

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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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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- Dr L. A. Richards, 4455 Fifth Street, Riverside, Cal. 92501, U.S.A.
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University of Wisconsin, Madison, Wis. 53706, U.S.A.
- II — SOIL CHEMISTRY**
Chairman: H. Laudelout, Laboratoire de Physico-Chimie Biologique
42 De Croylaan, Héverlé-Louvain, Belgium.
- III — SOIL BIOLOGY**
Chairman: M. Alexander, New York State College of Agriculture and Life Sciences,
Department of Agronomy, Bradfield and Emerson Halls, Ithaca, N.Y. 14850,
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- IV — SOIL FERTILITY AND PLANT NUTRITION**
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- VI — SOIL TECHNOLOGY**
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- VII — SOIL MINERALOGY**
Chairman: K. Norrish, C.S.I.R.O. Division of Soils, Private Bag 1,
P.O. Glen Osmond, S.A. 5064, Australia.

NOTICE

The membership fee of three US-dollars per calendar year, or equivalent in any other convertible currency, should be paid preferably through the intermediary of your National Society, or by international money order, or directly into the ISSS account 64.02.62.706 with Algemene Bank Nederland, Spuistraat 150, Amsterdam (C.C.P. Bank: 6269).

Unesco Coupons, which may be procured from the national Unesco Commission, are also accepted.

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MITTEILUNGEN

DER INTERNATIONALEN BODENKUNDLICHEN GESELLSCHAFT

No. 41

1972

NEWS OF THE SOCIETY

The 10th International Congress of Soil Science

Moscow, August 12 - 20, 1974

Third circular

I. *Travel and visa arrangements*

To arrange travel to the USSR, participants of the Congress and the accompanying persons are advised to contact the INTOURIST office in their country or where they will pass through if no INTOURIST office is established in their own country.

A tourist visa can be obtained within 7 to 10 days. The members in countries having at present no diplomatic relations with the USSR are advised to address the Consulates of the Soviet Embassies in other countries for visa on the presentation of the personal invitation from the Organizing Committee.

II. *INTOURIST Services*

INTOURIST offers the following accommodation for participants and accompanying persons:

- Category A. Rbs. 22.00 per person a day, single room with bath
Rbs. 16.00 per person a day, double room with bath
- Category B. Rbs. 14.00 per person a day, single room without bath
Rbs. 11.50 per person a day, double room without bath

The above prices cover the following services:

- hotel accommodation;
- breakfast, dinner (or supper);
- daily transportation from hotel to the place of sessions, and back;
- portage of a 2-piece luggage;
- transportation by bus or car upon arrival and departure;
- excursions.

Moreover, INTOURIST has scheduled some additional excursions to Leningrad, its suburbs and other cities of the Soviet Union for participants and accompanying persons. Arrangements for the excursions should be made in advance or during the Congress.

Owing to a prolonged indisposition of the Secretary-General the publication of this number of the Bulletin has suffered an unavoidable delay. This had, however, the advantage that the latest information on the 10th Congress, as well as recent reports on activities in the field of soil science could be included.

III. Registration

The registration fee of \$US 60 (54 Rbs) includes the costs of a copy of the Congress Proceedings and of the farewell party (\$US 10), concert and other traditional undertakings. Accompanying persons will not receive papers and other documents of the Congress.

Hotel accommodation, food and Post-Congress tours are to be paid separately.

IV. Post - Congress tours

The costs of these excursions, mentioned in Bulletin number 40, include the following service:

- transport;
- hotel accommodation in a double room;
- meeting and seeing-off in all the cities mentioned;
- three meals a day;
- guide-translators' service provided by INTOURIST.

All excursion leaders will speak English and, in addition, a number also French and German. If a considerable number of participants on any one excursion is not familiar with either English, French or German, an effort will be made to have additional leaders who can speak the language needed. Those who do not understand any of the above three languages are requested to inform the Organizing Committee in advance of this fact.

The Organizing Committee reserves the right to limit the number of persons taking part in any of the excursions and to select participants without regard to priority of application. Non-pedologists will be accepted on any of the excursions if space is available. The excursions which are restricted to pedologists only are so designated. Only people of 16 years and older will be permitted on excursions. If a participant has an unusual health problem (for example, diabetes or heart trouble), this should be made known at the time of application to the Organizing Committee.

V. Programme for ladies and accompanying persons

A special programme will be prepared for ladies. It will include visits to schools and institutions for children, the All-Union Exhibition of Economic Achievements, the Moscow Zoo, the Kremlin, Tretyakov Art Gallery and other Moscow museums.

