

T. Gold, H. Alfvén, R. A. Lyttleton and D. Martynov. The papers of Shajn and Fessenkov were read for them in their absence. The discussion, as may be judged by the names of those taking part, was lively and at times argument was intense; naturally, no decisions were reached, but a most stimulating meeting was held. The importance of Baade's two stellar populations came prominently into view. The chairmen were H. Bondi and O. Struve.

In the second symposium, which was concerned with the positions and motions of faint stars, the chairmen were J. Jackson and A. A. Nemiro. The subject-matter was less controversial, but perhaps more fundamental, than in the case of the first symposium, and the speakers or contributors of papers included M. S. Zverev, A. Blaauw, A. N. Deutsch, A. Kopff, J. Larink, J. H. Oort, E. W. Rybka, S. Vasilevskis, A. N. Vyssotsky, D. Brouwer and R. H. Stoy. In the third symposium E. H. Linfoot, A. Couder, A. Lallemand and I. S. Bowen presented papers on various telescopes and auxiliary apparatus.

Several of the meetings of groups of commissions must be mentioned. The Commissions on Ephemerides, Astronomical Constants, Celestial Mechanics, the Moon, Minor Planets, Comets and Satellites held a joint meeting at which the recommendations were adopted which had been made to the Union by the Paris conference, held in 1950, on the fundamental constants of astronomy. A whole day was devoted to a discussion of the spectra of variable stars at a joint meeting of the Commissions on Variable Stars and Stellar Spectra—more than thirty papers were presented. A joint meeting of the Commissions on Radio-astronomy, Interstellar Matter and Stellar Statistics produced, perhaps, the high lights of the meeting—Oort's account of the possibilities of exploring the dark arms in the Milky Way spiral structure through the use of the 21-cm. line due to atomic hydrogen, and Baade's account of the discovery of rings and wisps of nebulosity surrounding the positions of radio stars located by the observers at Cambridge and Manchester.

During the meeting, visits were paid to the Observatories at Castel Gandolfo and Monte Mario. On the former occasion, His Holiness Pope Pius XII addressed the Union on the progress achieved by astronomy and astrophysics in the past fifty years, and afterwards met individual members and spoke with them on their work.

At the closing session of the Union, a number of recommendations from the Commissions were adopted. Among others, mention must be made of the following: an appeal for observations of the transit of Mercury across the sun's disk in November 1953; an amendment of Brown's Tables of the Moon by removing the empirical term and applying a correction to the mean longitude; an appeal for further work in the southern hemisphere in the field of fundamental meridian astronomy, catalogues of faint stars, and an extension of the Lick sky survey; another appeal for systematic measurements of the general magnetic field of the sun; a suggestion for a joint commission with the Unions of Geodesy and Geophysics and of Radio-Sciences to arrange, possibly in connexion with a proposed International Polar (or Geophysical) Year in 1957-58, for a third set of determinations of an accurate network of world longitude; and a general adoption of the three-letter nomenclature for constellations. Financial recommendations approved by the Finance Committee and adopted included a number of regular items and, in

addition, a grant for the Astronomical News Letters which summarize work published exclusively in Russian; a grant to Meudon Observatory to put into operation the photo-electric photometer of the late Bernard Lyot, for measuring the intensity of solar coronal spectral lines; a grant to P. Swings for the publication of a photographic atlas of typical spectra of comets; and a grant to facilitate the exchange of astronomers between countries.

Invitations for the next General Assembly of the Union had been received from Eire and Poland. A vote by countries was in favour of accepting the invitation from the Dublin Institute for Advanced Studies, and the next General Assembly will be held in Dublin in 1955. The Bureau for the next three years was elected as follows: *President*, O. Struve (U.S.A.); *Vice-Presidents*, V. A. Ambartsumian (U.S.S.R.), A. Couder (France), E. Rybka (Poland), P. Swings (Belgium) and R. v. d. R. Woolley (Australia); *General Secretary*, P. Th. Oosterhoff (Netherlands). The retiring president and secretary, B. Lindblad (Sweden) and B. Strömberg (Denmark and U.S.A.), are *ex officio* members.

