

OBITUARIES

Prof. George Sarton

It has been my privilege to enjoy the friendship of George Sarton for forty-three years. He was, in my judgment, one of the great teachers of our age. This was not because he was in the ordinary sense eminent in science, nor because he was an acute investigator, nor on account of anything startlingly original in his outlook. It was because he was a superb organizer of knowledge and an unrivalled integrator, and because these powers came to him with an extraordinary devotion to learning, a uniquely clear vision of its object, an Olympian firmness of purpose, and a quite exceptional industry and linguistic equipment. For about the last twenty years of his life, he was one of the most widely learned scholars in the world. Though he long held a post as historian of science at the Carnegie Institution and a chair of the history of science at Harvard University for many years and was a good, clear, allusive lecturer, he was not a great academic success in the sense of attracting a large following of students. He was, nevertheless, one of the most important intellectual influences of our time, for he defined, illustrated and developed as a new discipline the study of the history, principles and method of science. This he called 'The New Humanism'. The title is not ideal, but it denotes an approach that bids fair, in the New World at least, largely to displace the old humanism.

Apart from the width and depth of his learning, his literary output was very impressive both for its bulk and quality. He edited and largely contributed to fifty-five solid volumes of the journals that he founded—*Isis* and *Osiris*. Many of these volumes contain an introduction by himself which I am tempted to call a sermon. These provide a body of moral and scientific philosophy. It would be worth while putting together the best of them, for they would form a good guide to anyone proposing to devote his life to scientific research. No one can write on ancient or medieval science without often consulting the five enormous volumes of Sarton's monumental and mistitled "Introduction to the History of Science". Its title is wrong because it has become more a court of appeal than an introduction and is seldom consulted in vain. He was the author of many other works, but his great "History of Science", which was to be the crown of his old age, is alas! a torso. He produced the first volume, which is on the science of the Ancient Empires—not the period on which he was strongest—and the second volume is in the press. The remaining half-dozen will never see the light.

Sarton was a very human figure with a Gallic wit, a not unpleasant sense of his own greatness, and a few foibles. Among the latter was an odd aversion to Plato and an incapacity—which grew on him with the years—for writing without adding notes to his text. Even his reviews had notes, and even notes to the notes. But he was always a good, clear and simple writer and one may search many pages of his innumerable works without finding an obscure passage.

His linguistic attainments were astonishing. He was brought up trilingual—French, Flemish and German. He had a good classical education and graduated in the physical and mathematical sciences in his native Belgium. He married an English lady

in 1912 and before settling in the United States acquired fluent and perfect English which was, however, never quite freed from a delightful Gallic tang. He could use all the major European languages freely and obtained facility in Hebrew and Arabic. He knew some Chinese and was led to its study by something more than an inkling of the great technological and scientific treasures in that language that are now being unearthed by Dr. Joseph Needham. To all the vast stores of learning that these accomplishments imply, he added a very wide knowledge of modern science. In his later years he had become particularly attracted by biology and, though without early training in that department, it is remarkable how much he wrote on it and how seldom he stumbled for lack of understanding. He was a master of those who know, and it is therefore not entirely fanciful to compare him to his own master, Aristotle.

What influence did Sarton exert on our age? I can only put the matter as it appears to me. Among 'humanists' surprisingly little, and in Great Britain scarcely any at all. By most English students of the classical, literary and historical disciplines in Britain his massive works are, I imagine, scarcely ever consulted and remain almost unknown. In the United States he had become something of a national figure, and there, even among humanists, his influence was certainly greater. This partial eclipse of his genius is, I believe, temporary. On both sides of the Atlantic the overwhelming need for scientific and technological training and the corresponding earlier specialization is producing a novel situation. A new humanism is needed, and several universities in England and a larger number in the United States have instituted departments of the philosophy and history of science. In these the work of Sarton is given a place accorded to that of no other man, and his influence in all that concerns the humanization of science is bound to increase in the near future.

Lastly, what were the intellectual influences that were instrumental in moulding Sarton's own thought? There can be no doubt that, of those who lived into the twentieth century, Tannery and Duhem affected him most deeply. More distantly he was evidently a follower of August Comte, and his greatest works bear the authentic Comtian mould. He accomplished the task which Comte suggested. The key to Sarton's thought is that true knowledge is a unity and that to divide it into categories—scientific, literary, religious, æsthetic, etc.—for any but practical purposes, is to mistake its nature.

All his work was helped by a serenely happy domestic life. Sarton died in April of this year at the age of seventy-two. Mrs. Sarton—who was an artist in her own right—died some years ago. He is survived by a daughter, May Sarton, a distinguished novelist and poet.

