

OBITUARIES

Sir Arthur Keith, F.R.S.

WITH the death of Arthur Keith on January 7, there has passed one of the most outstanding exponents in his time of human and comparative anatomy and of physical anthropology.

Arthur Keith, the son of an Aberdeenshire farmer, John Keith, was born in 1866. In 1884 he entered Marischal College as a medical student, and was there brought under the influence of James Trail, the botanist, and John Struthers, the anatomist, both of whom provided a powerful inspiration which directed him towards a scientific career. After taking medical qualifications at Aberdeen, there followed a brief interlude when he undertook medical work for a gold-mining company in Siam. But it was an interlude of importance, for in his spare time Keith made anatomical studies of the gibbons and monkeys which inhabit the tropical jungles of the Far East and thus laid the foundation of what was to become one of the main themes of his life's work, the comparative anatomy of man and apes. His first paper in this field, which appeared in 1894, dealt with the ligamentous structures of the catarrhine monkeys. In his autobiography (published in 1950), Keith records that on his return from Siam in 1892 he had already decided to embark on an anatomical career; but he had an anxious period of waiting in very straitened circumstances before he was appointed lecturer in anatomy at the London Hospital Medical School. He occupied this post for thirteen years, during which he fully established his reputation as an anatomist by his work on the mechanism of respiration and on the comparative morphology of the heart, and by his important demonstration, in collaboration with Martin Flack, of the sinu-auricular mode of the heart. In 1908 he was appointed to the much coveted position of Conservator of the Museum of the Royal College of Surgeons, a position which he occupied with great distinction until his retirement in 1933.

Arthur Keith's name will always be linked with the Museum of the Royal College of Surgeons, just as, in his time, a reference to the College immediately called to mind the name of Arthur Keith. His distinguished predecessors were essentially academic zoologists and their interests scarcely encroached on the clinical field. But, with his clinical interests and experience, Keith focused attention on the value of the Museum as one of the finest records of the structure and history of the human body, with particular reference to the surgical disabilities and disorders which may affect it. No doubt he was better known in popular circles for his work on human evolution and fossil man; but he was no less well known in the anatomical and clinical field for his numerous and important contributions to the study of applied anatomy. In 1901 there appeared the first edition of his book "Human Embryology and Morphology", the sixth edition of which was published in 1947. The embryology of this book was not based (except to a very slight extent) on original observations; but it had the novel feature of linking together the facts of embryological development with those of comparative anatomy and evolution, and of interpreting the former in terms of the latter. For this reason it proved far more stimulating to students than the more academic and orthodox text-books on human embryology, and it has been very widely used for many years. It exemplifies particularly well the

remarkable facility which Keith possessed of clarifying and illuminating an abstruse subject by presenting it in a rather unusual perspective.

At the Royal College of Surgeons, Keith rapidly acquired a high reputation as a lecturer. Although by ordinary standards his delivery was not particularly good—as a speaker he was somewhat halting and hesitant—he had a capacity for making such intimate contact with his audience that each member almost felt that the lecturer was discussing problems with himself personally. From 1910 onwards, Keith devoted more and more time to the study of fossil man, and soon came to be recognized as one of the foremost authorities on this subject. The results of his investigations were published partly in book form (for example, "The Antiquity of Man", 1915) and partly in a series of scientific papers and essays. Many of the conclusions which he formulated in his earlier years, particularly his estimates of a great antiquity for modern types of man based on remains such as the Galley Hill skeleton and the Ipswich skeleton, proved later to be founded on insecure evidence. But it has to be realized that at that time fossil specimens of early man were very few and very fragmentary, and many of the techniques which are available to palaeo-anthropologists to-day were as yet undeveloped. One of Keith's outstanding characteristics was a combination of great intellectual honesty with a sincere humility, a combination which is surely a mark of the truly scientific mind, and he was always ready to admit errors of interpretation when the accumulation of evidence demonstrated these. Perhaps no instance of this characteristic is more striking than his immediate acceptance of the fraudulency of the Piltdown specimens when the evidence for this was placed before him last year. As a matter of fact (though he did not himself realize it at the time) Keith actually took the first step which forty years later led to the exposure of the forgery, by demonstrating that the Piltdown skull was that of a large-brained individual similar to *Homo sapiens* and by no means the microcephalic and somewhat simian type of skull which had been exhibited in the first reconstruction from the fragmentary remains.

In 1927, Keith was president of the British Association, and it was the result of his influence on that occasion that Darwin's old home, Downe House, was acquired by the British Association. It was also his influence which led the late Sir Buckston Browne to buy and endow an estate near by for use as an institute of experimental surgery. When Keith retired from his position as Conservator of the Royal College of Surgeons in 1933, he was appointed Master of the Buckston Browne Institute, and occupied that position until he died. He continued his anthropological work there, and in 1939 there appeared (in collaboration with T. D. McCown) what was perhaps one of his best works in this field, an elaborate and careful study of the remains of palaeolithic man which had been found at Mt. Carmel in Palestine. He also published in 1948 a book on "A New Theory of Evolution", in which he stressed (and in some ways perhaps rather overstressed) the factor of social segregation in racial diversification, and in 1950 his "Autobiography" appeared.