The above account indicates clearly the crowded nature of the activities of a very successful meeting. Although the symposia and group meetings were most successful and added greatly to the interest of the meeting, there were signs in several quarters of a tendency to crowd out the administrative organizational work of the separate commissions. This tendency must be watched carefully, as such work is the real fundamental basis of the Union's continued success. No account of the meeting could be regarded as complete without reference to the most generous hospitality received in Rome from the Mayor of Rome and from the Consiglio Nazionale delle Ricerche, who placed every facility at the disposal of the Union.

F. J. M. STRATTON

## THE BRITISH PHARMACEUTICAL CONFERENCE, 1952

THE eighty-ninth British Pharmaceutical Conference was opened at Nottingham on September 1 and the attendance exceeded five hundred. The chairman, Mr. H. B. Mackie, approached the subject of pharmaceutical education with originality when he entitled his address: "An Education for a Pharmacist". He pictured the pharmacist as a professional man, comprehending the scientific basis of drugs and drug action, able to evaluate critically the products he handles and competent to advise physicians concerning drugs and their uses.

The early education of the future pharmacist, Mr. Mackie said, should be as broadly based as possible, designed to discover aptitudes and latent potentialities and should seldom degenerate into formalized, didactic instruction. Latin might be restored to its original place, for young people lacking Latin have a hard road to travel to be completely literate. The test of a successful early education is not the amount of knowledge that a pupil takes away from school but his appetite to know and capacity to learn.

Of professional studies, there is little to be said concerning pharmaceutical chemistry—now fairly clearly delimited. Pharmacology and pharmacognosy used in the broadest sense mean the same thing,

'knowledge about drugs', both terms having now assumed an acquired meaning. Pharmacology is important, since it provides a link in the chain of knowledge between pharmacy and medicine. A modern education for a pharmacist must strengthen the link. The changing and enlarging field of therapeutics confronting the physician makes it imperative that he have assistance in finding his way through the labyrinth of complex, controversial materials. The pharmacist should be so trained as to be a source of authentic, unprejudiced information and able to inform the public as to the merits of new therapeutic agents. Probably all would agree that any course of applied science should provide information, useful to the student in solving problems of to-day and to-morrow, while teaching principles in preference to communicating isolated facts. Facts are quickly forgotten and are found in hand-books. Understanding is more difficult to acquire, but once acquired becomes an integral part of the student's mind.

The use of drugs has a very long history; but pharmacognosy as a science dates from the beginning of the nineteenth century. Despite increased chemical knowledge about natural products, there has been little influence upon the teaching of pharmacognosy. The subject could be usefully integrated with pharmacology. Although doubts have been expressed about the necessity of pharmacognosy for the practising pharmacist, it is pharmacy's specific and peculiar contribution to the cause of science. It behoves us to esteem it well.

Galenical pharmacy enables us, Mr. Mackie pointed out, to present trains of thought and methods of scientific manipulation, which as yet lie outside the domain of equations and formulæ. Terms such as 'tincture' and 'syrup' apply to a complex association of materials derived from vegetable structures, and processes involved in their preparation date to the beginning of man's historical record. Galenical pharmacy is and always has been based on colloidal complications. As the normal structure and juices of most or all plants are colloidal, the study of pharmacy as applied to natural substances is that of colloidal research and colloidal manipulation. Accepting that non-crystalline substances compose the major part of plant tissues, it becomes the pharmacist's duty to disentangle these complicated structures, providing a product not having undergone fundamental rearrangement.

