

and more generally as a representative of South America. The resolutions were adopted unanimously; they are printed below:

1. The General Assembly of the International Council of Scientific Unions sees in the great powers for good or evil that research on nuclear energy has put at the disposal of mankind a supreme opportunity and occasion for a new international unity, to develop the benefits potential in nuclear energy and to avoid its misuse. The General Assembly strongly supports the efforts now being made under the auspices of the United Nations to attain this urgent goal, efforts in which the co-operation of representative men of science, so essential for success, are being officially given. The General Assembly urges that the present opportunity of eliminating war by the attainment of such a new international unity be grasped.

The General Assembly hopes that the attainment of an agreement on the application of nuclear energy may provide an important instance of international co-operation in economic and political matters. Extension of this would facilitate the promotion of the welfare of mankind, the judicious use of our natural resources, the removal of causes of dispute and the settling of difficulties arising from the continuous change of world conditions in consequence of scientific and technical advances.

2. The General Assembly is aware that nuclear energy is not unique among scientific advances in its possible effects for good or ill. Biological and biochemical warfare, for example, were not applied during the late conflict, but their potential menace may be as great as that of the atomic bomb: equally, the discoveries on which they depend could bring the greatest benefits to mankind.

The General Assembly is convinced that international security and welfare will be impossible if, in any country for the future, military secrecy is allowed to dominate scientific discovery or to prevent the frank discussion and open publication of scientific results. There can be no international control and no international co-operation which does not presuppose an international community of knowledge.

3. The General Assembly of the International Council of Scientific Unions, in the name of the men of science of the nations represented, acknowledges the duty on the part of scientific workers:

(a) to maintain a spirit of frankness, honesty, integrity and co-operation and to work for international understanding;

(b) to promote the development of science in the way most beneficial to mankind and to exert their influence as far as possible to prevent its misuse;

(c) to serve the community not only by their specialized work but by assisting so far as they are able in the education of the public in the purposes and achievements of science.

An invitation from the Royal Danish Academy to hold the next meeting of the General Assembly in Copenhagen in 1949 was accepted with acclamation.

The following were elected as the members of the Bureau: *President*: Dr. J. A. Fleming, adviser to the Carnegie Institution in governmental and international scientific relations; *Vice-Presidents*: Prof. B. Némec (Prague), Prof. Emile Borel (Paris); *Members*: Dr. J. N. Mukherjee (New Delhi), Prof. H. Solberg (Oslo); *General Secretary*: Prof. F. J. M. Stratton (Cambridge); *Retiring President*: Dr. H. R. Kruyt (Utrecht).

## OBITUARIES

Dr. H. A. Colwell

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DR. H. A. COLWELL, who died on July 22 at the age of seventy, was a medical writer of outstanding distinction, especially in the field of radiology. He qualified at St. Bartholomew's Hospital in 1900; later he became M.R.C.P. and submitted a thesis which gained him a Ph.D. at the University of London.

Colwell served as a pathologist in the cancer research laboratories of the Middlesex Hospital for some years; the years 1914-18 saw him serving with the R.A.M.C. in Salonika. He was a fine linguist, and this, combined with a wide range of qualifications in medicine, made him an invaluable officer; at the end of two years service he contracted dysentery and was invalided to Malta. On returning to England he took up work in radiology with Robert Knox, and eventually took charge of the Department of Radiotherapy at King's College Hospital, London.

As an experimentalist he collaborated with Russ on the conversion of starch into dextrin by X-rays, and with Gladstone on the effects of repeated small doses of X-rays upon the chick embryo, a subject with an obvious bearing on X-ray therapy.

Dr. Colwell was a fine writer with the scrupulousness of a scholar, and it is as a writer that he will long be remembered; his chief works were with Russ as co-author. In 1915 they wrote "Radium, X-rays and the Living Cell" at a time when the biological effects of radiations were more and more the subject of experiment, and the book was welcomed by those who were taking the subject of radiology seriously. Nearly twenty years later, the evidence of injuries caused by the radiations was collected in book form and appeared as "X-rays and Radium Injuries". Colwell would talk and write forcibly on the subject of quackery, and he was incensed at its association with radium; at that time people were being induced to drink water charged with radium, to eat chocolate containing radium and to believe that radioactive toilet preparations such as hair restorers, skin lotions and face masks brought special benefits to their users. Colwell's comment was: "One thing about such preparations is quite plain, if they are not radioactive as they claim, they are fraudulent, and if they fulfil that claim, they are dangerous". He published an introduction to the study of X-rays and radium with Wakeley and a delightful book on the history of electrotherapy. His wide knowledge and experience of the subject brought him the Garton Gold Medal and Prize of the British Empire Cancer Campaign for an essay on the "biological effects and mode of action of radiations upon malignant and other cells".

Hector Colwell was at heart a scholar, and no sort of intellectual activity came amiss to him; he was a delightful pianist and a man to whom languages came easily, a quiet retiring man of great charm to those who came within the circle of his friendship. His wife (née Clara Wood) predeceased him in January, and he never recovered from her loss.

Prof. Ernst Freund

WITH the death on June 2 of Prof. Ernst Freund a great biochemist has passed away. He was a singular scientific personality, whose work did not rest on the results of contemporary research, but always originated from a sudden discovery of new

paths of thought. He had been suffering from ill-health for about a year, but he carried on his research work until his death took place in London.

