by contrast, great. Despite the shallow sigmoid notch, the articular surface of the condyle is boldly convex.

In the best-known specimens of European Neanderthal mandibles (La Chapelle-aux-Saints, La Ferrassie, La Quina, Krapina) the ascending ramus is conspicuously narrower than in the Haua Fteah fragment; but that of the presumably female Malarnaud jaw would assume a very similar appearance if its anterior border were built out to the same degree. All these European Neanderthal mandibles display a broadly truncated angle; although the posterior border in the Haua Fteah fragment is corroded, it does not clearly indicate such a truncated outline. In this respect the specimen more closely resembles the Mount Carmel mandibles. Among these the Tabun mandibles, and especially the female Tabun I, are nearest to the Haua Fteah fossil, a fuller account of which will be published by us in the *Journal of the Royal Anthropological Institute*, Vol. 83, Part I.

¹ McBurney, C. B. M., Hey, R. W., and Watson, W., *Nature*, **161**, 327 (1948); *Proc. Prehist. Soc.*, **14**, 33 (1948). McBurney, C. B. M., *Anthropologie, Paris*, **54**, 201 (1950). Bate, D. M. A., *Ann. Mag. Nat. Hist.*, (12), **3**, 981 (1950). McBurney, C. B. M., *Int. Congr. Prehist. Sci. (Zurich)*, **3**, 170 (1950).

² Blanc, A. C., *Quart. J. Geol. Soc. Lond.*, **93**, 621 (1937).

³ Gregory, W. K., *Nat. Hist., N.Y.*, **26**, 305 (1926).

⁴ McCown, T. D., and Keith, Sir Arthur, "The Stone Age of Mount Carmel". Vol. 2. "The Fossil Human Remains from the Levallois-Mousterian" (Oxford, 1939).

⁵ Tratman, E. K., *Dent. Rec.*, **70**, 45 (1950).

⁶ Pearson, K., and Bell, Julia, "A Study of the Long Bones of the English Skeleton". Part I. "The Femur". Text. Chapters I to VI. Drap. Company Mem., Blom. Ser., **10**, 46 (1919). Morant, G. M., *Biometrika*, **18**, 67 (1926).

wards in all directions. This was a structural mistake, as Marcel Bertrand warned him in conversation; but his demonstration of age relations provided Schardt with an essential clue to the correct interpretation. By 1895 Lugeon was almost certain that Schardt was right, and we find him closing a great memoir on the "Région de la Brèche du Chablais" with the words: "It is with doubt, mingled, however, with conviction, that I finish this work". Next year he declared himself completely satisfied.

Among the multitude of his subsequent papers we may perhaps single out for special gratitude "Les grandes nappes de recouvrement des Alpes du Chablais et de la Suisse", which was circulated in proof during a triumphant excursion, 1901, and "Les Hautes-Alpes calcaires entre la Lizerne et la Kander", 1914-18. One of his last services to science dates from 1950, when he presided over a 'réunion géologique en Provence pour commémorer le cinquantième des œuvres de Marcel Bertrand'. It was good to find the old hero defending some of Bertrand's tectonic discoveries, all too readily abandoned by the present generation.

In the utility field, Lugeon has also won distinction as a consultant on dam sites, both at home and abroad.

Lugeon's many honours include, in addition to the Wollaston Medal of the London Geological Society, the following appointments: honorary professor of the University of Lausanne, where for many years he taught; foreign member of the Paris Academy of Sciences, and of the Royal Societies of London and Edinburgh; Grand Officer of the Legion of Honour, France.

He is survived by a widow and son.

E. B. BAILEY

OBITUARIES

Prof. M. Lugeon, For.Mem.R.S.

AT Lausanne on October 23, Maurice Lugeon passed away, having reached the ripe old age of eighty-three. In him we lose one who may fairly be regarded as the chief participant in the most exciting achievement that stands to the credit of geological science.

Spectacular results regarding Alpine structure had indeed been obtained before Lugeon's day, but in 1893 something of a different order was introduced through Schardt's announcement of the far-travelled nature of the Prealps that extend from Lake Geneva to Lake Thun. Lugeon was closely connected with Schardt's discovery, and afterwards did more than anyone else to develop the ideas thus liberated, and to provide a comprehensive interpretation of the Alps as a whole. In 1885, Lugeon, only fifteen years old, began to accompany a junior assistant engaged upon the official geological survey, 1:80,000, of the French portion of the Prealps. By 1891 he had advanced to the position of rucksack-carrier to Renevier, the principal surveyor in his district. This resulted in an introduction to the director, Michel-Lévy, who, impressed by the part played by the 'petit homme' in a field conference, tried his mettle as an independent mapper. The result was satisfactory, and Lugeon was retained for some years to work for the French survey. In 1893, along with Renevier, he led an excursion of the Swiss Geological Society to the Chablais district upon which he was engaged. Here he demonstrated, on new fossil evidence, the existence of an important area which has peripheral Trias and Jurassic resting almost everywhere upon Tertiary strata. For him, in his youth and inexperience, the structure seemed to be a mushroom-fold, in which older rocks were supposed to have risen centrally through younger, thereafter to spread out-

Mr. A. W. Ashby, C.B.E.

ARTHUR WILFRED ASHBY, whose death occurred at Oxford on September 9 at the age of sixty-seven after a few days illness, had a world-wide reputation as a student of agricultural organization and rural social life. Born at Tysoe, in Warwickshire, he was the eldest son of Joseph Ashby, a farm-worker and smallholder, a Methodist lay-preacher, and a friend and colleague of Joseph Arch, the organizer of the first Agricultural Labourers' Union. Arthur Ashby was educated at the village school, proceeding thence after a few years work on his father's holding to Ruskin College, Oxford, as the first holder of the Charles Buxton Scholarship, recently endowed, tenable by the sons of farm-workers. In 1911, he was awarded the University diploma in economics and political science, and in the following year the Board of Agriculture awarded him a research scholarship in agricultural economics; its terms provided for two years study at Oxford in the newly-founded Institute for Research in Agricultural Economics, to be followed by a third year spent in some approved research centre overseas. In Ashby's case the First World War restricted the choice to one of the American universities, and it was to Wisconsin that he went.

Returning to Oxford in 1915, an honorary Fellow in political economy of Wisconsin, he began a study of the history of allotments and smallholdings which was published by the Institute in 1917, and although it was supplemented by later writers, it remains the classic on the subject. A period of work for the Board of Agriculture followed, during which he was