FIRST INTERNATIONAL CONGRESS OF BIOCHEMISTRY

MEETING AT CAMBRIDGE

The first International Congress of Biochemistry, initiated by the Biochemical Society, was held in Cambridge from August 19 to 25. This Congress marks a notable stage in the development of biochemistry as a branch of science covering the ill-defined territory between chemistry and the many branches of biology. The need for an international congress on this subject has been evident for some time, and eight congresses for French-speaking biochemists have already been held since 1927.

The distinguished foreign chemists and biochemists who consented to be honorary vice-presidents, and the names of the lecturers, illustrate the international character of the Congress. Among the vice-presidents were Professor J. B. Collip, of Canada; Professor N. E. Cruz-Coke, of Chile; Academician J. O. Parnas, of the U.S.S.R.; Professor J. Roche, of France; and Dr. D. D. van Slyke, of the U.S.A. Professor M. Florkin, of Belgium, and Sir Robert Robinson, of Great Britain, were among the lecturers. The Congress was opened by the President, Professor A. C. Chibnall, F.R.S. Viscount Addison presided at a reception given to the delegates by the Government during the evening.

The discussions were held in 12 separate groups, as follows: (1) Animal Nutrition and General Metabolism; (2) Microbiological Chemistry; (3) Enzymes and Tissue Metabolism; (4) Proteins; (5) Clinical Biochemistry; (6) Structure and Synthesis of Biologically Important Substances; (7) Cytochemistry; (8) Biological Pigments, Oxygen Carriers, and Oxidizing Catalysts; (9) Hormones and Steroids; (10) Chemotherapy and Immunochemistry; (11) Plant Biochemistry; and (12) Industrial Fermentation.

Vitamin B_{12}

In a discussion on dietary factors in relation to anaemias in the Section on Animal Nutrition and General Metabolism, Dr. K. Folders (New Jersey) said that chemical research carried out with collaborative clinical tests by Dr. Randolph West, of New Jersey, discovered the properties of vitamin B_{12}. The crystals do not melt below 300° C. Emission spectrographic analysis showed the presence of cobalt; thus the molecule was a cobalt co-ordination complex. The red colour and melting point were at least in part associated with the cobalt-complex character. The significance of cobalt as an essential trace element in nutrition could be re-evaluated as the biological functions of vitamin B_{12} became known. Sources other than liver for vitamin B_{12} were being sought, since the natural vitamins were known to occur in numerous animal, plant, and microbiological materials. A red crystalline compound had been isolated from a grisein-producing strain of *Streptomyces griseus*, and this was compared with vitamin B_{12}. Comparative chemical and biological data provided evidence that the crystals from the microbiological source and vitamin B_{12} were identical.

Professor G. R. Cameron, of London, spoke on the pathological types of liver injury. He wished to reduce the complicated patterns of liver necrosis to a few simple components with a geometry of their own. Liver necrosis began with impairment in the functioning of liver cells, such cells being distributed from the trabeculae within the lobules, either singly, or in linear groups, or in clumps. At first there might be no fixed rule in grouping, but sooner or later, usually within a few hours of the onset of the phenomena, a trend of redistribution made its appearance and the necrotic area emerged as focal, zonal, diffuse lobular, or massive lesions. There was reason to believe that this grouping also represented the time sequence of necrosis. All known cases of liver necrosis produced changes which fitted into these groupings. Complications arose with variation in intensity of the causative agent, its power of self-propagation (as in infection with bacteria and viruses), and possible host variations. Analysis had to take into account the disturbances of the vascular relationships within the lobules, the action of the causative agent on the liver cells, the preservation of the biliary mechanism, and possibly the lymphatic integrity of the organ as a whole.

Adrenal Cortex

In the Section on Hormones and Steroids, Dr. G. Pincus (Massachusetts) spoke on studies of adrenal cortex function. He stated that indices of human adrenal cortex function could be obtained by measuring the urinary 17-ketosteroids and neutral reducing lipids, which appeared to vary with the secretion of adrenocortical steroid precursors. Secretory activity of the adrenal cortex was reflected in the changes in the urinary sodium, potassium, and uric acid, and in the blood lymphocytes and eosinophils. Measurements of the diurnal variations of urinary steroid excretion had been made in men and women of various ages, and it was found that the basal output of 17-ketosteroid decreased markedly in older persons, whereas the output of urinary reducing lipids did not. The diurnal variation of each changed with age. Stress procedures or the administration of adrenocorticotropin, which stimulated adrenocortical secretion, were reflected by significant changes in the various blood and urinary indices of healthy men of various ages. Response in terms of these indices to stress or to adrenocorticotropin administration occurred in psychoneurotic patients, but was absent or diminished in most schizophrenic patients. The latter were fairly responsive to adrenal cortex extract, indicating that adrenal cortex response was largely defective in the schizophrenics. This did not appear to be a function of the nutritive state of the schizophrenic patient. The significance of derangements of pituitary-adrenal function in schizophrenia was discussed and the effects of some therapeutic procedures were presented.

