No. 24 1964

BULLETIN

OF THE INTERNATIONAL SOCIETY
OF SOIL SCIENCE

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BULLETIN

DE L'ASSOCIATION INTERNATIONALE
DE LA SCIENCE DU SOL

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MITTEILUNGEN

DER INTERNATIONALEN BODENKUNDLICHEN
GESELLSCHAFT

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DRUKKERIJ SYSTEMA N.V. — AMSTERDAM (HOLLAND)

INTERNATIONAL SOCIETY OF SOIL SCIENCE
ASSOCIATION INTERNATIONALE DE LA SCIENCE DU SOL
INTERNATIONALE BODENKUNDLICHE GESELLSCHAFT

Office/Bureau: c/o Royal Tropical Institute, 63 Mauritskade, Amsterdam, Netherlands.

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Australia: R. G. Downes, Soil Conservation Authority Victoria, 378 Cotham Rd, Kew E4, Victoria.

Austria: Prof. Dr Ing. H. Franz, Gregor Mendelstrasse 33, Wien XVIII.

Belgium: Prof. Dr R. Tavernier, Rozier 6, Gent.

Bulgaria: Prof. Zw. Staikoff, 9th September N. 136, Sofia-Pavlovo.

Canada: Dr. P. C. Stobbe, Soil Research Institute, C. E. F., Ottawa, Ontario.

Denmark: Prof. Dr H. C. Aslyng, Rolighedsvej 26, Copenhagen V.

France: Dr. S. Hénin, Centre National de Recherches Agronomiques, Route de St. Cyr, Versailles.

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Hungary: Prof. Dr R. Ballenegger, Pasaréti ut 114, Budapest II.

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Israel: Dr. N. E. Nissim, National & Univ. Inst. Agri., Rehovot.

Italy: Prof. Orfeo Turno Rotini, Ist. di Chimica Agraria, Via Crispi 20, Pisa.

Japan: Prof. Dr S. Mitsui, University, Bunkyo-ku, Tokyo.

Netherlands: Dr P. K. Peerlkamp, van Hallstraat 3, Groningen.

New Zealand: N. H. Taylor, 54 Molesworthstreet, Wellington N 1.

Poland: Prof. Dr A. Musierowicz, 61 rue Wisniowa, Varsovie.

Portugal: Dr. J. Carvalho Cardoso, Servico de Reconhecimento e Ordenahemento Agr., Av. Duque d'Avila, 32—2°, Lisboa 1.

South Africa: Dr. R. F. Loxtom, Soils Research Institute, Private Bag 79, Pretoria.

Spain: Prof. Dr José Ma. Albareda Herrera, Serrano 113, Madrid.

Sweden: Prof. Dr dr h.c. G. Torstensson, Kungl. Lantbrukshögskolans, Uppsala 7.

United Kingdom: G. V. Jacks, M. A., Commonwealth Bureau of Soils, Harpenden, Herts., England.

U.S.A.: Dr. M. B. Russell, University of Illinois, Urbana, Illinois.

U.S.S.R.: Academician L. P. Gerasimov, Geogr. Inst. Academy of Sciences, Moscow.

Yugoslavia: Prof. Dr A. Skoric, Faculté d'Agronomie, Zagreb.

OBITUARY NECROLOGIE NEKROLOGIE

Professor Dr. Cornelis Hendrik Edelman † (1903—1964)

On the 15th of May, 1964 Prof. Dr. C. H. Edelman died in Wageningen, Holland, after a long illness. Since 1933 he was professor at the State Agricultural University in Wageningen; in the beginning as professor in Minerology, Petrology, Geology and Agrogeology, later on when a special department for Regional Soil Science was established he became Head of that department.

As a professor he had many students, who were attracted by his excellent and enthousiastic lectures and field excursions. Some 33 soil scientists worked for their Ph. D.-degree under his guidance. Dr. Edelman was the promotor and first Director of the Dutch Soil Survey Institute, established in 1945, where many young Dutch and foreign soil specialists got their basic training in Soil survey, Soil and Land classification. Several of these soil scientists later on made a carreer in various countries in all continents, where they are working with F.A.O. and UNESCO, with consulting firms and on private contracts. Professor Edelman has always stimulated the international work of his students; their success was also his success. He himself served on many international missions for F.A.O., UNESCO, the Dutch and other Gouvernments. His last mission was for UNESCO to Turkey in 1960 where he and one of his former students made a Soil survey of the Köyceğiz-Dalaman Area. The report of this study was his last report. It was published by the Turkish Gouvernment some weeks ago.

Through his work in various countries Professor Edelman became well known. In 1950 he was President of the International Society of Soil Science when the fourth International Congress was held in Amsterdam. For this Congress he also wrote a book on soils of the Netherlands that clearly demonstrates the regional relationship of soils and landscape. This broad view was characteristic for all his work.

Dr. Edelman got a University Education as mining-geologist (Delft). After his graduation he specialised in sedimentology for

which he worked out new research methods. On this subject he got a Ph. D.-degree (cum laude) at the Amsterdam University in 1933. Some weeks later he was appointed professor in Wageningen. Edelman is the author of various books and a large number of scientific papers on Sedimentology, Clay mineralogy, Quaternary Geology, Land classification, Soils, etc. He was honoured by various national and international Societies, the Dutch Gouvernment and the University of Ghent (Belgium).

After this success in sedimentology and later on in soil survey Dr. Edelman worked during recent years in soil morphology. Together with his wife he studied percelling systems in various parts of the Netherlands. Even in the last weeks of his life he discussed many subjects and problems on soils with his former and present students.

Edelman's personality and his influence on the development of Soil Science will be kept in memory by soil scientists in the Netherlands and in many other countries. They all will feel the death of this eminent and enthousiastic scientist as a most serious loss.

P. Buringh

Wageningen, 20th May, 1964

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No. 24 **1964**

NEWS OF THE SOCIETY

8th International Congress of Soil Science

Interest in this Congress still further increased. According to the data available on March 6, 1964, no less than 74 countries will be represented by 1362 members of the Society. 664 Summaries of papers to be presented had been received.

