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

occupied mainly in the Food Production Department; but he had a large share, also, in the provision of data for the early work of the first Agricultural Wages Board, set up in 1917. He returned to Oxford in 1920, remaining there until 1924, when he was elected lecturer in agricultural economics in the University College of Wales, Aberystwyth, an appointment which was raised to a professorial chair five years later. Thus he continued until 1946, when he returned once again to Oxford as director of the Agricultural Economics Research Institute, to retire finally in December last.

All through his life, Ashby showed an immense capacity for work. His early experiences as a member of a farm-worker's family at the end of the past century, and his own achievement of an education from village school to university standard in the days when this was not an easy accomplishment, had given him a deep and lasting interest in education and its provision on a wider scale for those capable of profiting by it. At Aberystwyth he created the school of agricultural economics, and when that was established as the foremost place of study of the subject in the United Kingdom, he went on to found a postgraduate school which achieved an international reputation, attracting graduate students from all parts of the world. This interest was further developed during his last years, when the research institute at Oxford became the Mecca of students from the Commonwealth, the United States and other places. Subsidiary to this work was his interest in administration. So early as 1919 he had been a member of the Royal Commission on Agriculture, and three years later he served on a departmental committee on prices of farm produce. Marketing problems became his particular study, especially co-operative organization, and when the co-operative movement in English agriculture suffered its lamentable collapse in 1920, more credit was due to him, probably, than to any one supporter that the Welsh Agricultural Organization Society survived, to extend its influence in Welsh rural life in subsequent years.

Other bodies on which Ashby served with distinction were the second Agricultural Wages Board, set up by the first Labour administration in 1924, and the councils of agriculture for England and for Wales. He did much to promote the good of the Young Farmers' Clubs movement, and the efforts of the Women's Institutes to secure better conditions in rural social life.

From this record it will be apparent that Ashby's main preoccupation was the human side of the work that offered, and that his direct contributions to economic research and its literature were subordinated to it. Nevertheless, the influence which he exercised on the development of his subject cannot be over-estimated, and he was an inspiration to all those—and they were many—with whom his life brought him into contact.

C. S. ORWIN

Mr. James Fairgrieve

THE death of James Fairgrieve at the age of eighty-three removes one of the few remaining members of the band of reformers whose work has given us the modern concept of geography, and who have seen in their lifetime its firm establishment throughout the schools as a subject of major cultural value and in all British universities as a discipline of comparable worth—all largely as a result of their own activities. A son of the manse, he was born at

Salteoats in 1870 and enjoyed the advantages of a peripatetic Scottish education at Salteoats, Ardrossan and Glasgow before proceeding as an Exhibitioner in both cases to Aberystwyth and to Jesus College, Oxford, where he graduated M.A. His early interests were classical and mathematical, and for periods in his early life he held the posts of mathematics master at Kelso and Campbeltown before appointment as head of the New Southgate High School in London. But he fell under the same spell as Herbertson, with whom he worked at Oxford, Halford Mackinder, under whom he studied at the London School of Economics, B. B. Dickinson of Rugby, and H. J. Fleure, to appreciate in the reform of geography the keystone of a new humanist teaching.

In 1907 Fairgrieve gave up his headship to become geography master and second master at the William Ellis School in North London. There he established what was perhaps the first 'geography room'—a well-equipped room set apart for the teaching of geography and which he regarded as important a necessity as a laboratory for chemistry or for physics. His view in this regard has now become fully accepted and the provision of such a room in schools is standard practice. He was forty-two when he was appointed to the post of lecturer in education with special reference to geography at the old London Day Training College for Teachers, afterwards the Institute of Education of the University of London. There he was destined to wield a remarkable influence for nearly a quarter of a century (1912–35) over successive generations of teacher-trainees taking their teacher's diploma after graduation in the University of London. In those years he seemed to change little. Tall, cadaverous, with a slight stoop, an unruly shock of iron-grey hair and an unkempt walrus moustache, he talked to his classes as if they were not there, yet with a burning enthusiasm which never failed to impress and endear. A martyr to digestive troubles, he subsisted for years on a small, thin, well-done piece of steak with nothing else; in later years he felt the cold increasingly, and seemed rarely to emerge from a great shaggy woollen overcoat which only served to enhance a vivid personality.

Fairgrieve neither under-estimated nor scorned the different ways of achieving reform. He knew that one may preach reform in the teaching of a subject for years without result: put one question in a public examination paper of a new type and teachers will adapt their courses overnight. Give the teacher the text-books with the new view and reform is assured. So he did an immense amount of examining and wrote many text-books. Most of the latter were in conjunction with Ernest Young—a short, rotund, insatiable traveller and *bon viveur*. Especially through the six books for the primary school and the three books for the secondary which formed the set of Fairgrieve and Young's "Human Geographies" (which have passed through innumerable editions), geography became something quite different in British schools. Critics to-day may say that the pendulum swung too far: in stressing the human aspects the essential physical basis and logical approach tended to be lost; but this was never intended by Fairgrieve himself. He believed firmly in personal observation for himself and the youngest school child alike, and so developed his interest in local and regional surveys and in microclimatology.

The film was hailed as a powerful new instrument in education, and it was natural to find Fairgrieve not only president of the Geographical Association