

The skull, as it now stands, has been built up from twenty-five fragments of its frontal, parietal and occipital bones, and its original owner has been given the local name of 'Saldanha man'. The most striking feature of this skull is its massive brow-ridges and sloping forehead, which compel one at once to institute a comparison with Rhodesian man. In these respects and in the relative lowness of his cranial vault, there is no doubt that there are close affinities between the Saldanha and Rhodesian skulls. There are, however, significant differences, in that the Saldanha skull lacks the post-parietal depression or dent which the Rhodesian shares with the true Neanderthal skulls. In this respect the Saldanha skull resembles Solo man from Java, the recognized Neanderthaloid successor of *Pithecanthropus* (the ape-man of Java). Indications from the attachments of the muscles of the nape of Saldanha man's neck point to his having had the crouching posture of Neanderthal man, whereas the Rhodesian skull shows that he held his head erect like sapient man.

The walls of the Saldanha skull are extremely thick, and I estimate its capacity as in the region of 1,200–1,250 c.c.; that is to say, he had less brain matter than either the Rhodesian or the general run of Neanderthal skulls. Much more significant, however, in my opinion, is the sub-Neanderthal and most definitely sub-Rhodesian disposition of the Saldanha cerebellum in relationship to the occipital lobes of his cerebrum. On the evidence available I have come to the conclusion, therefore, that Saldanha man is anatomically a more primitive variety of the Rhodesian race.

With regard to age, I think I am justified in excluding the Still Bay implements (Middle Stone Age) from being regarded as more than a criterion of terminal dating value. This industry is found in many of the caves in South Africa, and, so far, there has been no suggestion of anything but a sapient type of man as its exponent.

The remaining possible association is with the late Stellenbosch (Chelles-Acheul) and Fauresmith (proto-Mousterian) facets of our Earlier Stone Age (lower palaeolithic). That is to say, it would seem that it was a palaeoanthropic type of man, such as the Saldanha skull undoubtedly reveals, who practised the last stages of the hand-axe culture in South Africa. This implies an association of the skull with the oldest of the fossil fauna, a view which is greatly strengthened by its equivalent heavy fluorine content, as shown by tests kindly undertaken for us by Dr. K. P. Oakley, of the British Museum (Natural History).

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OBITUARIES

Dr. Edwin P. Hubble

THE death of Dr. E. P. Hubble from a heart attack, on September 28 at the age of sixty-three, has robbed the world of astronomy of its leading authority on nebulae. Born on November 20, 1889, at Marshfield, Missouri, Hubble graduated at the University of Chicago in 1911 and proceeded to the Queen's College, Oxford, as a Rhodes Scholar. He obtained first-class honours in jurisprudence; but

his plan to follow a legal career was abandoned when he received an invitation to carry out research at the Yerkes Observatory. His first published paper was on a variable nebula—now known as Hubble's variable nebula. In the First World War he commanded a battery in the U.S. National Army, but reached France only a month before the end of the war. He then spent the best part of a year in Oxford awaiting transport to the United States and demobilization. In the Second World War he worked in the supersonic wind-tunnel laboratory of the United States.

On his return home in 1919 after the First World War, Hubble was appointed to the staff of the Mount Wilson Observatory. He soon established his position as a leading worker in the field of the nebulae. He showed that diffuse nebulae owe their illumination to stimulation by radiation from hot stars. He then turned to the classification of the spiral nebulae and showed conclusively that they are stellar systems lying outside our galaxy. He established a scale of distances from a study of the brightest stars and Cepheid variables in the nebulae. Working with Humason and the 100-in. telescope, he established the velocity-distance law from the red shifts of lines in the spectra; this increased the reliable distances to which astronomers could plumb the depths of space up to 250 million light-years. He studied the law of the red shifts in all its bearings, aiming always at cutting down the number of conflicting interpretations, and he kept always an open mind on the kinetic or other explanations of the red shifts.

One of the main items on the programme of the 200-in. telescope on Mount Palomar was to secure evidence from the outermost regions of space—up to 900 million light-years—to determine whether expansion was the right answer to the problem and, if so, to find the exact law governing the expansion. It was tragic that Hubble did not live to see this investigation carried through to the end. His last account of the stage reached up to the present was given in the George Darwin Lecture at the Royal Astronomical Society last May.

Hubble was in great demand as a lecturer. In Great Britain he gave the Halley Lecture at Oxford and a course under the Rhodes Trust which was published as "The Observational Approach to Cosmology". His other well-known book is "The Realm of the Nebulae". He received many awards and honours from learned societies and academies. In Great Britain he was made an Associate of the Royal Astronomical Society (1928) and Hon. D.Sc., Oxford (1939). He received the Gold Medal of the Royal Astronomical Society (1940) and was elected an Honorary Fellow of the Queen's College, Oxford (1949).

