centration of 1 per cent by volume, and the mixture shaken with an equal volume of water; after equilibration at room temperature the lower layer was used in the trough; (3) technical collidine was refluxed for 6 hr. over solid potassium permanganate and then distilled; a middle fraction (b.p. 172° C.) was shaken with water and the upper layer used in the trough.

Since the presence of hydrogen cyanide precluded the use of a constant-temperature room, the R_F values[14] given in the table (average values from five determinations) were obtained at room temperature. It is clear from the results in the table that the greatest separations were obtained by the use of the phenol–acetic acid mixture, and it is of particular interest that the separation of ascorbic acid and *d-iso*ascorbic acid from mixtures of the two is possible in this solvent. It should be pointed out, however, that the problem of separating these two substances when present in extracts of biological material may be more difficult and has not yet been attempted.

The spots due to the dienols were regular in shape, but that due to dehydroascorbic acid was markedly elliptical and was frequently accompanied by a second smaller spot of low and rather variable R_F value. (R_F in butanol–acetic acid, 0·04–0·07.) Since these secondary spots approximately coincided with those given by the sodium salt of diketogulonic acid, it was inferred that their presence was due to the opening of the lactone ring of dehydroascorbic acid during the course of the run.

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THIRD WORLD FORESTRY CONGRESS

THE first World Forestry Congress was held in Rome in 1926 and the second in Budapest in 1936. The third was convened in Helsinki at the invitation of the Government of Finland in accordance with a proposal adopted at the third session of the F.A.O. (Food and Agriculture Organisation) Conference. Twenty-nine nations were represented, the Congress being held during July 10–20 this year. Representatives of international organisations were present, such as the United Nations and its Economic Commission for Europe, the F.A.O. of the United Nations, the International Union of Forest Research Organisations and the Scandinavian Forestry Union. 406 full and 125 associate delegates attended.

The first meeting was held on July 11 in the Great Hall of the University. The Congress was opened by the Prime Minister of Finland, Mr. K. A. Fagerholm, and welcomed by His Excellency J. K. Paasikivi, president of the Republic of Finland. Messages were brought from the Secretary-General of the United Nations and the Director-General of F.A.O. and read by their representatives, Mr. D. Roy Cameron and M. Marcel Leloup.

A provisional programme had been laid down by the organising committee and was accepted, the work being allocated to five sections: (1) Sylvics and Sylviculture; (2) Forest Surveys; (3) Forest Economics including Forest Policy; (4) Forest Utilization; (5) Forest Industries. As it turned out the divisions of some of the sections were not sufficiently clear cut, and overlapping took place, especially in the case of sections 1 and 3. Prof. Eino Saari, who had been president of the organising committee, was elected president of the Congress with two co-presidents (U.S.A. and U.S.S.R.) and five vice-presidents. Chairmen and vice-chairmen of the sections were appointed with *rapporteurs* and so forth. Mr. M. H. Leppo (Finland) was elected secretary-general.

The opening ceremony concluded, the Congress then elected the officers as above-mentioned. The second plenary session commenced in the afternoon and was devoted to papers of world-wide interest by representatives of F.A.O. with one additional paper. The F.A.O. papers were read by M. Marcel Leloup on "General Aspects of World Forestry" and Mr. Harrison on "Forest Resources and Human Needs of Wood". The additional paper was by Prof. E. P. Stebbing on "Catchment Areas and Water Supplies", and the last "Le passage de la Forêt Vierge à la Forêt Amenagée" by M. François. The other two papers by F.A.O. representatives were read the following morning. They dealt mainly with sylviculture, but in the second there was controversial matter; the writer claimed that high-quality timber was no longer required but only small-sized timber quickly grown. A Canadian delegate put the opposite case, pointing out that Canada had for long provided parts of the world with high-quality timber and considered its production essential to fill certain market requirements—a view strongly supported by many delegates.

Since a large number of papers read had been submitted to the organising committee, with brief abstracts, before the Congress opened, it is difficult to say what influence on the progress of the Congress in its various sections was exerted by the opening F.A.O. papers. But inevitably points made in these latter came up in the discussions which took place in every section, in each of which an F.A.O. representative was on the platform. Unfortunately and perhaps inevitably, some of these discussions and the subsequent resolutions they gave rise to in a particular section were reproduced in meaning, if not in actual words, in one or more of the others.

For the general outcome there can be little doubt that the discussions and the resolutions they gave rise to and accepted, after drafting, by the Congress as a whole, should have a greater chance of producing results than was the case after the Rome 1926 Congress, at which I was present and from which few practical results were achieved. As to the second at Budapest, war broke out too soon after to make it possible to say that governments had realized their neglected responsibilities in these matters.