NOUVELLES DE L'ASSOCIATION

7me Congres International de la Science du Sol

L'intérêt dans ce Congrès augmentait encore. D'après les données du 6 mars 1964, non moins de 74 pays seront représentés par 1362 membres de l'Association. 664 résumés des communications à présenter ont été reçus.

NEUES AUS DER GESELLSCHAFT

8.er Internationaler Bodenkongress

Das Interesse am Kongress hat sich weiter fortgesetzt. Nach der Anmeldungen bis zum 6. März 1964 werden nicht weniger als 74 Länder vertreten sein von 1362 Mitgliedern der Gesellschaft. 664 Zusammenfassungen von abzuhaltenen Vorträgen wurden empfangen.

New list of members

In the next list of members per May 1, 1964, 4279 names and addresses of members residing in 88 countries are listed.

Nouvelle liste de membres

Dans la prochaine liste de membres du 1 mai 1964 4279 noms et adresses de membres domiciliés en 88 pays ont été insérés.

Neues Mitgliederverzeichnis

In der neuen Mitgliederliste vom 1. Mai 1964 sind 4279 Namen und Adressen von Mitglieder ansässig in 88 Ländern aufgenommen worden.

NEWS OF THE COMMISSIONS

Commission III - Soil Biology

Technical Information on Soil Microbiology.

The Bulletin "Informations techniques de Microbiologie du Sol" has been merged with the Bulletin of the Soil Zoology Committee of ISSS. Thanks to a subvention of UNESCO, an international periodical on Soil Biology can now be published which will serve as the official means of communication of Commission III. Any one interested in this new edition is requested to address himself to the editor c/o Institut Pasteur, 25 Rue du Docteur Roux, Paris XV, France.

NOUVELLES DES COMMISSIONS

Commission III - Biologie du Sol

Informations techniques de microbiologie du sol.

Le Bulletin „Informations techniques de Microbiologie du Sol" est fusé avec celui du Comité de Zoologie de l'A.I.S.S. Grâce à une aide financière de l'U.N.E.S.C.O., un bulletin international d'information et de liaison sur la Biologie du Sol peut être publié. Il servira comme organe officiel de la Commission III. Pour des informations plus détaillées on est prié de s'adresser à l'éditeur, chez l'Institut Pasteur, 25 Rue du Docteur Roux, Parix XV, France.

NEUES AUS DEN KOMMISSIONEN

Kommission III - Bodenbiologie

Technische Mitteilungen anlässlich Bodenmikrobiologie.

Die Mitteilungen „Informations techniques de Microbiologie du Sol" wurden vereinigt mit dem Bulletin des Komitees für Bodenzoologie der I.B.G. Eine finanzielle Unterstützung UNESCO's ermöglicht jetzt die gesammte Veröffentlichung eines internationalen Berichtes über Bodenbiologie, der zugleich zu offiziellen Mitteilungen der Kommission III dienen wird. Für weitere Auskunft wende mann sich zu dem Herausgeber des Bulletins zu Institut Pasteur, 25 Rue du Docteur Roux, Paris XV, France.

NEWS OF THE NATIONAL SOCIETIES
NOUVELLES DES SOCIETIES NATIONALES
NEUES DER GESELLSCHAFTEN IN EINZELNEN LÄNDERN

Sociedade Latinoamericana de Ciencia do Solo

The Society's Board of Officers elected for the 1963—1964 period is as follows:

President: Prof. Guido Ranzani
Vice-President: Prof. Antonio Arena
Secretary-Treasurer: Dr. Moacyr O.C. Brasil So.

The address is: Soc. Latino-Americana de Cienca do Solo, Esc. Sup. de Agric. "Laiz de Queiroz", Piracicaba, Sao Paulo, Brasil.

Soil Science Society of America

The 1964 SSSA Executive Committee and Chairmen of this Society's scientific divisions are listed as follows:

Executive Committee

President: N. C. Brady, Director Science and Education, Office of the Secretary, U.S. Department of Agriculture, Washington, D.C. 20025.
Vice-President: R. W. Pearson, Alabama Agr. Experiment Station, Department of Agronomy and Soils, Auburn, Alabama.
Executive Secretary and Treasurer: M. Stelly, 677 South Segoe Road, Madison, Wisconsin.
Editor-in-Chief SSSA Proceedings: F. G. Viets, Jr., SWCRD-ARS-USDA, P.O. Box 758, Fort Collins, Colorado.
Member: H. B. Cheney, Head Soils Department, Oregon State University, Corvallis, Oregon.

Chairmen Divisions

I. Soil Physics: Doyle B. Peters, S-212 Turner Hall, University of Illinois, Urbana, Illinois.
II. Soil Chemistry: P. F. Low, Department of Agronomy, Purdue University, Lafayette, Indiana.
III. Soil Biology: C. F. Eno, Agricultural Experiment Station, University of Florida, Gainesville, Florida.

IV. Soil Fertility and Plant Nutrition: W. E. Martin, Agricultural Extension Service, 173 Soils Building, University of California, Davis, California.
V. Soil Genesis, Morphology and Classification: J. E. McClelland, Soil Survey CSC, P.O. Box 520, Berkeley 1, California.
VI. Soil & Water Management & Conservation: M. E. Bloodworth, Department of Agronomy, A & M University of Texas, College Station, Texas.
VII. Forest and Range Soils: D. L. Mader, Forestry & Wildlife Department, University of Massachusetts, Amherst, Massachusetts.
VIII. Fertilizer Use and Technology: S. A. Barber, Department of Agronomy, Purdue University, Lafayette, Indiana.