Freund was born in Vienna in 1863. He graduated as an M.D. at the University of Vienna in 1886. His first publication, "Zur Diagnose des Carcinoms", was published in 1885, when he was still a student. Dissatisfied with the predominantly toxicological and hygienic trend of the type of medical chemistry taught at that time, Freund proceeded in 1890 to found his own biochemical laboratory, which became attached to a large Viennese hospital. Its purpose was to put chemical research at the disposal of the clinics. It was the first biochemical laboratory in Austria, and one of the first of its kind in the world. The importance of this laboratory for the development of biological and clinical chemistry in the old medical centre of Vienna was very great indeed. The results of the activities of his laboratory will be found in many volumes of *Hofmeister's Beiträge*, as well as in the first 255 volumes of the *Biochemische Zeitschrift*.

During this time, Freund's interests were focused on a variety of problems: the isolation of different serum globulins; the role of the intestine in protein metabolism; the presence of albumoses in blood and urine; the composition of urine in infections, especially pneumonia, and in other pathological conditions; the presence of specific nucleo-proteinases in urine; the development of simple methods for the isolation and determination of nitrogen-containing substances in urine, among them of the colloidal fraction of the so-called oxyproteinic acids. The inhibition of blood clotting by keeping the blood in paraffinized vessels was first observed by Freund. He isolated cellulose from miliary tubercles and based a treatment of tuberculosis on the exclusion of cellulose from the diet.

The year 1912 brought a decisive reorientation of Freund's work, which from now on became predominantly connected with cancer research. Jointly with his devoted co-worker, Dr. Gisa Kaminer, he discovered that normal blood serum has the power of dissolving carcinoma cells, whereas blood serum of carcinoma patients does not. Thus the first serological cancer reaction was found. Freund himself linked up his great discovery with yet another concept, that of cancer disposition, and he deduced the possibility of diagnosing cancer in its earliest stages, as well as predisposition to this disease. It is sometimes not realized that Freund's cytolytic reaction is an independent experimental fact which has been confirmed beyond doubt. Freund and his collaborators then proceeded to connect the serological changes with changes in the intestinal bacteriological flora. He tried to control this flora by intestinal disinfection and, above all, by a certain diet, the essential features of which were high protein and low carbohydrate content, complete absence of animal fats, and their replacement by vegetable fats. This diet was tried on animals with experimental cancer as well as on human cases; many inoperable cases showed appreciable, sometimes very great, improvement. Again Freund had broken new ground by demonstrating results the importance of which remains independent of the background of his theory.

At this stage Freund, who had retired from the University, found the interest and powerful support of Mr. Frederick F. A. Pearson, who founded a cancer hospital for dietary treatment of cancer cases,

mainly in inoperable stages. During this period Freund also developed new ideas regarding the pathogenesis of rheumatism, which again he linked up with changes in the intestinal flora. With the annexation of Austria, Mr. Pearson transferred his foundation to London, where Freund continued his research work with indefatigable zeal.

Freund's enthusiasm and scientific inspiration was matched by a deep devotion to his humanitarian mission. His modesty and profound kindness added to the fascinating charm of his personality, and it was significant that his co-workers wanted to become also his friends, and his friends to become also his co-workers.

R. WILLHEIM

### Prof. J. Uzel

PROF. J. UZEL, professor of agricultural and forest zoology at the Czech Technical College in Prague, died on May 19, 1946, at the age of seventy-eight. From childhood he was interested in natural science, and he studied in the faculty of science and philosophy at the Charles University of Prague and at the University of Berlin.

Uzel's chief interest was zoology, especially entomology. His first study was of the group Apterygota. In 1890 he wrote "Šupinušky země České" (Thysanura of Bohemia). For this work he gained an award from the Charles University. Another work on the same group was "Studien über die Entwicklung der Apterygoten Insecten (Berlin, 1898). Meanwhile, as the result of research and careful microscopical observations over a period of years, he produced "Monografie řádu Thysanoptera" (a monograph of the order Thysanoptera, 1895). This book, of some five hundred pages, is a fundamental work in this branch of entomology. In it Uzel described many new species of these small, but often serious, agricultural pests. For this book he received an award of the Czech Academy of Sciences.

In 1896 Uzel obtained his doctorate, and then he devoted himself to science and travelling, becoming well known in the scientific world. In 1901 he was invited to Ceylon by Willis, then director of the Royal Botanic Garden in Peradeniya. There he worked as an entomologist for a year. In 1903 the German Government offered him the post of entomologist at the biological station in Amani in Africa. He refused and accepted a position as chief of the research station for the sugar industry in Prague. There he built up a phytopathological department. He took an active part in the protection of sugar beet and published many practical and scientific papers, most of them published in the *Zeitschrift für die Zuckerindustrie in Böhmen*. During the years 1909-10 he was again studying the fauna in the East Indies and Ceylon.

In 1905 Uzel became a lecturer at the Czech Technical College in Prague, in 1909 he was appointed an extraordinary professor of phytopathology, and in 1920 ordinary professor of agricultural zoology and entomology. Not far from Prague he had a biological station, associated with his institute of zoology. For his scientific work Uzel was in 1905 elected to the fellowship of the Czech Royal Society.

In recent years Uzel took up the study of philosophy. He published many papers, and in 1926 a book in Czech, called "Nature is a Gospel" (German edition: *Die Natur ein Evangelium*, 1937). In this book he gives a summary of his own philosophical