There is no 'alkahest', no universal solvent, as was dreamt of by Paracelsus. The most promising neutral liquids for extracting natural colloidal groups are listed by Uri Lloyd. These solvents may virtually exhaust most plant contents. A saturate is not an ultimate, but may be complex and require subdivision, giving more closely related substances. Such manipulation individualizes colloidal plant structures to a degree of pharmaceutical satisfaction, though not absolute chemical perfection. The use of a neutral liquid as an excluder is exemplified in ox-bile and the piecemeal separation of certain opium alkaloids; then reassembly produces well-known injectable products. There appears practically no limit to the production of medicaments which evoke the precise therapeutic response desired, plus the synergistic effect that frequently accompanies this, while free from inhibiting or damaging reaction. Colloidal scales possessing all the properties of the original drug may be produced. A new field has been introduced by the discovery of the alkaloidal affinities of

hydrous aluminium silicate, though it is not yet certain if it will enable us to obtain plant substances in a purified and active form.

In the therapeutic application of a substance its condition is most important; for example, the superiority of finely divided mercury. The alkaloidal strength of a nux vomica galenical may be increased by adding strychnine, but has the quality improved?

The attempt to achieve standardization by a single dominating constituent is but a struggle towards a pharmaceutical standard of excellence in which therapeutic quality should be the ideal and which for the moment should be stressed in our scheme of training. It is fanciful to believe that there is some analogy between elaborately processed 'foods' and the substitution of synthetic chemicals in medicine for naturally occurring substances. The future pharmacist will not be chiefly a purveyor of tablets, and it may be true to-day as when written in medieval times that "Contra malum mortis non est medicamen in hortis".

Mr. Mackie completed his address by reminding his fellow-teachers that some of the most important men in history have been teachers. Many of the biggest advances in civilization have been the chief work, not of politicians or inventors, not even of artists, but of teachers. We have Ruskin's assurance that pay alone never made a better soldier or a teacher. We are servants of reality; our responsibility is to the young and through them to the future.

Among the scientific papers read and discussed at the Conference, there were several which reflected the tone of the chairman's address. Factors influencing the separation of hyoscyne and hyoscyamine by elution development of a chromatographic column had been studied and a simple assay described. Another paper was concerned with the detection of common medicinal alkaloids by the chromatographic method. Much work was reported on the assay of *Digitalis* glycosides. One group of workers had investigated the assay of mixed chloroform-soluble glycosides, while others dealt with the colorimetric estimation of digitoxin and compared the method with biological assay.

Assay methods were, in fact, a prominent feature of the papers read. The polarographic estimation of riboflavine was found to be more reliable than the simple colorimetric method and more rapid than other methods used. The available methods for the determination of ascaridole were reviewed and a possible polarographic method examined. The use of emission spectrography in pharmaceutical analysis was reported upon, and the methods outlined showed a considerable saving of time over normal chemical methods. A useful contribution was made to the evaluation of surface-active agents, based on the measurement of stability of the emulsions yielded. Two workers indicated that a small lymphocyte count is a more accurate method of pyrogen assay than temperature measurement.

Studies on tuberculostatic compounds reflected the vitality of pharmaceutical research. Papers dealt with methods of assaying *iso*-nicotinic acid hydrazide and the more general pharmacology of *p*-aminosalicylic acid.

Antibiotics featured prominently in the discussions of the Conference, and it was reported in one paper that the pharmacodynamical groups present in the chloramphenol series fall into two categories, namely, specific and relatively non-specific. Recent developments in the pharmacy of antibiotics were

dealt with in a symposium session which covered aspects of general and hospital practice. A contribution to the latter session gave a more widespread picture of the subject and illustrated the remarkable expansion of knowledge achieved since the general discussion on penicillin at the 1946 Conference.

Other developments in the field of pharmaceuticals included the successful use of infra-red radiation for drying a wide variety of products. Bacterial survival in systems of low moisture content was further reported upon, namely, the effects of increasing moisture content on heat resistance, viability and growth of *B. subtilis* spores. The determination of quality of surgical dressings had been further investigated, on this occasion being concerned with their water retention.

S. B. CHALLEN

## FISHERIES RESEARCH UNIT OF THE UNIVERSITY OF HONG KONG

THE need for a Fisheries Research Station in Hong Kong has long been realized; but the various plans for one which have been put forward from time to time have for various reasons been found impracticable. However, a satisfactory scheme was recently worked out by the University of Hong Kong in conjunction with the local Government, and a Fisheries Research Unit commenced work recently in the University's Department of Biology. The University has provided approximately a thousand square feet of laboratory accommodation for the Unit, and the director is reader in marine biology on the University's staff. The association between the Unit and the Department of Biology resembles that existing between various agricultural research units which are attached to a number of universities in Great Britain, for example, the Bureau of Animal Population and the Department of Zoology in the University of Oxford.