Soil Science Society of Ghana

We welcome this newly established National Society which was inaugurated on March 28, 1964, with the following members of the Executive Committee:

President: K. A. Quagraine, Agricultural Research Institute, Ghana Academy of Sciences, P.O. Box 1433, Kumasi, Ashanti.
Vice-President: Dr. D. K. Acquaye, Cocoa Research Institute, Ghana Academy of Sciences, P. O. Box 8, Tafo, Eastern Region.
Secretary: H. B. Obeng, Agricultural Research Institute, P.O. Box 1433, Kumasi, Ashanti.
Treasurer: S. V. Adu, Agricultural Research Institute, P.O. Box 1433, Kumasi, Ashanti.
Members: Dr. B. N. Roy, Faculty of Agriculture, Kwame Nkrumah University of Science and Technology, Kumasi, Ashanti.
R. K. Dzokoto, Faculty of Agriculture, Kwame Nkrumah University of Science and Technology, Kumasi, Ashanti.
D. M. Osafo, FAO/UNSF Project, P.O. Box 43, Navrongo, Upper Region.
E. Bortei-Doku, Agricultural Training Centre, P.O. Box 1920, Kumasi, Ashanti.

Soil Science Society of South Africa

The following members of the Committee of Management were elected:

Chairman: Prof. Dr. W. Fölscher
Vice Chairman: Dr. J. van Garderen
Secretary: Mr. G. Murray
Members: Dr. R. F. Loxton
Dr. H. van der Watt.

The Society of the Science of Soil and Manure, Japan

The Society held it's annual meeting in Tokyo from March 29 to 31, 1964. 256 Papers were read and some 900 persons attended the meeting. The following executive members were elected for the period April 1964—March 1966.

President: Prof. Dr. Yoshiaki Goto (Nagoya University, Nagoya)
Vice-Presidents: Dr. Masatada Oyama (National Institute of Agricultural Sciences, Tokyo), Mr. Shinsaku Harama (Tokyo Fertilizer Inspection Office)
Secretary-General: Mr. Yasuaki Matsuzaka

British Society of Soil Science

A joint meeting of the Society with the Agricultural Group of the Society of Chemical Industry was held on **Soil Fertility and Nutrient Turnover** at London, Wednesday April 15th, 1964. Five papers were presented.

J. K. R. Gasser (Rothamsted Experimental Station) opened the meeting with a review of some of the problems associated with a study of nutrient turnover, and pointed to the importance of comparing simultaneously several elements: he was particularly concerned with C, N, S & P. Of these four elements the escape of carbon dioxide made it comparatively easy to measure, while the amounts of nitrogen and phophorus in circulation were usually sufficient to avoid analytical difficulties. Sulphur, however, was more of a problem. Gasser went on to discuss to what extent the turnover of these four elements was linked, and the information obtainable by the study of C:N:S:P ratios. He pointed out that immobilization and mobilization may be studied, but the actual turnover is more elusive and information can only be obtained by breaking the cycle.

D. S. Jenkinson (Rothamsted Experimental Station) described work on the organic nitrogen cycle and referred to various sources of information. One was the mathematical study of the accumulation of nitrogen in the manured soils of some of the long-term classical experiments at Rothamsted. A different approach used the addition to soil of rye-grass labelled with ^{14}C, and a careful study of its decomposition. Gross decomposition was revealed by the yield of $^{14}CO_2$, and use of sterilants indicated that organisms killed by chloroform appeared initially to be the most heavily labelled. Over a period of about three years the amount of ^{14}C associated with what appeared to be the zymogenous flora decreased much more than that associated with the autochthonous flora. From the chemical point of view the ^{14}C from the rye-grass was soon found in the easily hydrolysable polysaccharides, a proportion of which were extractable with barium hydroxide solution. There was good evidence for associating the mineralizable nitrogen with the pool of labile organic matter, and the nitrogen extractable from a soil with barium hydroxide solution is a useful guide to the nitrogen status of the soil with respect to crop yields.

D. W. Kilbey (Potash Ltd) described the special problem of potassium redistribution in the cycle.

Grass ⟶ animal ⟶ excrement ⟶ soil ⟶ grass

which leads to marked concentration of potassium and nitrogen in local areas, especially at sites of urination. This has been estimated as equivalent to 15 cwts KCl/acre and causes a change in the clover/grass ratio within and close to the areas affected. Preliminary results were given from some trials which have been initiated on Bunter sandstone, Oolitic limestone and Keuper marl soils.

W. O. Binns (Forestry Commission) reviewed the special difficulties associated with the investigation of nutrient turnover in a forest eco-system, where adequate sampling in space and time are difficult. It is not always possible to find a suitable series of different aged stands together with complete past records of initial soil conditions. Normal forestry practice, including thinning, means that steady uptake is broken by periodic abrupt returns of branches etc. to the forest litter. Data were presented showing the annual demand for N, P, K, Ca and Mg by some coniferous forests, and this was compared with the rate of supply in rainfall. The reserves of K in the top 30 cm of some deep peats which had been analysed were inadequate and supplies of P were marginal.

P. H. Nye (Oxford University) described the pattern of subsistence farming in West Africa and considered the problem of the restoration of fertility during bush fallowing. This involved a comparison of the nutrients present in elephant grass at two years old, in secondary forest at about five years old, and in high rain forest, with the amount present in the soil, and with the amounts carried down in rainfall. Three features emerged; firstly that high rain forest stores more major nutrients than a comparable stand of temperate hardwood; secondly, that the percentage annual turnover of N, P, Ca and Mg was of the order of 10—20%, while for K it was about 30%. Thirdly the limited evidence available suggested that the loss from the tropical high rain forest ecosystem is very small, since at pH < 5.5 there are few free anions present to leach from the soil, so cations will not be removed either.

During fallow the accumulation of nutrients is mainly in the vegetation rather than the soil, and the success of the system depends on the very high efficiency with which cycling of nutrients is maintained.

A full discussion followed the presentation of these papers.

Bulgarian Society of Soil Science

A symposium on the problems of soil genesis was held in Sofia from June 24 to July 3, 1963 in connection with the preparations for the VIIIth International Congress of Soil Science. Its principal objective was to establish first and foremost the similarities and differences between some more characteristic soils in Southeast Europe to which pertain the in Bulgaria widely distributed smolnitzas, cinnamon and gray forest soils.