It is impossible to report more than a fraction of the large number of discussions held by the Congress. The range of subjects is indicated by the 12 sections already mentioned, and the individual topics varied from a study of acetylcholine metabolism to brewing and yeast production.

During the Congress the University of Cambridge conferred honorary doctorates of science on Viscount Addison, Professor Cori (U.S.A.), Sir Charles Harington, Professor Linderström-Lang (Denmark), Professor Tiselius (Sweden), and Professor Tréfouël (France).

WHOOPING-COUGH PROPHYLAXIS

PRELIMINARY REPORT

The following preliminary statement has been issued by the Whooping-cough Immunization Committee of the Medical Research Council.

In view of the conflicting reports on the efficacy of pertussis vaccine in whooping-cough prophylaxis the Medical Research Council was asked by the Ministry of Health to investigate the problem and report on the value of prophylactic immunization against whooping-cough of children in England and Wales. As part of the investigation the Whooping-cough Immunization Committee organized a series of controlled field trials in which the experience of children inoculated with pertussis vaccine could be compared with that of control children. The results of some of the early trials have already been published (McFarlan, Topley, and Fisher, *British Medical Journal*, 1945, **2**, 205). The evidence obtained suggested that the pertussis vaccine used in these trials was of no value in whooping-cough prophylaxis.

Further large-scale trials have now been carried out in collaboration with the medical officers of health of Oxford, Manchester, Tottenham, Wembley, Edmonton, Leeds, and West Ham, using a number of different vaccines of both British and American origin. Each trial was planned in a similar manner. Children, mostly between the ages of 6 and 18 months, whose parents agreed that they should take part were divided by the method of random sampling into two groups. The children in one group—the test group—were inoculated with the pertussis vaccine under trial, while those in the other group—the control group—were inoculated with an "anticatarrhal" vaccine containing no *H. pertussis*. After inoculation the

children in both groups were kept under close observation for a period of at least two years by monthly home visits made by specially appointed nurse-visitors. Those children who came into known contact with whooping-cough or who developed symptoms which might be those of early whooping-cough received special visits in order that a bacteriological diagnosis might be made. As it was essential that observers should not be influenced in their clinical assessment of the disease, efforts were made to ensure that neither the doctor, nor the nurse-visitor, nor the parents should know whether the child under observation was in the test or the control group.

Seven of the early trials, comprising a total of 4,691 test and control children, have now been in progress for over two years, and from a preliminary analysis of the results the following general conclusions may be drawn:

(*a*) In each trial the random allocation to test and control produced two equivalent groups of children, comparable in age, sex, duration of breast-feeding, size of family, and incidence of infections other than whooping-cough.

(*b*) In six of the trials the incidence and severity of whooping-cough in the test groups were appreciably less than in the control groups. In the seventh trial the results were only slightly more favourable in the test group.

(*c*) There was considerable variation in the prophylactic potency of vaccines from different sources, and there was probably also some variation in the potency of different batches of vaccine from the same source.

(*d*) One particular type of vaccine, not at present readily available, was found to give decidedly better protection against the disease than any of the others tested.

The reason for variations in the prophylactic potency of these vaccines is not clear, nor is there yet available a conclusive laboratory method of assay by which this property of a vaccine can be accurately assessed, but an investigation is in progress in which the prophylactic value in children of a number of different vaccines is being compared with their immunizing properties as shown by laboratory tests. With this aim in view trials have already been begun in Manchester, Oxford, Cardiff, Poole, Walthamstow, and Leyton.

No investigation has so far been made of the value of combined pertussis-diphtheria prophylactic, as it was considered desirable to avoid the inclusion of any factor that might complicate the issue and do nothing that might possibly harm the diphtheria immunization campaign at a stage when the true value of whooping-cough immunization was unknown. This preliminary statement has been prepared on account of the interest shown by health authorities in the outcome of these investigations. A detailed analysis is now being made and should be ready for publication early in 1950.