Sir Arthur Keith's scientific eminence brought him many honours and distinctions; but he remained always a modest and unassuming man. Above all, he will be remembered for his kindly personality. He was (as he himself records in his autobiography) an individualist and did not make friends very

easily among his immediate colleagues; but, for all that, he earned an affectionate regard from everyone who had met him, even from the most uncompromising of his scientific opponents.

W. E. LE GROS CLARK

Mr. J. E. Sears, C.B.E.

JOHN EDWARD SEARS, formerly superintendent of the Metrology Division of the National Physical Laboratory and, until recently, president of the International Committee of Weights and Measures, died suddenly in Teddington Memorial Hospital on December 21 at the age of seventy-one.

The son of the late John Edward Sears, formerly member of parliament for Cheltenham, he was educated at Mill Hill and St. John's College, Cambridge, of which he was a Scholar. He obtained first-classes in mathematics and mechanical sciences and, in 1907, was awarded the University's John Winbolt Prize for studies in civil engineering. He served an apprenticeship with Wigham Richardson, Ltd., Walker-on-Tyne. In 1910 he joined the National Physical Laboratory to take charge of the metrology section of the Physics Division and thus became responsible for maintaining the Laboratory standards of measurement in length, mass, area, volume and density, as well as for the associated verification work, including the testing of precision engineering measuring equipment and gauges. In 1913, as a consequence of the transfer of test work from Kew Observatory to Teddington, the testing of watches, chronometers, hydrometers, barometers and aneroids was added to the duties of Mr. Sears's section. During the First World War these duties greatly increased, especially in the development of engineering standards, measuring techniques and apparatus for the verification of all types of limit gauges, of which more than a million were tested at the National Physical Laboratory—a demand upon the Laboratory which arose from the application by the Ministry of Munitions of the principles of interchangeable manufacture to quantity production of weapons and ammunition. For his services to the country, Mr. Sears was made C.B.E. in 1920. Another consequence was that his section became established in 1918 as the Metrology Division, with himself as its first

superintendent, a post that he held until his retirement in 1946. During 1921–32 he was concurrently deputy warden of the standards at the Board of Trade.

Mr. Sears's pioneer work in metrology is without parallel in Britain. He combined outstanding powers of leadership and organization, a broad scientific knowledge, a flair for design and a clear perception of the basic metrological principles. These qualities, with his numerous contributions to the literature, his initiation and supervision of several researches of fundamental importance and the many examples of prototype measuring equipment developed under his personal direction, brought the Laboratory international renown in the subject which was of such absorbing interest to him. Among the work with which his name is especially associated may be mentioned a determination of the yard and the metre in wave-lengths of light, and of the refractive index and dispersion of air.

Mr. Sears was a member of the Institution of Mechanical Engineers and in 1948 he was awarded part of the Institution's Clayton Prize for his services to engineering science and manufacture by research and development in metrology and gauging. His presence on committees of the British Standards Institution was always in demand, particularly as chairman, and he continued his work for the Institution until the end. He was a member of the Hodgson Committee of the Board of Trade which reported in 1951 its recommendations for the revision of weights and measures legislation. Only in October last he retired from the International Committee of Weights and Measures, to which he had been elected in 1930. His election as president in 1946, a position of considerable influence and renown in the international metric organization, was a great honour not only to himself but also to the United Kingdom.

In earlier days Mr. Sears was a skilled exponent of the English style of skating, and he took a leading part in many of the social activities of the National Physical Laboratory. He had a keen interest in gardening and was a Fellow of the Royal Horticultural Society. He married in 1919 Kathleen Lucy, daughter of the late Edward Wadsworth, who survives him together with a son and two daughters.

H. BARRELL

NEWS and VIEWS

Rhodesia University College: Appeal

THE inaugural board of the Rhodesia University College has prepared a handsome illustrated brochure for circulation as a part of its campaign for funds and with the object of publicizing the College generally (see also p. 181). Messages are recorded therein from Lord Llewellyn, the Governor-General of the Federation of Rhodesia and Nyasaland, from Sir Godfrey Huggins, the Prime Minister of the Federation, and from other distinguished men. An outline of the history of the founding of the Rhodesia University College is given, and the 'special relationship' with the University of London which will exist in the early years is discussed. An artist's drawing of the University as it is expected to appear when the proposed buildings are completed shows an imaginative treatment of the site, which is on the outskirts of Salisbury, Southern Rhodesia. The £450,000 for which the present appeal is launched is

the balance still needed of the £2,000,000 required during the early years of the College's existence. Subscriptions and any requests for further information should be addressed to the Secretary, Rhodesia University College, 115 Baker Avenue, Salisbury, Southern Rhodesia.

Dr. Walter Adams, C.M.G., O.B.E.

DR. WALTER ADAMS has been appointed the successor of Dr. W. Rollo as principal of Rhodesia University College from November 1955, when Dr. Rollo's interim appointment comes to its close. Dr. Adams is at present secretary of the Inter-University Council for Higher Education in the Colonies, an appointment which he has held since the inception of the Council in 1946. He was born in 1906, and graduated at University College, London, with first-class honours in history, in 1926. Between 1926 and 1933 he held a number of research and teaching