

the first nuclear bomb was constructed. Allison served in this project from its beginning until 1944. He served as director of the Laboratory during the final year of this period. He jested that his main job was to sign the huge stacks of blueprints and documents having to do with the construction of the great nuclear reactors at Hanford.

In November 1944, he went to the Los Alamos Laboratory to work more directly on the development of the atomic bomb. He served as chairman of the Technical and Scheduling Committee which scheduled the final stages of the test of the first atomic bomb on July 16, 1945. He made history when his voice sounded across the New Mexico desert, counting off seconds to zero on that memorable dawn that witnessed the first nuclear explosion.

September 1, 1945, was the day on which the University of Chicago announced the formation of its new research institutes with Allison as the newly appointed director of the Institute for Nuclear Studies. Such luminaries as Enrico Fermi and Harold Urey were already enlisted as members. It was on this occasion that Allison made what came to be known as "Sam's butterfly speech". He warned that if the exchange of scientific information was prohibited by military regulation, scientists in America would leave the field of atomic energy and devote themselves to such subjects as the colours of butterfly wings. The speech became the opening salvo in the campaign the scientists fought to prevent military control of the peacetime development of atomic energy.

He served as the first director of the Institute of Nuclear Studies (later renamed for Enrico Fermi) until his death, except for one five-year interlude. The Institute was devoted to the idea that physicists, chemists, and astrophysicists had complementary interests and could work together under one roof with mutual benefit. Under Allison's stewardship the Institute flourished. The seminars were brightened by such men as Fermi, Teller, Urey, J. Meyer, Wentzel, Chandrasekhar, Gell-Mann, and Dalitz. Many new ideas were developed, among them two that have already won Nobel prizes: radio carbon dating (W. F. Libby) and the nuclear shell model (M. G. Mayer).

Allison was awarded the Medal of Merit for his work on the atomic bomb: he was a founding member of the Board of Sponsors of the *Bulletin of the Atomic Scientists*. He was elected a member of the National Academy of Sciences in 1946 and served as chairman of its Physical Section from 1960 until 1963. He served as guest lecturer and adviser in nuclear physics matters on several occasions in Spain, in Argentina, and in the United Arab Republic.

Allison was a large man and his tall stature and silvery-white hair gave him a striking presence in any gathering among men. It was difficult to disturb his sense of equilibrium and he had an air of imperturbable calm that made doubly effective the sound common sense he could interpose at the propitious moment in colourful but clear and quotable language. He never failed to find a humorous side to every situation, however tense.

He enjoyed the life of teaching and research. He never lost an opportunity to work in the laboratory with his own hands. He had a natural talent and the requisite patience for making his apparatus work and he took a particular pride in displaying these skills to his students.

He was a man who asked little but gave much. His friends, colleagues and former students mourn their loss.

H. L. ANDERSON

Dr. H. R. Lang

DR. HERBERT RAPHAEL LANG, who died suddenly on November 18 at the age of sixty-one, had been secretary of the Institute of Physics, and afterwards of the amalgamated body of the Institute of Physics and the Physical Society, since 1932. His connexion with the Institute went even further back than this and he was present as a

schoolboy at the inaugural meeting in 1921. Lang read physics at the Imperial College of Science and Technology, and after his first degree continued as research student and demonstrator, gaining his Ph.D. for work on the investigation of the effect of temperature on the specific heats of liquids. His work on the thermal properties of liquids continued after his appointment to a research Fellowship by the Institute of Petroleum. He could have made an outstanding career in research or in industry but, fortunately for the physics profession, he was persuaded to become secretary of the Institute. It is difficult to imagine anyone better suited for such a post. Apart from his deep interest in physics he had a rare combination of wisdom, realism, determination and loyalty, as well as an enormous capacity for hard work, and above all a kindly and unselfish nature. No task associated with physics was too great or too small for him, whether it was organizing an international conference, forming a new subject group, giving professional advice to a junior colleague or operating the benevolent fund.

Lang was, by nature, shy and retiring. Although most members of the Institute and Society realized that he played a very large part in its affairs, it was only those who were privileged to work closely with him who fully appreciated the extent of his efforts and devotion. His work was conducted largely behind the scenes and he sought no personal credit. New developments and policies which were largely inspired by him were usually presented to the members through the honorary officers. At the same time, he was always ready to give credit to his own staff.

When Lang took office in 1932 the physics profession, as such, barely existed. To-day there are more than eleven thousand members, drawn from academic establishments, industry and government service. Under Lang's guidance, this vast number of pure and applied physicists, distributed throughout the United Kingdom and abroad, have developed, through the branches and specialist groups, common interests and activities, and a sense of belonging to the profession. From his early days in the Institute of Physics, Lang maintained close contact with the Physical Society, and it was due in no small measure to his untiring efforts during many years that amalgamation of the two bodies was effected in 1960.

Physics owes much to Lang and he will be greatly missed. He leaves a widow and three sons.

M. R. GAVIN

W. B. Alexander

W. B. ALEXANDER, formerly director of the Edward Grey Institute of Field Ornithology, University of Oxford, died on December 18, 1965, at the age of eighty. He was educated at Bootham School, York, Tonbridge School, and King's College, Cambridge. The Cambridge degree ceremony then involved a procession, headed by the first-class honours men (in alphabetical order) from the college providing the Vice-Chancellor, and in 1909 it was led by W. B. Alexander and the man he referred to as 'young Brooke'. After brief appointments in the Cambridge Museum of Zoology and then as assistant naturalist to the Board of Fisheries (North Sea), he accepted, in 1912, the post of assistant in the Western Australian Museum, Perth, and was Keeper of the Biological Department there from 1914 to 1919 (apart from two years in Melbourne on war work as a science abstracter). In this period he revitalized the Perth museum. After a brief return to England, he was biologist to the Prickly Pear Board from 1920 until 1925, and thus a prominent member of the team which effected one of the most successful examples of biological control of a pest ever recorded, Alexander being the man who first brought live *Cactoblastis* from South America to Australia. While in Australia he also played a prominent part in the Royal