Moreover, the ladies may take part in the excursions and other undertakings according to the Congress programme.

VI. Weather and clothing

Weather in August-early September in Moscow is usually warm and serene (in the afternoon the temperature is about 18 °C). However, showers are possible. It is desirable to have raincoats and warm clothing especially for the excursions to the eastern and northern parts of the country. Those who travel the southern parts of the USSR are recommended to have light clothing and light foot-wear.

VII. Currency Exchange

Within the territory of the USSR the exchange of cash foreign currency, travellers cheques, letters of credit given in foreign currency is handled by the Sections of the State Bank of the USSR and its subordinated exchange agencies.

The list and official rate of exchange of foreign currencies taken into exchange by the institutions of the USSR State Bank and the USSR "Vneshtorgbank" is given in the monthly bulletin on foreign currency by the USSR State Bank.

VIII. Correspondence

All correspondence dealing with the Congress should be addressed to:

**The Organizing Committee of the
10th International Congress of Soil Science,
Moscow State University,
Sub-Faculty of Pedology,
Moscow 117234, USSR.**

The Organizing Committee

NOUVELLES DE L'ASSOCIATION

Le 10e Congrès International de la Science du Sol

Moscou, 12 - 20 août 1974

Troisième circulaire

I. Dispositions concernant le voyage et les visas

Pour préparer leur voyage en URSS, les participants au Congrès ainsi que les personnes qui les accompagnent sont priés de contacter le bureau d'INTOURIST dans leur pays ou dans un pays qu'ils traverseront s'il n'y a pas de bureau d'INTOURIST local.

Un visa touristique peut être obtenu en 7 ou 10 jours. Les personnes qui habitent un pays n'ayant pas actuellement de relations diplomatiques avec l'URSS sont priées de s'adresser au Consulat d'une Ambassade soviétique d'un autre pays en présentant l'invitation personnelle reçue du Comité d'Organisation.

II. Services INTOURIST

INTOURIST offre les possibilités suivantes pour les participants et les personnes qui les accompagnent:

- Catégorie A. Rbs 22.00 par personne et par jour pour une chambre avec bain
Rbs 16.00 par personne et par jour pour une chambre à deux personnes avec bain
- Catégorie B. Rbs 14.00 par personne et par jour pour une chambre sans bain
Rbs 11.50 par personne et par jour pour une chambre à deux personnes sans bain

Les prix susmentionnés comprennent les services suivants:

- logement à l'hôtel;
- petit déjeuner, déjeuner (ou dîner);
- transport journalier de l'hôtel au lieu des sessions et retour;
- port de deux valises;
- transport par bus ou car à l'arrivée et au départ;
- excursions.

De plus, INTOURIST a organisé pour les participants et les personnes qui les accompagnent quelques excursions complémentaires à Léninegrad, ses faubourgs et d'autres villes de l'Union Soviétique. Les dispositions pour ces excursions peuvent être prises à l'avance ou pendant le Congrès.

III. Inscription

Les frais d'inscription de \$ 60 (54 Rbs) comprennent le prix d'un exemplaire des Comptes-rendus du Congrès, de la soirée d'adieu (\$ 10), des concerts et autres manifestations traditionnelles. Les personnes qui accompagnent ne recevront pas les Comptes-rendus ni les autres documents du Congrès.

Le logement, la nourriture et les excursions après Congrès doivent être payés séparément.

IV. Excursions après Congrès

Les prix de ces excursions, mentionnés dans le bulletin no. 40, comprennent les services suivants:

- transport;
- hôtel avec chambre à deux personnes;
- réunions et manifestations dans toutes les villes signalées;
- trois repas par jour;
- service d'un guide-traducteur procuré par INTOURIST.

Tous les chefs d'excursions parlent anglais et de plus un certain nombre le français et l'allemand. Si un nombre élevé de participants de l'une ou l'autre excursion ne connaît pas suffisamment l'anglais, le français ou l'allemand, un effort sera fait pour avoir des personnes complémentaires qui connaissent la langue de ces participants. Ceux qui ne comprennent pas l'une des trois langues susmentionnées sont priés d'en aviser le Comité d'Organisation à l'avance.

Le Comité d'Organisation se réserve le droit de limiter le nombre de personnes prenant part à l'une ou l'autre excursion et de sélectionner les participants sans tenir compte de l'ordre d'inscription. Les non-pédologues seront acceptés s'il y a de la place. Il n'y a de restriction que pour les excursions réservées aux pédologues. Seules les personnes de 16 ans ou plus sont admises aux excursions. La décision prise dans ce domaine par le Comité est irrévocable. Les voitures privées ne sont pas admises aux excursions. Si un participant a des problèmes de santé (par exemple, diabète ou troubles cardiaques), il est prié d'en avertir le Comité d'Organisation au moment de l'inscription.