Members of the Committee and the medical officers of health concerned wish to record their gratitude to the many thousands of parents who have collaborated and are still collaborating in the investigation and who, when control groups have been essential, have volunteered to take part in the full knowledge that their children would not necessarily receive pertussis vaccine.

ROYAL MEDICAL BENEVOLENT FUND

In his annual report on the Royal Medical Benevolent Fund the chairman of the committee of management, Mr. R. M. Handfield-Jones, points out that the inauguration of the National Health and National Insurance schemes does not mean that the need for benevolence has ceased to exist either within the ranks of the medical profession or outside them. He gives several poignant examples of distress amongst elderly doctors and their families. During the year the income of the Fund from invested capital was £13,068, and from subscriptions and donations £23,900. A sum of £32,000 was voted in relief of poverty and distress, some of it in the form of regular annual grants to beneficiaries of many years' standing, some in the form of single grants to meet a case of illness or misfortune, and some again in the form of educational grants for doctors' children. The Fund has now a house near Wimbledon Common where 12 elderly ladies, beneficiaries of the Fund, who were previously living in loneliness are lodged in comfort. Mr. Handfield-Jones reminds the profession that the Fund has never made a public appeal; it has resisted the temptation to be "This Week's Good Cause," believing that an honourable and learned profession ought to be able to deal with its own casualties and help its lame dogs over stiles. He makes a warm acknowledgment of the continuing help of the British Medical Association through its Charities Committee and through the work of its Divisions and Branches, and also that of the Medical Insurance Agency, which "continues, as if with a touch from a magician's wand, to present the Fund with seven-year covenants which magnify the gifts twofold." The treasurer of the Fund, Dr. C. L. Batteson, points out the need for larger grants in individual cases. The former grants of £26 or £40 a year are obviously inadequate in present circumstances, and the committee is in a position to vote grants of £2, £3, or £4 a week in exceptional cases of distress. Legacies during the year totalled £21,670.

At the 113th annual meeting of the Fund Lord Webb-Johnson was elected president, and Mr. Victor Riddell honorary secretary. The address of the Fund is 1, Balliol House, Manor Fields, Putney, S.W.15.

MEDICAL DEFENCE UNION

The annual report of the council of the Medical Defence Union to its members has been distributed recently and will be considered at the annual meeting which is to be held at 49, Bedford Square, London, W.C., on Tuesday, September 20, at 3.15 p.m. The report puts forward proposals about increasing the rates of subscriptions. These increases are necessary, in the council's view, because of the considerable deficits in the Union's income and expenditure for three consecutive years, and because of the probability that these deficits are due to continuing factors and not to exceptional misfortunes unlikely to recur.

If the contention that the causes of the Medical Defence Union's unfavourable experience are likely to be permanent is a well-founded one, it may be surmised that no long period is likely to elapse before the two sister societies follow the lead of the Medical Defence Union. Meanwhile it may be noted that the increased rates are not to apply, on the council's suggestion, to new members during their first three years of membership. This is a helpful concession to junior members of the profession.

The Minister of Food has approved for publication a report containing the Food Standards Committee's recommendations for standards for processed cheese. The committee recommends: (*a*) That processed cheese be defined as cheese which has been heat-treated with or without the use of emulsifying salts, and the fat of which consists entirely of butter fat. Colouring matter may also be added. "Flavoured processed cheese means processed cheese to which a flavouring substance has been added." (*b*) That a minimum butter-fat content of 48% in the dry matter, and a maximum moisture content of 42%, be prescribed for processed cheese; that a minimum butter-fat content of 45% in the dry matter, and a maximum moisture content of 45%, be prescribed for processed cheese of the Gruyère and Emmenthal varieties. (*c*) That a maximum quantity of 3% emulsifying salts be permitted for all types of processed cheese. (*d*) That cheese spread be defined as cheese prepared to spread easily by the addition of one or more milk products, with or without the application of heat. Emulsifying salts, colouring matters, and flavouring substances may be added. "It shall have a minimum content of 45% of butter fat in the dry matter and a maximum content of 48% of moisture." (*e*) That the ingredients of cheese spread be disclosed on the labels in accordance with Article 2 of the Labelling of Food Order (S.R.O., 1946, No. 2169).