

An International Congress of Soil Science.

INTERNATIONAL meetings of scientific workers on soils have been held at intervals since 1909, when a small group met at Budapest. Eventually the International Society of Soil Science was formally constituted at Rome in May 1924. The new body held its first triennial Congress at Washington, D.C., on June 13-22, 1927, under the presidency of Dr. J. G. Lipman, of Rutgers University, New Jersey. About four hundred delegates were present. Very extensive preparations were made by the American Organising Committee on which Dr. Shutt, Dominion chemist, and other Canadian representatives served. Dr. Schreiner and Dr. McCall, of the United States Bureau of Soils, were chairman and secretary respectively of the executive committee. Thanks to the efforts of Dr. Lipman, no less than 75,000 dollars was obtained in donations from various sources towards the cost of the Congress, and the subsequent tour of North America. Some thirty nations accepted the invitation of the United States Government to send official delegates. The largest unit—more than twenty delegates—came from Soviet Russia; Germany sent ten, and Great Britain seven. Most of the countries within the British Empire were also represented.

President Coolidge honoured the Congress by attending the first session and delivering the opening address, in which he paid a tribute to European work on soils, and briefly traced the development of Federal expenditure on agricultural research from the modest initial grant of 1000 dollars in 1839 to the present day.

For convenience in administration the Society is organised in national sections, but for its scientific activities is divided into the following Commissions, or Sections:

- (1) Physics.
- (2) Chemistry.
- (3) Biology and biochemistry.
- (4) Fertility.
- (5) Classification, nomenclature, and mapping of soils.
- (6) Rural engineering and drainage.

These sections met both separately and jointly. Their work was much facilitated, first by the issue, on the opening day, of full abstracts in English, French, and German of all papers presented; and secondly, by the arrangement whereby the sections met independently at least once in the interval between the triennial conferences of the Society. Thus the Physics Commission met at Rothamsted in October 1926 to discuss the results of co-operative work on different methods of mechanical analysis of soil, arranged at the Rome meeting in 1924, and the Chemistry Section met at Groningen, Holland, in April 1926, to discuss soil acidity and methods of measurement. Difficult and doubtful points had therefore been fully examined before the Washington meeting, and one of the important tasks—securing uniformity in routine methods of analysis in the different countries—was appreciably lightened.

From the general body of papers presented a few main subjects may be selected for brief comment. Various forms of apparatus for mechanical analysis of soil continue to claim much attention, especially those types yielding data less affected by the serious errors, first noted by Coutts and Crowther at Rothamsted, that are inherent in the method of continuous weighing of the sediment. Further, a clearer distinction is now being drawn between this form of mechanical analysis, that aims at giving a particle size distribution curve for the soil, of use in research work, and the more usual type of routine analysis, that divides the soil into a few groups of particles,

employed in the qualitative association of mechanical composition of soils with their field behaviour. The question whether this relationship can be made more definite by supplementing the mechanical analysis figures with other physical determinations, was examined from several viewpoints and was considered sufficiently interesting to be selected for the next co-operative investigation of the Physics Section.

The Chemistry Section was largely concerned with soil acidity and base exchange phenomena, and the newer physical-chemical methods of investigating the absorbing complex. Prof. Wiegner, of Zurich, made a notable contribution to this subject. Prof. Bradford, of Missouri, discussed the use of electro-dialysis in physico-chemical investigations of soils, a method that promises to be of great assistance in research work.

The Soil Biology and Biochemistry meetings were exceptionally well organised in a series of symposia, which included (a) direct and cultural methods of soil microbiology: Winogradsky's direct counting method received much attention in this section; (b) the soil population; (c) nitrogen fixation in the soil: in the course of the prominent contribution made by Japanese workers to this section, the new technique of serum-reaction for the classification of *Azotobacter* was discussed by Prof. Ago and Prof. Yoshida; (d) transformation of organic matter in the soil: this section was perhaps of the most general interest, particularly the question whether organic matter originates from lignin or cellulose, which was discussed by Dr. Waksman of New Jersey, and Mr. H. J. Page of Rothamsted.

In the Soil Fertility Section, additional examples of exceptional and abnormal soils were recorded, and the well-known work of the California Station on the growth of plants in culture solution and soil solutions was further developed.

The discussion on classification, nomenclature, and mapping of soils aroused great interest, especially in view of the presence of Prof. K. Glinka, of Leningrad, the acknowledged leader in this field. The outstanding contribution to soil science in recent years is undoubtedly that of the Russian workers in recognising the predominant influence of climatic environment on soil formation, and the demonstration of the different types of soil by means of soil profile examinations. Up to the time of the Rome meeting, these studies had been confined largely to eastern Europe, but the papers presented at Washington were evidence of the advances that have been made in nearly every country in the past three years. The sub-committees dealing with the soil map of Europe and of the Americas were able to report considerable progress.

Irrigation, drainage, and soil erosion problems occupied much of the attention of the sixth section, but time was reserved for a meeting with the Physics Section to discuss physical properties of soil and methods of measurement, including the dynamometer measurements of soil resistance made in the course of the Rothamsted work on the physics of soil cultivation, that have disclosed an unexpected degree of heterogeneity in apparently uniform soil.