V. Programme pour les dames et les personnes qui accompagnent

Un programme spécial sera préparé pour les dames. Il comprendra des visites d'écoles et d'institutions pour enfants, des expositions d'oeuvres de l'Union Soviétique, le zoo de Moscou, le Kremlin, le musée d'art Tretyakov et d'autres musées de Moscou.

Cependant, les dames peuvent prendre part aux excursions et autres manifestations se rapportant au programme du Congrès.

VI. Climat et habillement

Le temps en août-septembre à Moscou est généralement chaud et serien (l'après-midi la température est d'environ 18 °C). Cependant, des averses sont possibles. Il est donc conseillé de se munir d'imperméables et de vêtements chauds spécialement pour les excursions dans l'est et le nord du pays. Ceux qui voyageront dans le sud de l'URSS prendront des vêtements légers et des chaussures légères.

VII. Change

A l'intérieur des territoires de l'URSS, le change direct de monnaies étrangères, les chèques de voyage, les lettres de crédit libellées en monnaies étrangères peuvent être convertis dans les succursales de la Banque d'Etat de l'URSS ou dans les agences qui en dépendent.

La liste et les taux officiels de change des monnaies étrangères pratiquée dans les institutions de la Banque d'Etat de l'URSS et de la "Vneshtorgbank" d'URSS sont publiés dans les bulletins mensuels des monnaies étrangères par la Banque l'Etat de l'URSS.

VIII. Correspondance

Toute correspondance concernant le Congrès doit être adressée au:

**Comité d'Organisation
du 10e Congrès International de la Science du Sol,
Moscow State University,
Sub-Faculty of Pedology,
Moscow 117234, URSS.**

Le Comité d'Organisation

NEUES AUS DER GESELLSCHAFT

10. Internationaler Bodenkundlicher Kongreß in Moskau vom 12. - 20. August 1974 Drittes Rundschreiben

I. Reise- und Visa-Formalitäten

Es wird empfohlen, daß die Kongreßteilnehmer und ihre Begleitpersonen bei den Vorbereitungen für die Reise in die UdSSR sich an das INTOURIST-Büro in dem jeweiligen Land wenden oder — falls kein INTOURIST-Büro im eigenen Land besteht — an das des bei der Einreise in die UdSSR zu passierenden Landes.

Ein Touristen-Visum ist innerhalb von 7 bis 10 Tagen zu bekommen. Die Mitglieder der Länder, die gegenwärtig keine diplomatischen Beziehungen zur UdSSR unterhalten, werden gebeten, sich wegen der Beschaffung eines Visums an die Konsulate der Sowjetischen Botschaften in den entsprechenden Ländern zu wenden unter Vorlage der persönlichen Einladung des Organisations-Komitees.

II. INTOURIST-Service

INTOURIST macht folgende Angebote für die Teilnehmer und ihre Begleitpersonen:

Kategorie A: Rbs. 22.00 je Person und Tag, Einzelzimmer mit Bad
Rbs. 16.00 je Person und Tag, Doppelzimmer mit Bad

Kategorie B: Rbs. 14.00 je Person und Tag, Einzelzimmer ohne Bad
Rbs. 11.50 je Person und Tag, Doppelzimmer ohne Bad

Die obengenannten Preise schließen folgenden Service ein:

Hotelunterkunft,

Frühstück, Mittagessen (oder Abendessen),

Tägliche Beförderung vom Hotel zum Tagungsort und zurück,

Beförderung von 2 Gepäckstücken,

Beförderung mit Bus oder Pkw bei Ankunft und Abreise,

Exkursionen.

Ferner hat INTOURIST für die Teilnehmer und ihre Begleitpersonen einige zusätzliche Fahrten geplant nach Leningrad und seinen Vorstädten und in andere Städte der Sowjetunion. Anmeldungen für die Exkursionen sollten im voraus oder während des Kongresses getroffen werden.

III. Anmeldung

Die Anmeldegebühren von \$ US 60 (54 Rbs) schließen ein die Kosten für eine Kopie des Kongreßbandes und der Abschiedsparty (\$ US 10), Konzert und andere traditionelle Veranstaltungen. Die Begleitpersonen erhalten keine Kongreßunterlagen. Die Kosten für Hotelunterkunft, Essen und Fahrten nach dem Kongreß sind separat zu bezahlen.

