The last session of the conference dealt with magnetic phenomena. The energy spectrum of antiferromagnetics near the ground-state was discussed by M. I. Kaganov and V. M. Zukernik. A. H. Cooke reported on antiferromagnetism in some iridium compounds, and antiferromagnetism in anhydrous sulphates and carbonates of the transition metals was described by A. S. Borovik-Romanov, N. M. Kreines and Miss M. P. Orlova. The work of the latter authors has led I. Dzyaloshinsky to a theory of weak ferromagnetism in antiferromagnetic crystals which, based on Landau's ideas, explains the effect as due to relativistic spin-lattice and magnetic dipole interactions. The propagation of sound in ferromagnetics was considered by A. I. Akhiezer, B. G. Baryakhtar and S. B. Peletminsky, who postulate that it should be possible to excite magnetic waves by means of sound, and that under certain stated conditions this should be an easily noticed effect.

Two afternoons of the conference were devoted to visits to the cryogenic laboratories at the Institute for Physical Problems and at the University of Moscow. An interesting historical exhibit at the former was the first turbine used by Kapitza in the liquefaction of air. Among the various research installations on show, a helium-3 cryostat in Peshkov's laboratory was particularly impressive. In this ingenious device five litres (at N.T.P.) of pure helium-3, which forms the working substance, is circulated constantly. The gas condenses under pressure in helium-4 and is then expanded. Temperatures down to 0·3° K. can be obtained in this way and temperatures down to 0·5° K. can be maintained constant for indefinite periods. Peshkov and Miss Zinovieva showed us a photograph, taken in this apparatus, in which the separation of the two liquid phases of helium-3–helium-4 mixtures was clearly visible. At the University of Moscow we saw besides the research laboratories the cryogenic teaching course, where undergraduates were busy with their ten experiments involving liquid helium. One of them was just carrying out an adiabatic demagnetization.

The members of the conference came to know each other well on a whole day's boat trip arranged by Kapitza. The hospitality of the Academy and the friendly welcome of our Russian colleagues made our stay in Moscow a very pleasant one. The visitors expressed the hope that they will be able to induce their hosts soon to come to Britain for a return visit.

K. Mendelssohn

OBITUARIES

Prof. H. O. Wieland, For.Mem.R.S.

To-day the manufacture of steroids for medical purposes is an industry. Hundreds of scientists in academic and industrial life are engaged in research on these substances. All this activity properly began in Germany, and its modern phase really dates from the work of A. Windaus on cholesterol and other sterols, which began in 1903, and that of Heinrich Wieland, whose paper (with F. J. Weil) on the preparation of the 'stem' bile acid, cholanic acid, $C_{24}H_{40}O_2$, was published in 1912 (*Hoppe-Seyl. Z.*, **80**, 287). Until 1949, fundamental discoveries, mainly about the occurrence in Nature and the chemical structures of bile acids, toad poisons and some sterols and alkaloids were published continually from Wieland's laboratories. These contributions have been reviewed, for example, by L. F. Fieser and M. Fieser ("Natural Products related to Phenanthrene". Reinhold, New York).

The award of a Nobel Prize in Chemistry to Wieland in 1927 and to Windaus in 1928 anticipated our full appreciation of the importance of their work and of the use which would be made of it.

When O. Rosenheim and H. King in 1932 (*Chem. and Indust.*, **51**, 464) put forward their revolutionary chrysene structure for sterols and bile acids, Wieland and E. Dane (*Hoppe-Seyl. Z.*, **210**, 268; 1932) were quick to see its advantages and almost at once proposed the formula now accepted. Wieland and his colleagues went on to show how this formula explained observations which they and the school of Windaus had collected for nearly thirty years.

At that time, the structures of the crystalline œstrogenic hormones which had been isolated independently by E. A. Doisy, C. D. Veler and S. Thayer (œstrone, 1929), G. F. Marrian (œstriol, 1930) and A. Butenandt (œstrone, 1929) from human pregnancy urine were still unknown; a leap in our understanding followed the demonstrations that these hormones were related to cholesterol and the bile acids. The androgens, progesterone and the adrenal cortex hormones soon appeared in the same pattern. Antirachitic vitamins D were derived from ergosterol and, later, cholesterol. When Wieland and Dane (*Hoppe-Seyl. Z.*, **219**, 240; 1933) and J. W. Cook and his associates, at the same time, converted a bile acid (deoxycholic) into a powerfully carcinogenic hydrocarbon (methylcholanthrene), the foundations of much present-day interest in steroids had been laid.

Many new sterols and bile acids have since been discovered, and we now know that the heart poisons of toads and in certain plants, some plant sapogenins and alkaloids, as well as triterpenes of diverse origin, can be regarded as steroids. We have become adept at converting common sterols and sapogenins like cholesterol, diosgenin and hecogenin into known hormones and D vitamins, as well as into other substances with many kinds of physiological activity. The principal steroids have been totally synthesized. Many chemical reactions of these substances can now be interpreted in terms of electronic theory. We have begun to understand how sterols are synthesized *in vivo* from simple substances like acetate and how sterols can give rise to bile acids and hormones. Studies of the metabolism of such hormones in the living body are far advanced. We grope towards comprehension of the significance of sterols themselves in living cells and of the means by which steroid hormones may affect cellular chemical reactions.