During the Congress a number of addresses were given at general meetings by prominent representatives. Dr. Woods dealt with the origin and objects of the United States Bureau of Soils, and Dr. Baker with the trend of land utilisation in the United States; the present status of soil biology was discussed by Sir John Russell; Prof. Lemmerman of Berlin, and Prof. Sigmund of Budapest, dealt respectively with soil acidity determination, and the chemical character-

istics of soil teaching. The Russian delegates gave an account of soil work in their country in two sessions specially reserved for this purpose. This arrangement was much appreciated by the Congress, as it gave an opportunity for members to hear something of the extensive Russian work on soil science that, owing to its publication in Russian journals, has not hitherto been generally known.

The American committee also staged a very successful exhibition, in charge of Dr. Weir and Mr. Goll, of the United States Department of Agriculture, arranged in the following divisions:

- (a) Representative soil types of the world, showing characteristic soil profiles (in monoliths).
- (b) Soil maps.
- (c) Methods and apparatus for physical and chemical work on soils.
- (d) Soil fauna and flora, together with biochemical and biological apparatus.
- (e) A complete collection of United States soil science literature.

The exhibition was by far the most complete one yet brought together, and its interest was enhanced by the inclusion of much of the apparatus and material discussed at the meetings of the Congress. It is the intention of the Committee to retain the monoliths of representative soil types as the basis of a permanent collection of the soils of the world.

At the conclusion of the Congress, the delegates joined a special train for a thirty-days' tour of the most important agricultural regions and soil belts of North America. Foreign delegates were the guests of the American Organising Committee during this tour. The route selected ran through the cotton belt, across

the southern portion of the Prairie and the Great Plain to the irrigated area in Utah, and thence across the desert to the irrigated region in South California. The return journey was made through California, Oregon, and Washington to Vancouver, and thence by the Canadian National Railway through Alberta and Saskatchewan to Winnipeg. The tour then re-entered the United States, traversing the north and eastern sections of the Prairie before returning from Chicago to Washington, via Indiana, Ohio, and West Virginia. Many stops were made *en route* for the inspection of profiles typical of the local soils. This portion of the programme was arranged by Dr. Marbut, Chief of the United States Soil Survey, and his explanations of the various features in which some of the American soil types differed from the European soils—on which climatic classification was initially based—were of extreme value to European workers. Excursions were arranged at numerous points to see experimental stations, the local agriculture and objects of general interest.

A striking feature of these numerous trips was the generosity of organisations such as chambers of commerce, that arranged motor-cars for transportation, and provided meals for the whole party. It was evident, not only from the speeches of welcome at local centres, but also from informal talks with farmers and others, that the greatest interest was shown in the aim and objects of the Society; the bulk of this can be directly traced to the general appreciation of the work of the United States Federal and State agricultural services, and the consequent recognition by both the rural and urban population of the fundamental importance to the country of a vigorous agricultural life.

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A New Journal of Forestry.

SOME articles of considerable importance and interest appear in the first number of the new journal, *Forestry*. The number opens with an article on "British Forestry," by Mr. R. L. Robinson, a Forestry Commissioner. Much of this has appeared in the last report of the Forestry Commission, which has been already discussed in NATURE. It is rather of the nature of propaganda for the public than a technical treatise, for all British foresters will be acquainted with the position the writer depicts. Mr. H. M. Steven, the editor, follows with a lengthy paper on the "Silviculture of Conifers in Great Britain." This, and a companion article on the "Silviculture of Hardwoods in Great Britain," by Mr. W. H. Guillebaud, are of high intrinsic value. In these papers the past history of the principal tree species of Great Britain to the present day are traced, the methods by which they have been grown, and the ills which have so generally resulted in latter times from these methods. The historical data which Mr. Steven gives on the subject of the Scots pine and the European larch, amongst other species, and Mr. Guillebaud's remarks on the oak and beech high forest, are well worthy of careful attention. If a word of caution is required, it may be confined to a necessary recognition that research and experiments based solely on the work of the past ten years should not be awarded, in the case of forestry, too great a prominence; for definite data will only be attainable at the end of a rotation, and in some cases possibly not even then.

The succeeding two articles on the "Utilisation of Soft Woods in Great Britain," by Mr. John T. Smith, chiefly dealing with Scotland, and the "Marketing

of British Hardwoods," by Mr. J. H. Newnham (Acorn), deal with the commercial aspects of forestry. There is little new in the articles, but the treatment of their subjects by the writers is not without interest to the professional forester, and some of the problems pointed out will need and are receiving careful attention. Nor do the remedies all fall within the scope of the forester. If the landowner of the future wishes to realise any return from the portion of his estate maintained under woodlands, he will have to adopt very different and drastic methods. The surest and the best will be to imitate some of his brother proprietors of land in France and learn how to manage his woods on silvicultural lines himself. Unless the land tenure systems of Great Britain undergo a radical change, the country will not be able to depend, or afford to depend, solely on the efforts of the Forestry Commission for its timber requirements. In no country in Europe are the forests in sole State ownership. In the view of some experts the encouragement of the private owner to introduce a correct administration into his woodlands should form one of the chief objects of the Commission.

Major F. M. Oliphant deals with the inauguration of the new "Forest Products Research in Great Britain," and describes the various sections of the work to be undertaken; whilst Mr. W. Dallimore considers, in the lighter vein, the æsthetic side of afforestation, voicing opinions which have received attention in the press on the subject of the ugly uniformity of "huge blocks of pines . . . the trees spaced with mathematical accuracy and only relieved by other blocks of another kind of dismal uninteresting tree." The writer's suggestions merit considera-

¹ *Forestry*. The Journal of the Society of Foresters of Great Britain, vol. 1, No. 1 (1927), 7s. 6d.