IV. Exkursionen nach dem Kongreß

Die im Bulletin nr. 40 erwähnten Kosten für diese Exkursionen schließen folgenden Service ein:

Beförderung,

Hotelunterkunft in Doppelzimmer,

Treffen und Abholen in allen Städten,

Drei Mahlzeiten täglich,

Einen von INTOURIST gestellten Führer- und Übersetzer-Dienst.

Alle Exkursionsführer sprechen Englisch; einige auch Französisch und Deutsch. Sollte eine beträchtliche Anzahl von Teilnehmern auf irgendeiner Exkursion weder Englisch, noch Französisch oder Deutsch verstehen, so wird man versuchen, zusätzliche Führer für die jeweils benötigte Sprache zu organisieren. Diejenigen, die keine der obengenannten Sprachen verstehen, werden gebeten, das Organisations-Komitee im voraus davon zu verständigen.

Das Organisations-Komitee behält sich das Recht vor, die Anzahl der an den Exkursionen teilnehmenden Personen zu beschränken und die Teilnehmer ohne

Rücksicht auf vorrangige Anmeldungen auszusuchen. Nicht-Bodenkundler können sich an irgendeiner der Exkursionen beteiligen, wenn Platz vorhanden ist. Die nur für Bodenkundler bestimmten Exkursionen sind gekennzeichnet. Es können nur Leute ab 16 Jahren und älter an den Exkursionen teilnehmen. Die Entscheidung des Komitees in dieser Angelegenheit ist endgültig. Privatwagen können auf den Exkursionen nicht mitgenommen werden. Sollte ein Teilnehmer aus gesundheitlichen Gründen ein Problem haben (z.B. Diabetes oder Herzleiden), so sollte dies bei der Anmeldung dem Organisations-Komitee gegenüber erwähnt werden.

V. *Programm für die Damen und andere Begleitpersonen*

Ein Spezialprogramm für die Damen wird vorbereitet. Es sind Besuche an Schulen und Institutionen für Kinder vorgesehen, die Wirtschaftsausstellung der Sowjetunion, Moskauer Zoo, Kreml, Tretyakov-Kunstgalerie und andere Museen in Moskau.

Ferner können die Damen an den Exkursionen und an anderen im Kongreßprogramm vorgesehenen Veranstaltungen teilnehmen.

VI. *Wetter und Bekleidung*

Das Wetter im August bzw. Anfang September ist in Moskau gewöhnlich warm und wolkenlos (am Nachmittag beträgt die Temperatur etwa 18 °C). Schauerartige Regenfälle sind jedoch möglich. Regenmäntel und warme Kleidung sind empfehlenswert, besonders bei den Exkursionen in die östlichen und nördlichen Regionen des Landes. Denjenigen, die in den südlichen Teil des Landes reisen, wird leichte Kleidung und leichtes Schuhwerk empfohlen.

VII. *Währung*

Der Umtausch fremdländischer Währung, Reiseschecks und Kreditbriefe in Auslandswährung wird innerhalb der UdSSR von der Staatsbank der UdSSR und den ihr untergeordneten Banken vorgenommen.

Die Liste und der offizielle Wechselkurs ausländischer Währungen, die bei den Institutionen der UdSSR-Staatsbank und der UdSSR-„Vneshtorgbank“ umgetauscht werden können, werden in dem monatlichen Bulletin über Auslandswährung von der UdSSR-Staatsbank bekanntgegeben.

VIII. *Korrespondenz*

Jede den Kongreß betreffende Korrespondenz soll gerichtet werden an:

**Das Organisations-Komitee des
10. Internationalen Bodenkundlichen Kongresses,
Moscow State University,
Sub-Faculty of Pedology,
Moscow 117234, USSR.**

Das Organisations-Komitee

As has already been communicated to more than 100 individual authors, it has been decided by the Organizing Committee to postpone the closing date for the acceptancy of manuscripts for the 10th International Congress of Soil Science to 1 November 1972.

Manuscripts received after this date and accepted by the Editorial Committee will be published after the Congress.

50TH ANNIVERSARY INTERNATIONAL SOCIETY OF SOIL SCIENCE

JUBILEE BOOK

On the occasion of the 50th anniversary of the I.S.S.S. which will be celebrated during the 10th International Congress of Soil Science, Moscow, August 1974, a **JUBILEE BOOK** will be published by the Society.

Containing the highlights of the life of the Society and chapters on historical developments and achievements in the fields of soil science embraced by the seven Commissions, this illustrated book will be made available to members at a price of approximately 5 US dollars.

The number of copies printed will largely depend on the interest of the members in obtaining a copy. If you wish to reserve your copy of this unique document on 50 years soil science, please return the enclosed card, duly completed, to the *Secretary-General of the I.S.S.S.*

Please send the notice of intent on your earliest convenience, but not later than 31 March 1974.