An immense amount of work remains to be done. No doubt fundamental changes in our appreciation of vital processes must follow or precede more complete understanding of the natural significance of steroids.

It is scarcely too much to say that without the work of Windaus, Wieland and their colleagues, no such achievements would have been possible, and no such exciting prospects would now lie before us. Prof. Windaus is still alive, but Prof. Wieland died recently at the age of ninety.

G. A. D. HASLEWOOD

Prof. William Rowan

DR. WILLIAM ROWAN, emeritus professor of zoology in the University of Alberta, died at Edmonton, Alberta, on June 30 at the age of sixty-five. Born in Basle, Switzerland, on July 29, 1891, he emigrated to Canada in 1908. For a time he worked on a ranch near Dorothy, Alberta, and, in later life, often spoke with some pride of his prowess as a cowboy. But while this outdoor life fostered a latent interest in biology, young Rowan's inquiring mind found this mode of development too slow and he soon went to Britain to complete his formal education. This was interrupted by the First World War. Rowan enlisted as a private in August 1914, and served with the London Scottish Regiment until 1916. He then returned to his studies and graduated in the following year from University College, London, with the B.Sc. degree. His artistic talents began to show at this time. A period of study at the Slade School of Art developed skills in drawing and sculpture. In future years his knowledge of animal life and a fine æsthetic sense combined to produce models and sketches of birds and mammals notable in particular for their flow of line. He studied music and became an accomplished pianist. So strong was his love of music that he thought seriously of turning to the concert platform. Throughout his life he was never quite certain that he had made the right choice in following the path of science.

After the War, Rowan returned to Canada to lecture in zoology for a year at the University of Manitoba. In 1920 he went to the University of Alberta at Edmonton, where in the following year, with the rank of associate professor, he founded the Department of Zoology. He remained as head of this Department until his retirement in 1956. He was a popular and stimulating lecturer, fond of using startling statements to shake students from their mental lethargy.

Of the various branches of zoology, Rowan had always shown a preference for ornithology and now, established in a university community, he proceeded to investigate some of the problems which had intrigued him for years. One of these was the migration of birds. He postulated that there is an inherent migratory habit in some species of birds which is impelled by a hormone the production of which is controlled by the environmental factor of changing day-length. Working at times under great difficulties, he kept canaries and juncoes in cages in his own garden and produced the first experimental evidence that fluctuations in day-length cause a cyclical development and regression of the gonads of birds. This was the first step in proving the hypothesis that photoperiodism is a controlling factor in the phenomenon of avian migration. In further experiments he attempted to make juncoes sedentary during the normal migratory period and to reverse the usual direction of migration in others. The results of this work were presented in a thesis for the D.Sc. degree of the University of London in 1929. In that year, also, Rowan was elected a Fellow of the Zoological Society of London.

Results of the experiments with juncoes were not conclusive. This, Rowan felt, was largely due to the small size of the bird, with consequent difficulty in recognizing and recapturing the experimental birds. He therefore determined to repeat the experiments using crows as subjects. The publicity attendant upon capture, treatment, release and recapture of these birds put his work and his name upon the tongues of laymen throughout North America and undoubtedly assisted greatly in popularizing science. His book, "The Riddle of Migration", published in 1931, included the results of this work and brought him international recognition. It also marked the beginning of a decline of interest in the problem of migration. His scientific efforts were henceforth largely directed toward a study of the cyclical fluctuation in numbers of certain species of North American birds and mammals, a study which he felt was essential to a complete understanding of the problems of conservation on the continent. In 1946 he was awarded the Flavelle Medal of the Royal Society of Canada in recognition of his investigations. He was working on various aspects of animal cycles at the time of his death.

Always a firm believer in an oligarchy of the intelligentsia, Rowan looked upon the events following the Second World War as conclusive evidence of the depravity of democracy. He was convinced that mankind is heading towards total self-destruction and that it can be saved only by placing itself under the guidance of an intellectual few; after the development and use of the atom bomb his prognostications became even more gloomy.

Rowan's influence in the field of experimental ornithology will long be felt. The world-wide circle of friends with whom he discussed favourite subjects over coffee and cigarettes will feel not only a sense of great personal loss but also sincere regret at the passing of a large heart and a fine mind.

W. RAY SALT

Dr. Gerald Roche Lynch, O.B.E.

THE death of Roche Lynch at the age of sixty-eight on July 3, at his home in Slough three years after retirement, ended a long period of distinguished service to medical science. It also erased the name of the last of a group of remarkable men, including Pepper, Luff, Spilsbury and Willcox, who for thirty years in the first half of this century had been the mainstay of the Home Office in scientific crime investigation in England and Wales.

Roche Lynch, whose father was a Kensington medical practitioner, was educated at St. Paul's School and entered St. Mary's Hospital, London, in 1905, gaining an entrance scholarship in science and, a year later, the prize in chemistry. This was undoubtedly the turning point in his career, for while still studying medicine he also trained in chemistry under H. E. Armstrong at the City and Guilds Institute and demonstrated in the subject at his own medical school. The latter appointment brought him under the influence of William Willcox, who then lectured in chemistry, and together they were drawn into the practice of Pepper and Luff, no small part of which was medico-legal. Qualifying in medicine in 1913, Roche Lynch served in the Royal Navy until 1919, when he was appointed O.B.E. Returning