CHARLES SINGER

 Dr. G. Liebmann

GERHARD LIEBMAN, who died suddenly on June 18, was born on June 29, 1906, in Berlin. In 1925, he matriculated at the Falk Realgymnasium, Berlin, and proceeded to read physics in the University of Berlin under such teachers as Planck, Von Laue, Schrödinger, Wehnelt and Nernst. He graduated with honours in 1928. Continuing as a postgraduate research student, he was awarded his doctorate of philosophy in 1930. Following this, he was awarded a German national research fellowship

in physics which he served under Prof. Nernst, at the same time assisting Prof. Wehnelt as demonstrator. After six further years research in German industrial laboratories, he came to Britain because of the adverse conditions in Germany under the Nazis in 1936. Shortly after his arrival in Britain, he was appointed chief physicist and head of the Vacuum Physics Section of Cathodeon, Ltd., in Cambridge, where he served until 1947, when he took a senior appointment in the Research Laboratory of the Associated Electrical Industries, Ltd., at Aldermaston in Berkshire.

His earlier researches in Germany were concerned with high-temperature physics, infra-red spectra and electronic valves. In Great Britain, he made important contributions in the development of television cathode-ray tubes, valves and image converters. He became interested in the electron microscope while in Cambridge, and built an instrument there.

Already he had published many papers, and taken out more than forty patents. He later developed his interest in the electron microscope, and put to good use his innate mathematical ability and ingenuity. His development of the resistance-network analogue calculating method, and his use of this in calculating the properties of electron lenses, contributed largely towards the development of greatly improved electron microscopes. His scientific papers were then

appearing in many scientific journals, and were being read in European countries, in the United States and in Britain. He latterly extended his reputation in the computational field by the development of resistance-network analogue methods for the solution of the transient heat flow equations, fourth-order differential equations, and the more complicated equations occurring in thermal stress and neutron diffusion problems. He lectured by invitation in the United States in 1955, and in Brussels early in 1956, and was appointed vice-chairman of the International Analogue Computation Association. He had long been a Fellow of the Institute of Physics, and several times lectured at the Institute, and was a member of the American Institute of Radio Engineers.

Liebmann was a kindly and loyal man. He was a great lover of family, of science, and the mountain peaks. His interest in science was wide, and his advice to colleagues and assistants has contributed greatly to their success. His powers of concentration were great. He was liked and admired by all. His memory will live with his friends because of his understanding and his sincerity, with his colleagues because of his example and guidance, and with his fellow scientists because of his scientific achievements.

He leaves a widow, a son and a daughter.

M. E. HATNE

NEWS and VIEWS

Chancellorship of the Massachusetts Institute of Technology : Dr. J. A. Stratton

A NEW post, that of chancellor, has been established at the Massachusetts Institute of Technology, and Dr. Julius A. Stratton, at present vice-president and provost, has been appointed as the first holder. As chancellor, Dr. Stratton will be directly responsible for administering the academic side, including staff, of the Institute's affairs and will be deputy to the president, Dr. James R. Killian, jun., who is the Institute's chief executive officer; the chancellor will act as president in the latter's absence. The other principal officers of the Institute are Admiral Edward L. Cochrane, vice-president in charge of relations with industry and government, and Mr. Joseph J. Snyder, vice-president and treasurer. Dr. Stratton graduated from the Institute in 1923 and, after study in Grenoble and Toulouse, gained the D.Sc. of the Federal Institute of Technology, Zurich, in 1927. He became assistant professor of electrical engineering in the Massachusetts Institute in 1928 and then assistant professor of physics (1930), associate professor of physics (1935) and professor of physics (1941). He was on the staff of the Radiation Laboratory at the Institute from its inception in 1940 until the end of the Second World War. During the War he was at first engaged on communication surveys and other problems over the North Atlantic and in North Africa and Italy; later he advised on problems of ground radar, radar fire control and radar bombing, and assisted in the establishment of aids for all-weather flying. For these services he was awarded the Medal for Merit. After the War Dr. Stratton became director of the Research Laboratory of Electronics at the Institute, the peace-time successor to the Radiation Laboratory. He was made provost of the Institute in 1939, with the primary responsibility for co-ordinating

inter-school educational and research facilities, and two years later he became vice-president as well.

Mechanical Engineering at Swansea:

Prof. R. H. Macmillan

MR. R. H. MACMILLAN has been appointed to the newly created chair of mechanical engineering at the University College of Swansea. Mr. Macmillan, who has been on the staff of the Department of Engineering at Cambridge for the past ten years, was educated at Felsted School and Emmanuel College, Cambridge, where he took the Mechanical Sciences Tripos in 1941. He was then commissioned in the Technical Branch of the R.A.F., where he was concerned mainly with automatic equipment for gunsights and with rockets. Since returning to Cambridge, he has published several papers on problems of automatic control, and his textbook, "An Introduction to the Theory of Control", first appeared in 1951. He spent the academic year of 1950-51 working as a visiting assistant professor in the Mechanical Engineering Department of the Massachusetts Institute of Technology, and on a later visit to the United States contributed to the Frequency Response Symposium of the American Society of Mechanical Engineers: on this occasion he also lectured on aspects of automatic control at the Universities of Pennsylvania and Minnesota. Mr. Macmillan's particular interest is in explaining engineering developments to other scientists and to the general public, and in considering their social implications; in this connexion the B.B.C. has broadcast a number of his talks, and last autumn he gave a popular series of afternoon lectures at the Royal Institution. His book, "Automation: Friend or Foe", has just been published by the Cambridge University Press.