The symposium was organized by the N. Pushkarov Institute of Soil Science and Agrotechnics at the Academy of Agricultural Sciences in Bulgaria and the Bulgarian Society of Soil Science.

The work of the symposium included sessions in Sofia at which scientific papers were read (2 days), scientific excursion in the country (6 days) and a concluding session (1 day). The principal paper on Peculiarities of the Main Soil Types in Bulgaria and the Basic Soil Genesis Processes in Them was read by Prof. Dr.

V. Koinov. Several special papers on smolnitzas, cinnamon and gray forest soils as well as on the classification of soils in Bulgaria were read by the Bulgarian delegates. The foreing delegates also read a number of papers. Acad. I. P. Gerasimov (USSR) read two papers — Caucasus-Balkan and Soils in Greece; Prof. N. Cernescu (Romania) — Reddish Brown Forest Soils in Romania; Prof. R. Tavernier (Belgium) — Soil Genesis in Belgium; Prof. E. Ehwald (German Democratic Republic) — Initial Stages of Podzolization and Lessivation (Leaching) in Central European Soils; N. N. Rosov (USSR) — Gray Forest Soils; Dr. N. Florea (Romania) — Soils in South Dobrudza; Dr. P. Stefanovits (Hungary) — Processes in Brown Forest Soils as a Basis for Their Classification; and Dr. Ya. Nemecek — Brown Forest Soils in Czechoslovakia.

Sixty soil scientists took part in the 6-day excursion. They were afforded the possibility to become acquainted with variously leached cinnamon and cinnamon-pseudopodzolic soils and smolnitzas, developed on soilforming deposits, differing in age and character, in South Bulgaria as well as with several gray forest and pseudopodzolic soils in North Bulgaria. Comprehensive and fruitful scientific discussion was held on the spot. The discussion in North Bulgaria was of especial interest for a number of moot questions was raised and various concepts emerged concerning the so-called gray forest soils.

Some maintained chiefly the present concept on the existence of gray forest soils, others — that they are transitional soils from the brown forest soils in North Europe to the cinnamon soils of the more southern regions of Europe, while still others considered them as transitional brown gray forest soils.

The following most general inferences may be drawn from the work of the symposium: It was confirmed that actually on the territory of Bulgaria (both South and North Bulgaria) in addition to leaching processes an important role also play the processes of pseudopodzolization connected more or less with the processes of surface gleization and clay accumulation on the spot. The processess of true podzolization play a negligible role.

No substantial changes were introduced in the present concepts on cinnamon forest soils and smolnitzas. On account of arisen variance concerning gray forest soils in North Bulgaria the question of their nomenclature and their place in the genetic classification remained unsettled. It was decided to use provisionally the old designation — gray forest soil — until the question is resolved. The classification of soils in Bulgaria presented for deliberation was relatively well esteemed.

Finally, in connection with the preparations for the VIII Congress on Soil Science it was recommended to use extensively the materials of the symposium. Some organizational and technical decisions to that effect have been taken.

Sofia, 10.1.1964 Prof. Dr. V. Koinov

INTERNATIONAL CONGRESSES OF ALLIED SCIENCES
CONGRES INTERNATIONAUX DE SCIENCES CONNEXES
INTERNATIONALE KONGRESSE VON VERWANDTEN WISSENSCHAFTEN

Fourth Session Unesco Advisory Committee for Humid Tropics Research, Bandung (Indonesia), 2—6 December 1963

Dr. Go Ban Hong, Director of the Institute for Soils and Fertilization, Bogor, Indonesia, represented ISSS at the session headed above. He reported as follows:

After more than 2 years since the third session, held in Honolulu, the UNESCO Advisory committee for Humid Tropics Research organized its 4th session in Bandung (Indonesia) from 2 to 6 December 1963 with post session tours to the Mountain garden Tjibodas on the Mount Gede slope and to the natural reserve Udjung Kulon (West Java).

The Council for Sciences of Indonesia (Madjelis Ilmu Pengetahuan Indonesia, abbreviated: MIPI, its President Prof. SARWONO PRAWIROHARDJO) of the Department of National Research Affairs (Its Minister: Prof. SUDJONO D. PUSPONEGORO).

The opening took place at the Institute of Technology, Bandung. This ceremony was presided by Dr F. R. FOSBERG, chairman of the Third Session. Welcome speeches were given by His Excellency the Minister for National Research and by

the Governor of West Java, Colonel Mashudi. Mr L Mattsson, Director, UNESCO Southeast Asia Science Cooperation Office (SEASCO), expressed on behalf of the Director-General of UNESCO, his greetings to the Committee and thanks to the Indonesian Government.

The meetings took place at the Indonesian Association for Natural Sciences' Building. Dr F. R. FOSBERG (USA) was re-elected as Chairman, Prof. OTTO SOEMARWOTO (Indonesia) was elected as Vice-Chairman, and Dr B. A. ABEYWICKRAMA (Ceylon) was appointed as Rapporteur.

At the first meeting message of greetings and offers of cooperation is conveyed by the representative of the Food and Agriculture Organization of the United Nations, Rome (Ir SUSILO H. PRAKOSO), the observer of the International Association of Plant Taxonomy (Dr F. R. FOSBERG), International Society of Soil Science, Amsterdam (Dr GO BAN HONG), International Union of Geological Sciences, Copenhagen (Dr B. C. ROY), and Pacific Science Association, Honolulu (Prof. ISO REKSOHADIPRODJO).

The committee adopted the agenda after making some additions and alterations. The Activities Report for the period August 1961 to October 1963, Humid Tropics Research Programme was conveyed by Mr P. A. VARUGHESE Programme Specialist, Natural Resources Division, Department of Natural Sciences, UNESCO, Paris

Some topics in this report concerning soil science are:

(1) Seminar on humid tropical soils organized by the Science Cooperation Office in Montevideo in collaboration with the University of Venezuela, with an excursion, held from 5 November to 8 November 1962 in Caracas and Maracay (Venezuela). The interpretation of aerial photographs for agronomic purposes was included in the programme, but soil mapping and classification were absent.

