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OBITUARIES

Prof. Saul Adler, O.B.E., F.R.S.

Saul Aaron Adler died in Jerusalem on January 25, 1966, at the age of 70. He was the leading Jewish parasitologist of this century, yet so modest that he was always astonished when honours came his way, or at the crowds which gathered to welcome him at airports on his frequent journeys throughout the world.

Adler was born in the town of Karelitz in Russia in 1895, and five years later was taken to England where the family settled in Leeds. He went to school there and qualified in medicine during the First World War at the University of Leeds, at this time showing no clear signs of the brilliant future which lay ahead. Soon after taking his degree, he joined the Royal Army Medical Corps and served in the Middle East, which gave him his first taste of tropical medicine. It was natural, therefore, that on demobilization he should take the Diploma in Tropical Medicine of the University of Liverpool and join the staff of the Liverpool School. He went out to the Sir Alfred Lewis Jones Research Laboratory at Freetown in West Africa, and became immersed in the study of the parasites in the local inhabitants and animals. He was under the guidance of Profs. Blacklock and Gordon, and he realized the debt he owed them until the end of his life. In 1923, he married Sophie Husden of similar Russian Jewish extraction to his own, and they had two sons and a daughter, all of whom survive him. In 1924, he was called to Jerusalem by Chaim Weizman, at that time president of the Jewish Agency for Palestine, in order to develop the new Institute of Microbiology. He was soon appointed professor and was associated with the Hebrew University for the remainder of his life.

Adler's researches led him, however, far afield; his main subject of interest was leishmaniasis, in all its forms, and at every stage of its life-history. He investigated the disease around the Mediterranean basin and far into the Middle East; and, in later life, in East Africa, China, Brazil and Panama. In every phase of his investigations, he tried to start with the basic elements. Thus, a good experimental host for the parasite was lacking, so he sought a suitable animal, and found one in the golden hamster in the desert near Aleppo. He colonized it in his institute and, with typical generosity, distributed the progeny to laboratories everywhere. The invertebrate host of *Leishmania* was unknown when Adler began his research, although species of *Phlebotomus* were suspected. With O. Theodor, he made a profound study of these insects, beginning with the anatomy and physiology of their mouth parts and alimentary tract, continuing with observations on the behaviour of cultures of the parasites in the gut and their exit through the proboscis in the act of biting, and, finally, demonstrating transmission of *L. tropica* to volunteers by experimentally infected sandflies. From the experimental host, and the invertebrate vector, Adler passed to work on the parasite itself, and he became convinced, after a lifetime of observations, of the multiplicity of species which exist in the genus *Leishmania*. Biological and clinical features of the disease had at first led him to this opinion, which, in the final years of his life, he was able to confirm by a serological reaction, the technique of which he demonstrated to students in Israel, Britain, Italy, Brazil and elsewhere, realizing that he had not much time left for establishing the unique usefulness of this test.

A leishmanial stage in the course of the life-cycle of *Trypanosoma cruzi*, the cause of Chagas's disease, naturally aroused the interest of Adler and, on visits to Brazil, he became well acquainted with this infection. The disease, however, had another attraction for him, because his second great interest was Darwin and evolution; he had studied Darwin's life and works in the greatest of detail (translating his *Origin of Species* into Hebrew), and, in 1959, he put forward the hypothesis that Darwin suffered and died from Chagas's disease. He showed that Darwin must almost inevitably have become infected with *T. cruzi* on landing in a highly endemic area of South America in 1835 and that the chronic invalidism, including angina, which followed was characteristic of the cardiac form of Chagas's disease. Adler applied the subject of evolution to protozoa, and showed the operation of its laws not only in the species complex of *Leishmania*, but also in *Trichomonas*, insect crithidia, and in rodent malaria parasites.

Malaria was another subject on which Adler's original mind cast light. His first researches in West Africa were devoted to species of *Plasmodium* present in the local chimpanzees and lizards, and it was during his sojourn in Sierra Leone that he first used himself as a human volunteer, attempting without success to pass the parasites of the chimpanzee to man. He never ceased to carry out such experiments, which were more successful in leishmaniasis and relapsing fever; in fact, an infection of the latter nearly killed him. From work on the parasites of apes, Adler changed in the later years of his life to a study of the plasmodia of rodents, and produced interesting adaptations of *P. vinckei* in hamsters. He was convinced that this field in general offered possibilities of great promise to the geneticist.

Adler was the recipient of many honours; he most prized his election as a Fellow of the Royal Society in 1957; he appreciated the award of O.B.E. from his 'second' country, Great Britain, in 1946, and of the Israel Prize for Medical Science on his deathbed in Jerusalem. Other honours included the Laveran Medal, the Gaspar Vianna Medal, the Chalmers Medal of the Royal Society of Tropical Medicine and Hygiene, the Order of the Cross of the Phoenix of Greece, and the honorary degree of doctor of science conferred on him by the University of Leeds in 1965. Adler's life was too short to enable him to carry out everything he would have liked to do. He had still much research before him in parasitology; like his father, he was a Hebrew scholar and wished to work on the Dead Sea

Scrolls; he could have made his name in pure mathematics, chess or literature. Adler created a school of ardent followers in Israel; his influence was scarcely less in many other parts of the world, where his many friends and students deplore his passing. P. C. C. GARNHAM

Dr. Maurice N. Hill, F.R.S.

