

Similar promotions have been made by the United Kingdom Atomic Energy Authority, as follows:

#### Deputy Chief Scientific Officer

**Mr. T. H. R. SKYRME.** Mr. Skyrme has been leader of the Nuclear Physics Group of the Theoretical Physics Division at Harwell since 1950. Mr. Skyrme graduated in Cambridge in 1943 and joined the Los Alamos Laboratory as a member of the British Mission in 1944. He became a research fellow in the Department of Mathematical Physics, University of Birmingham, in 1946, after which he returned to the United States to spend two years at the Massachusetts Institute of Technology and at the Institute for Advanced Studies at Princeton. During the past seven years at Harwell he has published a number of important papers on quantum field theory and nuclear structure.

#### Senior Principal Scientific Officer

**Dr. P. A. EGELSTAFF.** Dr. Egelstaff, who joined the Atomic Energy Research Establishment in 1947 and has specialized in neutron physics, is now head of the Pile Neutron Research Group.

**Dr. A. R. FRASER.** Dr. Fraser is a group leader in the Theoretical Physics Division of the Atomic Weapons Research Establishment, where he has done distinguished work in eliciting the interaction of radiation with hydrodynamic flows. Here the local absorption of energy depends upon density and temperature and so reacts on, and is itself conditioned by, the hydrodynamics of the field.

**Dr. J. H. O. VARLEY.** Dr. Varley is a member of the Metallurgy Division of the Atomic Energy Research Establishment and has been particularly concerned with work on the theory of alloy formation, the volume thermal expansion of solids and radiation damage in solids. He is now in charge of work on corrosion phenomena and surface reactions.

The Agricultural Research Council is also making a promotion to the rank of senior principal scientific officer:

**Dr. HELEN K. PORTER.** Dr. Porter, a member of the staff of the Research Institute of Plant Physiology at the Imperial College of Science and Technology, London, is studying the mechanisms of sucrose synthesis in the germinating embryo of the cereal plant, and of starch synthesis and degradation in the leaf.

## TECHNICAL SCHOOLS IN PRAGUE

### 250th ANNIVERSARY

CZECHOSLOVAKIA has an ancient tradition not only in arts and humanities, but in technical sciences as well. A technical school was founded in Prague 250 years ago. This school, it is claimed, was the first public technical school in Europe. Its founder and first teacher was Joseph Willenberg, a native of Silesia. He, like many young men at that time, had gone to France to obtain knowledge of military engineering through service in the army. When, however, Louis XIV declared war on Austria owing to the dispute over the Spanish Succession, Willenberg, not wishing to fight against his native

country, left France. In Austria he tutored young noblemen in the art of fortification and accompanied them in campaigns. After 1703 he settled in Prague, and from there he addressed a petition to the Emperor Leopold I, requesting permission to open a public school of engineering where, upon payment of a fee, six higher and four lower noblemen and two bourgeois youths would be instructed in the art of engineering. The request was granted by Emperor Joseph I, the son of Leopold, but the Bohemian States were unable to open the school at once as, at that time, the Bohemian provinces were utterly exhausted by taxation and conscriptions. Consequently, Willenberg undertook various engineering jobs, executing plans and designs for the fortification of Pilsen and other towns. Ultimately he applied direct to the Emperor Charles VI, the son of Joseph I. The Emperor then ordered the States speedily to do what they had been ordered in 1707, and the desired school, the Czech Professional Engineering Institute, was established by the States in 1717. Willenberg commenced regular instruction in his private apartment in the following year, with an annual attendance of twenty-four pupils. The school, then called Česká stavovská inženýrská škola (the Czech States Engineering School), was converted about a hundred years later into a polytechnic, the principal of which was F. J. Gerstner, who suggested the construction of the first horse-drawn railway on the European Continent.

In the course of the following years the school developed successfully, and produced a number of accomplished experts who made eminent contributions to the advancement of the Czech countries, and whose work was widely recognized abroad. After many changes in its organization, in harmony with the development of the technical sciences and the growing need for qualified technologists, the Prague technical school reached its present form. As the Technical University of Prague, it represents a whole complex of specialized faculties where thousands of undergraduates receive instruction.

Naturally, the Czechs are proud of their endeavours in technical education, and recently celebrated the 250th anniversary of the foundation of technical schools in Prague. Invitations were sent to universities and colleges all over the world and 135 foreign scientists took part in the celebrations. They came from twenty-three countries, including Albania, Austria, Bulgaria, Chile, China, Egypt, Finland, France, Great Britain, Germany (West and East), Hungary, India, Iran, Iceland, Italy, Korea, Poland, Rumania, Switzerland, the United States and the U.S.S.R. There were two representatives from Britain, Mr. D. S. Cardwell, vice-principal of the Manchester College of Science and Technology, and Prof. J. S. Rankin, of the Royal College of Science and Technology, Glasgow.