(2) Mission to Congo-Brazaville of three Hungarian soil zoologists for a period of three months, beginning with October 1963.

(3) Preparation of a monograph on laterites by Dr R. MAIGNIEN of ORSTOM, Franco; work on soil fauna by the Zoological Survey of India; and four reviews on soil biology: Methodology and systematics by Prof. J. POCHON, Paris; Ecological associations by Dr F. E. CLARK, Fort Collins, USA; Effect of pesticides by Prof. M. ALEXANDER, Ithaca, USA; and Soil biology in relation to its fertility by Prof. E. G. MULDER, Wageningen, Netherlands.

Agenda items contained topics already stated in the Report of the Third Session (UNESCO/NS/173, Paris 27/10-1961). Key zoological collections in the tropics; Tropical herbaria; Termites; Flora Neotropica; Tropical soils; Training programmes for biologists and symposia. Other topics were: Education in conservation; International biological programme; and Consideration of the proposed Programme and Budget 1965-66.

Discussions showed a great interest in the study of soil fauna in the Humid Tropics.

Some interesting points of soil science appeared in the Report on the Symposium on the vegetation of the Humid Tropics, Kuching, Serawak, July 2-10, 1963; issued by UNESCO SEASCO. Two of the five topics were related to soil science: (1) Nutrients in vegetation, soils and soil parent material; (2) Vegetation and soil of limestone formations. The absence of soil specialists in this symposium prevented the issue of a statement on problems concerning soil fertility. The term soil of limestone formations should be specified. The forests had been cut down to provide the limestone kilns with firewood. The effects were disastrous.

Special attention was paid on the problem of laterization. A proposal to survey the reserves of laterites in regions, especially where they are utilized for building was considered by the Committee as outside the scope of the laterization problem.

The chemistry and biology of tropical soils as a topic of long-term research seemed too extensive and needed subdivision and additions. Soil mineralogical studies may provide a clue for problems of soil fertility in the Humid Tropics, as experienced by our Institute. The abundance of water and green matter, with high temperatures during the whole year, in the Humid Tropics had always excited man's imagination. Rock and mineral weathering and new-formation, humification and mineralization, these all need further study. Maybe the ISSS could urge its members to devote more attention on research of soils in the Humid Tropics. Lack of scientists has inactivated our Institute.

The Committee noted the new subdivision of the Natural Sciences as stated in the Summary Preliminary Draft Programme and Budget for 1965-66. The budget of Hydrology, Geological Sciences and Soil Sciences had been increased, while the budget of the Ecological studies and conservation of natural resources had been cut down. It stated that the Arid and Humid Tropic Zone Research Advisory Committee will be replaced by one Advisory Committee on Natural Resources Research covering the field of geology, soil science, ecology and conservation. The chairman remarked that the stress on the classical disciplines will be detrimental to the environmental science approach.

Finally the Committee strongly recommended to maintain the topics of research stated in the Report of the Third Session and to continue the separation in Arid Zone and Humid Tropics.

Prof. SARWONO PRAWIROHARDJO, President of the MIPI, arranged in honour of the members of the Committee a reception and cultural evening, consisting of dances, angklung music (from bamboo instruments), demonstrations of puppets and different Indonesian dresses. The richness of Indonesian culture made a deep impression.

A tour to the volcano Tangkubanprahu, the Tjiater hot springs, and the BOSSCHA observatory showed the richness of the soil and the potentialities of research in the tropics.

Dr GO BAN HONG
Director, Research Institute
for Soils and Fertilization, Bogor
INDONESIA.

VIe Congrès International de Génie rural Lausanne (Suisse) 21—27 Septembre 1964

The Commission internationale du Génie rural organizes its 6th international congress at Lausanne (Switzerland) as of September 21 to 27, 1964. About 100 reports will be presented, dealing with various aspects of rural technology as there are: supplementary irrigation in humid regions (Grubinger, Switzerland), drainage by subterranial canals (Sine, Belgium), mechanisation of corn growing and cropping (Bockhop, U.S.A.), etc. Subscription fee 150.— swiss francs. Further information to be had from the Organisation Committee, Cité Devant 14, Lausanne.

MISCELLANEOUS NEWS
INFORMATIONS DIVERSES
VERMISCHTE MITTEILUNGEN

Préparation d'une enquête internationale sur les méthodes d'assainissement des sols et leur efficacité

Du 18 au 21 Février dernier, s'est tenue, à PARIS, la 10ème Conférence des Organisations Internationales pour l'étude, en commun, des problèmes de l'Agriculture en Europe.

Dans le cadre de cette conférence un groupe de discussion s'est réuni pour examiner les problèmes concernant l'irrigation et l'assainissement des terres.

A ce groupe assistaient, notamment, des représentants de l'U.N.E.S.C.O., de la F.A.O., de la Commission Internationale du Génie Rural (C.I.G.R.), de la Commission Internationale des Irrigations et du Drainage (I.C.I.D.) et de l'Association Internationale pour l'Etude de la Science du Sol (I.S.S.S.) qui était représentée par son Secrétaire Général.

Au cours de cette réunion a été examiné un projet d'enquête sur le plan international, concernant les méthodes d'assainissement des sols et leur efficacité.

Le but de l'enquête est essentiellement de rassembler les informations existantes dans différents pays et concernant les aspects scientifiques et techniques du problème de l'assainissement des sols; les techniques d'assainissement agricole sont essentiellement basées sur les réactions des différentes espèces végétales, à leurs

différents stades de développement et dans différents types de sols, en présence d'une teneur en eau plus ou moins importante, voire d'une submersion plus ou moins prolongée.