The director, Mr. Alan Tubb, who was formerly director of fisheries in the Colony of North Borneo, will take up his duties in April next year; meanwhile, Prof. D. Barker, professor of zoology and head of the Department of Biology in the University, is acting director. The director will be assisted by a chief scientific officer and three assistant scientific officers; so far, two assistants have been engaged. The rest of the staff establishment consists of a laboratory steward and attendants, and the skipper and crew of a research vessel at present under construction. The laboratory accommodation includes marine aquaria supplied with running sea-water, and a laboratory suitable for chemical and biological work. There is a considerable library of books and journals on fisheries research, and the Unit has access to the University's scientific library. Provision has been made for equipping the Unit's laboratory with the appropriate research facilities and apparatus. The cost of establishing the Unit is being met out of Colonial Development and Welfare funds, while recurrent expenditure is being met by the local Government; in each case the government contribution is by means of block grants made over to the University for its administration.

The research vessel is a 66-ft. diesel-powered otter trawler. The keel is now being laid and she should be in commission by the summer of 1953. She will be equipped with a laboratory, echo

sounder, radio telephone and wireless telegraphy, bottom sampler, bathythermograph, and various other apparatus required for oceanographical work. The vessel will work in waters up to a hundred miles distant from Hong Kong, and the longest trips will be of from seven to ten days duration.

From the point of view of marine research, Hong Kong is very favourably situated, being at the extreme south-east corner of Asia almost at the junction of temperate and tropical waters and within easy reach of ocean and estuarine fishing grounds. The Fisheries Research Unit is the most easterly of a chain of Commonwealth fisheries research stations, and its researches and findings will not only be correlated with those of Ceylon, Malaya and India, but will also be of value to the Dominions of Canada and Australia and to other countries which border on the Pacific Ocean or the China Sea. It is expected that the research carried out by the Unit will lead to improvements of catch in the immediate neighbourhood of Hong Kong and will contribute substantially to general fisheries research in the Indo-Pacific region. Under the auspices of the Indo-Pacific Fisheries Council, the Unit will pool its results and collaborate with similar stations in the Philippines, North Borneo, French Indo-China and Malaya in research projects relating to the China Sea. Among other problems the Unit will aim at undertaking the following research: survey the existing fishing grounds around Hong Kong, map them, and determine their species population and production; survey the sea-bottom, salinity and plankton in local waters; study ocean currents and the effect of such currents and prevailing winds on the movement of fish, with the possibility of discovering new fishing grounds; determine the influence of the Pearl River on the fishing around Hong Kong; study factors influencing the yield of catch in the local fishing grounds with the view of forecasting production; investigate the movement and feeding habits of fish, and, wherever possible, locate spawning grounds, etc., with the aim of trying to initiate control; make studies in relation to the extension and improvement of salt, brackish and freshwater fish-pond culture.

## UNESCO INSTITUTE FOR EDUCATION, HAMBURG

UNESCO has recently sponsored an unusually interesting experiment in West Germany, on a smaller scale than those activities with which Unesco is popularly associated. The experiment consists of the establishment of three Institutes, each of which began work during 1952. One is for Social Sciences, at Cologne; one for Youth, at Munich; and one for Education, in Hamburg.

These Institutes are remarkable in two respects. First, each has an international governing board consisting of seven non-German and six German members, the funds of which are derived not from the general Unesco budget but in response to an appeal by the Director-General to individual nations. Secondly, the Federal Republic of Germany has agreed to and encouraged the establishment within its own territory of institutes over which it has not a controlling majority, but which it is prepared to finance up to a minimum of twenty per cent of their budgets. Perhaps equally noteworthy is the fact that among those nations which have contributed small