F. J. M. STRATTON

Prof. H. Bompas Smith

HENRY BOMPAS SMITH, professor of education in the University of Manchester from 1912 until he reached the retiring age in 1932, died recently at the age of eighty-six. He was at school at Jena before winning a scholarship at Wadham College, Oxford. After a short time as an assistant master at Shrewsbury School, he was headmaster successively of Queen Mary's School, Walsall, and the newly founded King Edward VII School, Lytham. His work at Lytham made him known at the University of Manchester, and caused the University to offer him

a chair which carried with it the directorship of the University Department of Education. There was already an endowed chair of education at Manchester, the Sarah Fielden professorship, which had been occupied for some ten years by the brilliant but somewhat erratic J. J. Findlay, who was more of an idealist than an administrator. Bompas Smith was brought in and given the headship of the Department, primarily to ensure that the wheels should run smoothly, and that the necessary contacts with schools, local authorities and the Board of Education should be handled by an experienced headmaster. It did not work out quite like this. He used to tell that before he had held his chair for six months, his views were brushed aside at a teachers' conference as those of "a mere theorist"; and in any event, in his later years at Manchester, he was more of a thinker than an organizer, though he was notably successful as chairman of the Northern Universities Joint Matriculation Board.

His main intellectual interest lay in philosophy. His best-known book, under the unrevealing title of "The Nation's Schools", is an interesting, and by no means unsuccessful, attempt to inculcate a somewhat conservative philosophy of education without using

technical terms. He kept in touch with current developments in psychology, serving to the end of his life on the advisory board of the *British Journal of Educational Psychology*. But he made no original contributions in this field, and was never disposed to believe that a knowledge of psychological theory or technique could replace common sense as part of a teacher's equipment.

Bompas Smith was a kindly man, and genuinely interested in people, but not very quick in getting to know others or making himself known; and this handicapped his relations with the large annual batch of graduates at Manchester whom he taught for their postgraduate course in education. Most of them did not really get to know him, nor he them. Those few who did, obtained real benefit from his wise and balanced outlook upon life in general and education in particular. He disliked controversy, and the Manchester Senate of those days abounded in doughty controversialists. Perhaps he was too reluctant to speak up for his Department, and perhaps, for this reason, the University tended to under-estimate him. But he secured and retained the loyalty and affection of the staff of his own Department.

JAMES DUFF

NEWS and VIEWS

Jenner Medal of the Royal Society of Medicine :

Mr. A. T. Glenny, F.R.S.

ON October 10 Mr. A. T. Glenny was presented with the Jenner Medal of the Royal Society of Medicine, which is awarded on the recommendation of the Section of Epidemiology, for distinguished work in the field of epidemic diseases. Mr. Glenny began his career in 1900 at the Wellcome Physiological Research Laboratories, became head of the Immunological Department before the First World War and retired under the age limit in 1947. He continued to carry on research at the Laboratories after his retirement and is still active after a period of yet unbroken association with the Laboratories of more than fifty-three years. His major concern has been the study of animal responses to soluble bacterial toxins and toxoids, made largely in the course of the routine production of antitoxin in horses. He developed the Römer guinea-pig skin test into a method of assay for diphtheria antitoxin, which is as accurate as many chemical titrations of simple substances. He has taken advantage of the variation of the response of horses to different toxins, to analyse by antitoxin titrations the great complexity of the antigenic constitution of filtrates of cultures of pathogenic anaerobes. Mr. Glenny's most important work is the study of the two types of response to the injection of antigens, the 'primary' and 'secondary' response, which has been fundamental to the development of methods of large-scale prophylaxis against diphtheria and tetanus. This study led to the development of alum-precipitated toxoid, now the standard prophylactic against diphtheria, which has been used with such dramatic results in the past decade in the control of diphtheria in Great Britain.

The Carnegie United Kingdom Trust :

Mr. D. N. Lowe, O.B.E.

MR. DAVID N. LOWE, who has been secretary of the British Association for the Advancement of

Science since 1946, has been appointed secretary of the Carnegie United Kingdom Trust in succession to Mr. J. Wilkie, who is due to retire on March 31, 1954. Mr. Lowe, who was born in 1909, was educated at Arbroath High School and at the University of St. Andrews, which he entered as a Kitchener Scholar. He was awarded a blue for hockey, founded a mountaineering club, and held many student offices, including the presidency of the Union and the Students' Representative Council. He graduated M.A. (English and history) and B.Sc. (with first-class honours in botany). After a short period of research on the marine algae of the coasts of Fife, he became the assistant secretary of the British Association in 1935. At the outbreak of war he accepted an invitation to enter the Civil Service, where he served in the Cabinet Secretariat as secretary of various ministerial committees concerned with priority and allocation of materials. Shortly before returning to the British Association as secretary he was awarded an O.B.E. in the New Year Honours List of 1946. Mr. Lowe has been prominent in local affairs at Dorking, where he has held office in the Congregational Church, and has participated annually in the Leith Hill Musical Festival. It is as secretary of the British Association that Mr. Lowe has become widely known, however, and his services in the critical post-war period, when the fate of the British Association was in the balance, were invaluable. He has filled his present post with distinction, and the fund of goodwill which has remained after recent meetings has been largely due to his exceptional tact and organizing ability.

William McIlrath Fellowship for Research and Teaching in Animal Husbandry

THE Australian Commonwealth Scientific and Industrial Research Organization has decided to apply a gift of £A50,000 from Mr. William McIlrath, owner of the Windsor Hereford Cattle Stud, Delungra, N.S.W., to found the William McIlrath Fellowship