Quelques expérimentations ont été effectuées dans ce domaine; elles sont très dispersées et la plupart des Ingénieurs et Techniciens ont nettement conscience de l'intérêt de rassembler ces informations pour tenter de dégager un corps de doctrine qui constituerait les bases rationnelles des travaux d'assainissement agricole.

Le groupe de discussion a examiné un projet de questionnaire qui devra être mis au point et qui servira de base à l'exécution de cette enquête internationale.

En raison de l'intérêt scientifique de ce projet, l'UNESCO a décidé d'intégrer cette enquête dans la Décennie hydrologique dont le programme est actuellement en cours de préparation et dont l'exécution doit commencer en 1965.

L'Association Internationale pour l'Etude de la Science du Sol sera appelée à apporter son concours, dans les différents pays, pour élaborer la réponse à ce questionnaire et le Secrétariat Général de l'I.S.S.S. sera tout spécialement associé à l'exploitation des réponses au questionnaire et à l'élaboration du rapport de synthèse qui semble devoir constituer un document particulièrement utile pour les Ingénieurs et Chercheurs s'intéressant aux problèmes de l'humidité et de l'assainissement des terres.

"Experimental pedology"

The Eleventh Easter School in Agricultural Science of the University of Nottingham was held from 23rd—26th March 1964, and was attended by over 120 soil scientists, mainly from Europe, but with a few from as far as the U.S.A. and New Zealand. In accordance with the tradition of these Easter Schools the meeting provided an opportunity to review the current position in one field of agricultural science: this year's subject was Experimental Pedology.

The aim was to examine how far hypotheses about pedogenic processes were susceptible to experimental investigation, and to consider the merits and limitations of alternative methods. Twenty-six papers were read and discussed, and since it would be out of place to list all of them here, a few will be mentioned to illustrate approaches.

(a) **Physico-chemical investigations.** Amongst these were valuable reviews of the significance of surface chemistry, of clay mineral synthesis and of sesquioxides. These were particularly interesting since they brought together Continental work which was not so familiar to many who have little enough time to read the literature in their native tongue. A detailed study of artificial weathering in mica reported meticulous and very interesting results recently obtained in Australia.

(b) **Model experiments.** Attempts to stimulate under laboratory conditions the weathering of rocks, profile development with plant extracts, and anion movement under conditions of limited moisture, provided abundant material for discussion, particularly with regard to the problems created by intensifying and accelerating pedogenic processes, and the difficulties of interpretation.

(c) **Biological studies.** At least four papers dealt specifically with the role of microflora and fauna as soil forming agencies, and in this context the relative merits of observational and experimental approaches were fully considered.

(d) **Field studies.** Several contributors showed how much information can be obtained by a thorough and comprehensive study of a restricted system, such as the cycling of nutrients in woodlands, or the careful assessment of the balance sheet of gains and losses of elements from a profile or chronosequence. One speaker described a field experiment in soil development designed to be completed about the year 2090.

Again and again it was made obvious that pedological investigations must embrace a wide range of disciplines if useful progress is to be made, and two papers clearly showed how much valuable but neglected information exists outside the normal literature of soil science. One dealt with reactions between silica and organic substances, and referred to medical studies of silicosis, and the other presented a civil engineer's approach to the transport of sediments. Various speakers pleaded for more precise designation of materials and conditions, and it was clear from discussions that frequently used terms such as 'podzolization' and 'gleying' are often employed extremely loosely without adequate definition, and this leads to unnecessary confusion. This was clearly stressed by one paper which considered the relationship between experimental pedology and the classification of soils.

The Proceedings of the Easter School will be published at the end of 1964, by Butterworths Publications Limited, 88, Kingsway, London, W.C. 2., from whom details may be obtained.

Cours de Microbiologie du Sol organisé par l'Institut Pasteur, Paris
Sous la direction de J. Pochon et P. Tardieux
10 septembre—7 octobre 1964

Cet enseignement comprend 45 leçons, ainsi que des séances journalières de Travaux Pratiques, qui commenceront le 10 septembre, à 9 heures 30, dans le laboratoire de Monsieur J. Pochon et se poursuivront chaque jour jusqu'au 7 octobre. Il est sanctionné par le certificat de Microbiologie du Sol de l'Institut Pasteur.

Le nombre de places est limité et les demandes d'inscription devront parvenir à J. POCHON, INSTITUT PASTEUR, PARIS-XVe, le plus tôt possible.

Les droits d'inscription et les frais de travaux pratiques sont de 150 F. à verser au début du cours.

NEW EDITIONS — NOUVELLES EDITIONS — NEUE AUSGABEN

Methods of Chemical and Physical Analysis Utilized in Agriculture

Edited by the Publishing House of the Academy of the Rumian People's Republic.

This textbook has been composed by Professors David Davidescu, M. Ionescu, M. Yvanescu, G. Pavlovski and H. Slusanski. It deals, in its 489 pages, with the totality of analytic methods which are currently made use of in the chemical and agronomic laboratories.

The eight parts into which the material is grouped treat the analysis of the vegetable matter, the soil analysis, the foliar diagnosis, the analysis of fertilizers and amendments, the analysis of the irrigation water, the determination of the chemical substances utilized in plant protection. The last part presents the technics of preparation of reactives and also different auxiliary tables. The work is intended for agriculturists, pedologists, chemists, researchers and students who work in the field of the chemical treatment of agriculture or who deal with laboratory studies.

Agricultural Meteorology

In April, 1964, Elsevier Publishing Company, under an international editorial board, published the first issue of the new journal "Agricultural Meteorology". This international journal will bring together contributions relevant to the interdisciplinary science of Agricultural Meteorology that have previously had to be sought among a variety of agricultural and meteorological journals.

In addition to original research articles and an index to current agrometeorological literature, the writing and publication of review articles will be a regular feature. Preference will be given to critical descriptions of new methods, techniques and instruments which are likely to be of help to research, experimental and field workers in het subject.

An important function of the periodical will be to stimulate collaboration and understanding between workers in the various fields. Papers will be published dealing with such subjects as:

(1) Observation, measurement and evaluation of meteorological factors which affect soils, plants, forests, farm animals, agricultural pests, diseases and all agricultural products (including those in storage and transport).

