers in such research, the Abbé Breuil. It is not only a clear statement of the facts in convenient order, but also a discussion of all the important inferences which may be drawn from these facts as to the life and ideas of primeval man. It is, indeed, both a work of reference and one which will satisfy the general reader who desires only a broad view of the subject.

The new edition is not much changed, only one chapter, that on "The Neolithic and Bronze Ages," having been largely rewritten. The author, however, mentions that he has taken note of various press criticisms, and he has made the book more useful by adding to the text references to the figures in the plates. He has also included a map of western Europe showing the position of the more important localities cited. The new frontispiece, representing the "sorcerer" in the cave of Trois Frères in southern France, is a striking addition. It is the figure of a man disguised by placing a stag's antlers on his head, drawn on the wall "dominating the situation beside the natural pulpit where no doubt the actual artist-medicine-man-priest performed." This and some other recent discoveries are specially mentioned in the preface prepared for this second edition.

The chief additions to the text are in short notes where space admits them at the end of each chapter. It is perhaps the simplest, but not altogether a satisfactory arrangement. The text itself still needs revision. The statement that "bone was first utilised in Upper Mousterian times" (p. 76) is contradicted by the reference to the bone implement from Piltdown (p. 89). A footnote on p. 94 has escaped notice. Some of the English construction could also be improved. The author does not mean what he says, for example, when he refers to heads which have been decapitated (p. 188); and there are other expressions which need some modification. These, however, are minor blemishes in a work which will continue to be indispensable to every student of prehistoric archaeology who would keep abreast of his subject.

A. S. W.