THE sudden death at Cambridge of Maurice Hill, on January 11, 1966, at the age of 46, has made the lives of many people the poorer. It is difficult to think where he will most be missed, so wide were his interests: whether it was as research scientist, supervisor of research students, devoted college man, tireless member of committees, or simply as a warm, lovable family man that he made most impact, is a question that fortunately does not need answering. However, it is certain that it was his warmth that was the key to everything.

He was born on May 29, 1919, son of Prof. A. V. Hill, and, after schooling at Highgate, set out on an undergraduate career at King's College, Cambridge, in 1938, which was interrupted by the Second World War. He left Cambridge in 1939 and was assigned to the Anti-Submarine Establishment at Portland; later he moved to the Establishment at Edinburgh that was developing methods of sweeping magnetic and acoustic mines. Here he made many friends, including Ben Browne, Edward Bullard, Leslie Flavill and Tom Gaskell, with whom much of his later work was done.

When the War ended, Hill had definite plans to carry out research into marine geophysics at Cambridge, but he had first to complete his undergraduate training. He had married Philippa Pass in 1944 and, having now a son, he took his degree as soon as possible, to move into the less restrictive world of academic research. He was to stay with the Department of Geophysics at Cambridge for the rest of his life. His Ph.D. was on the subject of marine seismic prospecting. It was a notable dissertation—he had developed a new technique of geophysical exploration and it was soon to become the most valuable tool available to marine geophysicists.

In 1949 he became an assistant in research and from that time he was able to devote himself fully to elucidating the nature of the Earth's crust and upper mantle beneath oceans; it was soon realized that the relative thinness of the oceanic crust in comparison with the continental crust enabled us to learn much about the forces and processes at work in the mantle, and Hill ensured that British contributions to knowledge about ocean basins and what lay beneath were of high standard. The *Challenger* Expedition of 1950–53, which he helped to organize, was a spectacular example of this, but there were many other expeditions to specific oceanic features by means of which Hill, with his colleagues, gradually got the 'feel' of sub-oceanic geology.

Instruments for this purpose steadily developed—the precision echo-sounder, the towed magnetometer, the sea gravimeter, heat flow apparatus, improved corers, long-range seismic apparatus, ocean bottom seismometers, a reflexion seismic profiler and a deep diving magnetometer. Hill was responsible for the evolution of many of these, and he and his growing number of research students put them to intensive use.

It could well be said that 1963 was an *annus mirabilis* for Hill. Apart from being chief scientist on R.R.S. *Discovery* during the highly successful geophysical ventures in the Indian Ocean, he also saw published, under his editorship, *The Sea*—three very comprehensive volumes on physical and chemical oceanography and the underlying rocks.

Apart from his continued assault on the Atlantic Ocean, in recent years he was much concerned to improve sea-going facilities for university research departments—he was largely instrumental in the conversion of a ship for university use; this will come into service later this year.

He became a Fellow of King's College in 1949 and during 1961–65 was director of studies in natural sciences there. In 1954 he was made assistant director of research in the Department of Geophysics and in 1965 became reader in marine geophysics. He was elected a Fellow of the Royal Society in 1962, and, in 1963, was awarded the Charles Chree Medal and Award of the Physical Society.

And yet, effective scientist that Hill was, it was his humanity that left an indelible impression. The practical side of sea-going places greater demands on a scientist than mere intellectual distinction and cleverness. An apparently paradoxical combination of the rugged and gentle is necessary, as is more than average common sense and a deep understanding of people. All these he possessed in great measure. It goes without saying that he was an admirable supervisor of research students to whose problems, scientific and otherwise, he was always responsive. Not for him the occasional formal interview with his students—they used to occupy him full time, and he would not have had it otherwise. He was aware that the strength of a science lies in a steady inflow of young research workers, and their well-being and happiness are of fundamental importance. To Maurice, the human element of science—the encouragement, sympathy, support, and even just the attentive ear—was uppermost.

One aspect of his life that was characteristic and which extended beyond the bounds of science was his generosity. He and his wife were deeply concerned with the problems of anyone in need. It is impossible to guess how much charitable work he did—most of it was never revealed—but his giving was both munificent and imaginative.

He was a man of many aspects, all of them genial. He will be remembered with affection far beyond the scientific community. D. DAVIES

NEWS and VIEWS

Experimental Pharmacology in the University of Strathclyde: Prof. W. C. Bowman

DR. W. C. BOWMAN, at present reader in pharmacology in the School of Pharmacy, University of London, has been appointed to a professorship in experimental pharmacology in the University of Strathclyde. Dr. Bowman was a student, research student and lecturer at the School of Pharmacy. After qualification he worked with Dr. (now Prof.) E. J. Zaimis on neuromuscular transmission. He has been interested in the mechanism of action of neuromuscular blocking agents. Working with Dr. M. J. Rand, he found that triethylcholine produced a temporary effect in the cat and rabbit which closely resembled that seen in man in the case of the syndrome myasthenia gravis. He found that triethylcholine had a prejunctional site of action and suggested that the compound might be of use in the treatment of neurogenic spastic states. More recently he has been interested in the effect of adrenaline in potentiating the contraction of skeletal muscle and has investigated the effect of sympathomimetic amines on both innervated and chronically denervated skeletal muscles. Bowman has contributed a great deal towards the success of pharmacology at the School of Pharmacy, both as a teacher of undergraduates and of postgraduates. He has proved a most lucid and