(2) Meteorological aspects of biological observations.

(3) Classification, presentation and application of climatological data for agricultural and forestry purposes.

(4) Ecology of crops, forests and animals, and the meteorological implications thereof.

(5) Identification of, and methods of protection against direct and indirect weather hazards.

(6) Meteorological services for agriculture and forestry, including forecast and warning systems, both of meteorological and biological events.

The Editorial Board is comprised of the following scientists: F. Albani (Asuncion); M. L. Blanc (Tempe, Ariz.); W. Bleeker (De Bilt); P. M. A. Bourke (Dublin); J. J. Burgos (Buenos Aires); S. de Backer (Uccle); G. D. B. de Villiers (Bloemfontein); L. J. L. Deij (De Bilt); H. Geslin (Versailles); M. Gilead (Bet Dagan); W. H. Hogg (Bristol); I. C. McIlroy (Aspendale); J. L. Monteith (Harpenden); J. E. Newman (Lafayette, Ind.); W. C. Palmer (Washington, D.C.); L. A. Ramdas (New Delhi); W. E. Reifsnyder (New Haven, Conn.); E. W. Russel (Kikuyu); F. Schnelle (Offenbach/Main) V. V. Sinelshikov (Moscow); R. O. Slatyer (Canberra); L. P. Smith (Bracknell); F. Steinhauser (Vienna); J. van Eimern (Weihenstephan); A. Vaughn Havens (New Brunswick, N.J.); P. E. Vézina (Sillery); P. E. Waggoner (New Haven, Conn.); C. C. Wallén (Stockholm).

The journal will begin with one yearly volume of approximately 320 pages, in four quarterly issues. Subscription prices (post free) are £ 4.10.0 or $ 12.50 or *f* 45,— per volume. Additional charges for copies by air mail are available on request. Subscriptions can be obtained at Elsevier Publishing Company, P.O. Box 211, Amsterdam, The Netherlands.

Field Testing of Soils

A book on Field Testing of Soils - STP 322 has recently been published by the American Society for Testing and Materials. The 21 papers in this publication focus attention on the value of field procedures in soils and foundation engineering to encourage wider use of tests currently available to engineers and to stimulate the development of new methods and devices.

It is not suggested that field tests should be substituted for laboratory tests on soil samples. Field and laboratory tests should be complementary, each being used at the optimum time in the design-construction sequence. An illustration of combined use is provided by the practice used in pile foundation design and construction. Although laboratory test data on undisturbed soil samples can predict the load capacity of a single pile driven to given embedment, it has become good practice on major construction to require the confirming evidence of field-loading test on test piles. Therefore, three steps — laboratory soil tests, field-loading tests and field measurement of resistance — combine to ensure satisfactory foundation performance. Through engineering imagination and development, similar thoroughness is possible and necessary in other soils engineering applications.

Included in this book are papers which cover: the plate-loading test; the pile-loading test; the percolation test; and foundation problems, such as land slides and subsequent subsidence. Two papers cover the more esoteric aspects of soils engineering — the present and expected difficulties in sampling and testing soils of the ocean bottom and of the moon.

This publication will be of interest to everyone working in the field of soil mechanics.

Copies of **STP 322** may be obtained from ASTM Headquarters, 1916 Race Street, Philadelphia, Pa. 19103. Prices if prepaid: $ 15.00; to ASTM members: $ 10.50.

Aridity and Man

U.S. triumphs and failures in developing the nation's arid lands — most of the Western third of the country — and the nature of these lands, are spelled out in the new book, **Aridity and Man.**

Included are report on U.S. arid-lands anthropology, biology, weather, water, minerals and energy sources, soils, agriculture, and Western political and social institutions, in addition to a critical review of man's use of his arid environment.

A feature of **Aridity and Man** is its eight case histories on specific arid areas (including Los Angeles, California's Central Valley, and Tucson) and how they are tackling their problems.

The 604-page volume has 74 contributors from 14 states, but unity is provided nicely by editor Carle Hodge in his introductory chapter, and by associate editor Peter C. Duisberg in his concluding chapter on the arid West's future.

The volume was prepared as part of the U.S. contribution to the UNESCO "Scientific Conference on the Arid Lands of Latin America", held in Buenos Aires last September to help Latin Americans develop and employ their arid areas.

A Spanish edition of the book was distributed at the Buenos Aires meeting, with the thought in mind that U.S. experience and research would prove of value

to Latin Americans in attacking their problems. The new English-language version was published in December by the American Association for the Advancement of Science, whose Committee on Desert and Arid Lands Research (CODAZR) coordinated work on the book. Support for the project came from the National Science Foundation, Agency for International Development and AAAS.

Terah L. Smiley, director of the Geochronology Laboratories, University of Arizona, is CODAZR committee chairman. Maps and graphs among the book's 98 illustrations were prepared under the direction of Albert W. Smith, University of Colorado geopgrapher.

The 604-page book sells for $ 12 (AAAS members' cash price is $ 10) and may be purchased from AAAS, 1515 Massachusetts Avenue NW, Washington D.C. 20005.

The contents of **Aridity and Man** are described best in a list of chapter headings:

Preface: Lands of Little Water, by Luna B. Leopold, U.S. Department of the Interior, Washington, D.C.

Chapter:

1. Aridity and Man, An Interpretive Summary, by Carle Hodge, Science Editor, The Arizona Daily Star, Tucson.

2. Regional Setting, by Donald D. MacPhail, University of Colorado, Boulder, Colorado.

3. Indian Adaptions to Arid Environments, by Richard D. Woodbury, Associate Professor of Anthropology, University of Arizona, Tucson.

4. Historical Framework, by Ira G. Clark, Professor of History, New Mexico State University, University Park, New Mexico.

5. Weather: The Complex Causes of Aridity, by Ralph M. McGehee, Research and Development Division, New Mexico Institute of Mining and Technology, Socorro, New Mexico.