The chief outcome of the third Congress has been the recognition that the industrialist has just as much responsibility as the forester, not only in making known his demands, but also in adapting his methods of utilizing forest produce so as to take all the forms in which this produce is converted in the forest, thus reducing the enormous wastage of the past. In the words of the report, "it is the responsibility of technical research and industrial development to provide suitable outlets for all parts of the forest crop and to adjust conversion methods and uses to the limitations of sound sylviculture". It is not too much to say, looking back on the past history of the forests of the world, that, if this recommendation can be given real and practical effect, it will prolong the life of what is left of the virgin forests of the world by a considerable period. The following paragraph from the report contains both old and new aims: "The protection of forests from destruction, the establishment of forest inventories, the systematic management, the reduction of waste, the improvement of wood utilization and the increasing consumption of forest products in the interests of better living standards are objectives which have moved from the sphere of discussion to that of generally accepted truths". There still remain the governments, however. Until they give more than lip service to the ever growing importance of the world forest problems, some of the views expressed and affirmed here are unattainable. One of the most pressing is the paucity and numerical weakness of highly trained forest staffs in many countries. Without the latter an appreciation by governments of the value of forests for soil conservation and other protective values as well as their vital contribution of forest products is of little use. What is hoped by F.A.O. and a good many senior experienced forest officers is that governments, business men and the general public have at length come to recognize that the forest, for one reason or another, or for several reasons in a particular country, must be guarded from further spoliation and must be placed under efficient management. The future world forestry position is certainly greatly strengthened by now having a body like the forestry branch of the Food and Agriculture Organisation with a watching brief for individual governments and for the world at large.

The Congress's general recommendations on policy are as follow: "The Third World Forestry Congress affirms its belief: (*a*) that each country should have for its territory a forest policy aiming at the maintenance of a reasonable forest area and also the conservation and use of forests on the basis of continuous and improved production; (*b*) that forestry legislation, research, education of forest owners and workers, and training of a sufficient number of professional foresters and technicians—all in conformity with the constitution and structure of each country—constitute essential elements of such a policy".

Commending the work of the F.A.O. it recommends: "(*a*) that F.A.O. prepare a statement of forestry principles for the consideration of member nations; (*b*) that F.A.O. assist nations now formulating their forest policy; (*c*) that the annual conference of F.A.O. explore whatever further steps member governments consider appropriate for the application of the principles stated above".

The report then deals with the summarized discussions and resolutions of the several sections as classified and collated by the Drafting Committee.

E. P. STEBBING

CONFERENCE ON ELECTRON MICROSCOPY, DELFT

ELECTRON microscopy has reached a stage at which it is necessary and fruitful to take stock: to measure the progress which has been made in eighteen years, and to define the directions of immediate advance in instrumental construction and in specimen techniques. It was a timely decision of the Applied Physics Section of the Netherlands Physical Society to organise a conference in the subject at Delft, during July 4–9, with the active co-operation of the Electron Microscopy Group of the Institute of Physics, and of similar societies in France and Sweden. It was very much an international gathering, and the forty-five papers contributed were of a variety and quality that challenged comparison with the annual meetings of the Electron Microscope Society of America.

The development of the electron microscope is so far advanced that chief attention should now be given to improving specimen techniques, so as to exploit to the full its very high resolving power. The important task remains, however, of devising ready means by which the good average operator, with a commercially supplied instrument, may achieve the high performance which has been laboriously obtained on a few special machines in skilled hands. This is primarily a matter of eliminating astigmatism from the lenses, the only aberration for which correction is so far possible. The inherent astigmatism of electron lenses is so small as to be negligible in comparison with their spherical aberration, but a large amount may be introduced by mechanical defects of construction: by departure from circularity of bore, or exact alignment, of the pole-pieces (or of the electrodes, in electrostatic lenses), and by inhomogeneity of the iron in magnetic lenses. It is thus necessary to machine them to the highest degree of precision in the first place, and then to develop means of readily estimating and compensating the residual astigmatism; by this means the achieved resolving power may be reduced from 50 A. to below 20 A.[1]. P. A. Sturrock (Cavendish Laboratory, Cambridge) gave a mathematical analysis of the mechanical tolerances permissible in magnetic lenses, following the work of Bertein[2] on electrostatic systems, but making use of an elegant variant of Hamilton's method of characteristic functions. He showed that the accuracy required, less than 0·1 micron, was below that conceivably obtainable in practice or consistent with the degree of inhomogeneity to be expected in the material worked. J. B. Le Poole (Laboratory of Applied Physics, Delft) described a rapid means of examining electron lenses for astigmatism, using a hollow cone of illumination of relatively wide semi-angle to enhance the visible defect, and a means of correcting it by soft iron screws which could be manipulated without breaking vacuum. It is then possible to reach in less than an hour the same degree of correction that required two or three weeks in Hillier's original method[1]. The advantages of using current-carrying coils or electrostatic fields[2] for correction, instead of iron screws, were discussed by W. A. Le Rütte and Le Poole. P. Grivet, F. Bertein and E. Regenstreif (Lab. de la Cie. Gén. de T.S.F., and Lab. de Radioélectricité, University of Paris) described a method of investigating the astigmatism of an electrostatic objective, employing it as intermediate lens in a