The inaugural proceedings of the celebrations on May 27 were held in the Vladislav Hall of Prague Castle. In an ante-room rectors and professors were arranged in pairs in alphabetical order of country. The two British representatives had the honour of leading in the procession behind the two chancellors of the Universities of Prague. The vast hall is in the oldest existing building of Prague Castle, and is an outstanding memorial to Czechoslovakian medieval architecture. It was filled to overflowing by an audience who were obviously keenly interested in all

that took place. When the academic body was properly arranged on either side of the huge platform, the President of the Republic and members of the Government walked in and occupied an imposing position in the gallery of the platform. During the whole of the proceedings and even during the Rector's dignified address, bulbs flashed and cameras clicked and high-powered lamps illuminated the platform party while films were being made. It was all very impressive; the organization was good, and one sensed an atmosphere of academic dignity.

On the same day we were transported to the Auditorium Maximum of the Carolinum, a renovated hall of the Charles University of the fourteenth century. An honorary degree of doctor of technical science was awarded to Prof. D. Blochincev, director of the United Research Institute of Nuclear Physics. Owing to illness, a similar award could not be conferred on Dr. M. Roš, director of the Federal Research Institute for Testing and Research in Industry, Zurich.

Another important part of the celebrations was the international scientific conference in the Assembly Hall of the Congress Palace. It lasted for three days, with morning and afternoon sessions. To begin with, each foreign delegate was called to a microphone in the centre of a large platform and conveyed his congratulations and felicitations to the rector and staff of the Technical University of Prague. At the same time, scrolls and appropriate presents were ceremoniously handed over to the chairman of the meeting. The hall could seat approximately 2,000 people, yet each one could listen in to all the speeches in one of the official languages—Czech, Russian, English, German and French. Apparently there were interpreters for other languages like Chinese, Korean and Arabic. At the conference eighty-five scientific papers were read, thirty-nine of which were by foreign scientists interested in the branches dealt with at the Technical University of Prague, namely, constructional building, architecture and civil engineering, mechanical engineering, electrotechnics, sylviculture, geodesy and engineering economics.

Everything possible was done to make the visit of each foreign guest pleasant and profitable. For example, each day a car with chauffeur was put at the disposal of Mr. Cardwell and Prof. Rankin, to transport them to any factory or place of interest within a day's journey of Prague. Both spent a pleasant day at Karlsbad, and lunched in the palatial Moscow Hotel, which would be difficult to surpass anywhere in food and furnishings. In all visits a young engineering lecturer, good-natured, intelligent and modest, acted as interpreter. One met many men of this type, and the material progress of their country should be bright if they are given the proper encouragement and incentives.

The university engineering laboratories were well equipped, and much useful research has been done. The education of technologists is being pursued with vigour, and from the figures supplied it would appear that the Czechs are producing at least twice as many highly qualified technologists per million of population as Britain. The various technological courses seem to be somewhat longer than in a British university or college, and the standard attained in each subject is quite high.

Bus tours were also arranged to take the delegates to various industrial centres, such as the Tesla Works

at Vrchlabi, where a large proportion of the workers are women who were undoubtedly highly proficient.

Many social evenings were arranged. A visit to the opera, and two receptions at which music and dancing were indulged in, were much appreciated by all the delegates. One had the opportunity of making friendly personal connexions, especially with the rectors, professors and lecturers of the Universities of Prague.

I shall always remember the kindness and friendliness of the Czechs I met, and will watch the future development of their country with understanding, sympathy and good wishes.

J. S. RANKIN

## NON-SPECIFIC IMMUNITY

**D**URING the spring meeting of the British Society for Immunology, which was held during May 10 and 11 at the Westminster Medical School, an afternoon was devoted to a symposium on "Non-specific Immunity", with Prof. A. A. Miles (Lister Institute) in the chair.

Prof. Miles attempted to define the rather vague field of non-specific immunity, and concluded that the term was largely, though not wholly, synonymous with effective defences against pathogenic parasites that were not mediated by the specific action of antibodies or presumed antibodies. In the analysis of non-specific immunity, it was essential, not only to identify various single factors—cellular or humoral—that might contribute to immunity, but also to relate them to the constitutive and adaptive defence mechanisms of the metazoan host as a whole. It is probable that the non-specific immunity in different anatomical sites of infection and in different cellular and humoral systems of the body can to some extent vary independently in the infected animal.

Dr. G. Biozzi (Paris) described investigations of the phagocytic functions of the reticulo-endothelial system carried out in collaboration with B. N. Halpern, B. Benacerraf and C. Stiffel. The rate of blood clearance of carbon particles injected intravenously was used for measuring the total phagocytic function of the reticulo-endothelial cells of the blood vessels, involving mainly the liver and spleen, which together accounted for 90 per cent of the phagocytic activity. During infection with *Salmonella* or tubercle bacilli there was an increase in the phagocytic activity which lasted throughout the period of infection. In severe infections attended by death, the initial hyper-reactivity was followed by a rapid drop when the defences were overwhelmed. The substance found responsible for the variations in phagocytic function during infection with Gram-negative organisms was the lipopolysaccharide endotoxin. Overstimulation before the infection allowed the recovery of 80 per cent of rats injected with a dose of *Salmonella* organisms 100 per cent lethal for controls.

Dr. C. H. Lack (Royal National Orthopaedic Hospital) described the role of non-specific factors affecting susceptibility to tuberculosis. Leucocytes could inhibit tubercle bacilli by release of lysozyme or by the production of lactic acid. On the contrary, most keto-acids and polycarboxylic acids favoured mycobacterial growth. Another important factor