6. Water and Its Use, by Herbert E. Skibitzke, University of Arizona, Tucson; Russell H. Brown, U.S. Department of the Interior, Phoenix; and John W. Harshbarger, Head, Geology Department, University of Arizona.

7. Minerals and Energy Sources in the Arid West, by Joseph A. Schufle, Professor of Chemistry, New Mexico Institute of Mining and Technology, Socorro.

8. Soils of the Arid West, by Harold E. Dregne, Professor of Soils, New Mexico State University, University Park.

9. Aridity and Agriculture, by J. L. Gardner, Botanist, Agricultural Research Service, U.S. Department of Agriculture, Tucson.

10. Role of Watersheds and Forests in the Arid West, by William G. McGinnies, University of Arizona, Tucson; Andrew L. McComb, University of Arizona; and Joel E. Fletcher, Agricultural Research Service, U.S. Department of Agriculture, Boise, Idaho.

11. Native Animals and Plants as Resources, by Gordon L. Bender, Professor of Zoology, Arizona State University, Tempe.

12. Human Factors in Desert Development, by Douglas H. K. Lee, Public Health Service, U.S. Department of Health, Education and Welfare, Cincinnati, Ohio.

13. Economic Development of Arid Regions, by Morris E. Garnsey, Economics Department, University of Colorado, Boulders; and Nathanniel Wollman, Economics Department, University of New Mexico, Albuquerque.

14. Political and Social Institutions in Arid Regions, by Dean E. Mann, The Brookings Institution, Washington, D.C.

15. Critical Review of Man's History in Arid Regions, by Marion Clawson, Director, Land Use and Management Program, Resources for the Future, Inc., Washington, D.C.

16. Challenge of the Future, by Peter C. Duisberg, Arid Lands Consultant, El Paso, Texas.

Also 8 case histories are reported.

Soil Testing in India

The U.S. Agency for International Development Mission to India published this volume as an aid to the soil testing programme in India. It summarizes the experience gained in setting up Soil Testing Laboratories throughout the country, actually numbering 24.

The memoir, composed by Gilbert R. Muhr, N. P. Datta, H. Sankarasubramoney, Robert F. Dever, V. K. Leley and Roy L. Donahue gives a score of details on:

I. Soil Testing — Objectives and Procedures — A Resume
II. Role of the Extension Service in Soil Testing
III. Establishing a Model Soil Testing Laboratory
IV. Time-Saving Devices of Soil Testing Laboratories
V. Methods of Analysis
VI. Soil Tests as a Basis for Making Fertilizer Recommendations
VII. Organization of Work in the Laboratory for Maximum Efficiency
VIII. Correlation of Soil Tests with Crop Responses
IX. Preparation of Soil Test Summaries and Soil Fertility Maps
X. Instrument Maintenance and Minor Repair.

In a list of appendices estimates on requirement for apparatus, glassware, chemicals, etc. are given.

There is no doubt that this booklet serves a very useful purpose by aiding developing countries in the establishment of laboratories adapated to the task of assisting in increasing food production.

OBITURY — NECROLOGIE — NEKROLOGIE

Professor Dr. Tsvetan Dimitrov Staikov †
(1903—1963)

On October, 20, 1963, suddenly died Professor Dr. Tsvetan D. Staikov — Director of the N. Pushkarov Institute of Soil Science and Agrotechnics, Head of the chair of agricultural chemistry at the Georgi Dimitrov Higher Institute of Agriculture, Corresponding member of the Bulgarian Academy of Sciences and the Academy of Agricultural Sciences, President of the Bulgarian Soil Science Society. His death is a grievous blow to Bulgarian agricultural chemistry.

Prof. Dr. Staikov was born in the village of Muhovo, Ihtiman district on February, 8, 1903. In 1926 he graduated from the Sofia State University — the Faculty of Chemistry — and was appointed assistant at the Faculty of Agriculture. During 1936—1937 he specialized in agricultural chemistry under Prof. H. Kappen in Germany and obtained the doctor's degrees in Agricultural Sciences. From 1946 up to 1950 he was in charge of the chair of Agricultural chemistry at the Faculty of Agriculture first as assistant-professor and since 1950 as professor. In 1958 he was elected corresponding member of the Bulgarian Academy of Sciences. Staikov was Director of the biggest soil research centre in Bulgaria, the N. Pushkarov Institute of Soil Science and Agrotechnics, for the foundation of which he had great merits. He was the most eminent agricultural chemist in Bulgaria, also being the author of many scientific works in this field. Prof. Dr. Staikov is well known for his methodical researches, for his investigations on the sorption properties and nutritive regimen of soils, the effect of fertilizers on plant composition and the possibilities of applying new fertilizers, etc. He has written several text-books in agricultural chemistry as well.

Prof. Staikov contributed much as a lecturer in agricultural chemistry at the Faculty of Agriculture, training a large number of agronomists to specialists in the field of agricultural chemistry. His lectures were noted for their profoundness.

He successfully represented the Bulgarian Agricultural Chemistry Science at a number of international conferences.

For his outstanding contribution to the development of Bulgarian agricultural chemistry and soil science Prof. Dr. Staikov was conferred distinctions by the Government.

His pupils and disciples will honour his memory for ever.

The Bulgarian Soil Science Society

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PROCEEDING. New Series. Edited by the Executive Committee of the International Society of Soil Science. Editor in Chief: F. Schucht, Berlin. Assistant Editors: E. M. Crowther, Harpenden and A. J. Demolon, Versailles.

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Third Commission.

Meeting in NEW BRUNSWICK, New Jersey, U.S.A., August 30-September 1, 1939 Vol. A. and B. together 248 pp. with ill. roy. 8vo. 6.30 guilders

Fourth Commission (for the study of Soil Fertility).

Meeting in KÖNIGSBERG, July 1929. 1930. 156 pp. with many fig. roy. 8vo. *German text, with a summary in English and French.* (6 guilders) 3.80 guilders

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