**NEWS OF THE COMMISSIONS, NOUVELLES DES COMMISSIONS
NEUES DER KOMMISSIONEN**

COMMISSION I

**International Meeting on the Fundamentals of Soil Conditioning 17 - 21 April 1972,
Ghent, Belgium**

An international meeting on the Fundamentals of Soil Conditioning was held from April 17 - 21 in Ghent, Belgium sponsored by the University of Ghent. Prof. Dr. Ir. M. De Boodt of the Chair of Soil Physics and Prof. Wilford Gardner, Fulbright visiting professor from Madison (Wisconsin), on leave in Ghent during the academic year 1971 - 1972 were respectively President and Co-President of the meeting, which was attended by over 100 scientists from some 20 countries. Speakers at the meetings, and their subjects were as follows:

- D. J. Greenland (England), Interaction between soil particles and polymers.
- N. Schamp and J. Huylebroeck (Belgium), Physico-chemical interaction of polyacrylamide on clay particles.
- G. Bolt (The Netherlands), Theoretical aspects of swelling and other destructive forces on soil aggregates.
- G. Vachaud (France), Assessing soil moisture regimes in the field.
- F. De Bisschop (Belgium), Mechanism of the binding process between grains by means of emulsions.
- A. C. Carr (England), Movement of low molecular weight polymers in soil aggregates.
- R. Vandeveld (Belgium), Response of different textured soils to soil conditioners.
- D. Gabriels (Belgium), Response of different soil conditioners to soils.
- Y. Barrada (IAEA/FAO and UAR), Problems of irrigated and saline soils.
- W. H. Gardner (U.S.A.), Erosion control and moisture conservation in dryland farming.
- K. T. Joseph (Malaysia), Structural problems in the humid tropics.
- D. Muljadi (Indonesia), Structural problems in Indonesian soils.
- A. Rabines Flores (Peru), Structural problems in the coastal plain (Canete valley) of Peru.
- W. C. Moldenhauer (U.S.A.), Uses of soil conditioners in the United States.
- F. Koenigs (Netherlands), Practical aspects of structure deterioration.
- N. Schamp and F. Van Wassenhove (Belgium), Determination of Benzo(a) pyrene in Bitumen and crops grown on bitumen treated soil.
- D. Hillel (Israel), Infiltration and runoff initiation in crusted and uncrusted soils.
- J. Gani (England), Mathematical models in agriculture.
- D. A. Farrell (U.S.A.), The effect of soil crust on infiltration.
- J. Gani (England), Recent work on the theory of matter movement and storage.
- W. R. Gardner and M. De Boodt (U.S.A. and Belgium), Prediction of moisture transmission in conditioned soils.

The proceedings of the meeting and the accompanying discussions will be published by the University of Ghent and should be available by the end of 1972. Inquiries concerning the meeting and the proceedings may be directed to Prof. Dr. Ir. M. De Boodt, Faculty of Agricultural Sciences, Chair of Soil Physics, Coupure Links 533, B 9000 Ghent, Belgium.

As a result of the interest shown at the meeting in continuing and expanding the cooperative exchange of information about soil conditioning material and their applications, the officers of Commission I have appointed a Committee on Soil Conditioning under the chairmanship of Prof. M. De Boodt with D. Gabriels as Secretary.

This Committee will develop a mailing list of scientists from all parts of the world interested in development and use of synthetic soil conditioners in order to facilitate exchange of information between interested persons. It will also explore the need for future meetings on the subject. The Committee has been asked to

report on its progress and make recommendations for future activities on the occasion of the Moscow Congress in 1974. Some Committee appointments are yet to be made and anyone with an interest in the subject may contact either M. De Boodt or W. R. Gardner, President Commission I, Department of Soil and Water Science, University of Wisconsin, Madison, Wisc. 53706, U.S.A.

Commitments of members of Commission I from Eastern and Western Europe, both America's, Asia, Africa, Australia, to serve in the newly established Committee have been already received.

Signed:

W. R. Gardner

M. De Boodt

COMMISSION III

5th International Colloquium on Soil Zoology

17 - 22 September 1973 Prague, Czechoslovakia

This Colloquium will deal with the Effects on Soil Organisms of Soil Properties and Human Activities.

The topics to be discussed include:

- Stability and Diversity of Communities of Soil Organisms.
- Influence of Abiotic and Biotic Factors on Communities of Soil Organisms.
- Influence of Human Activities.
- Modern methods of Investigating Soil Organisms and their Influence upon Soil Properties.

The Colloquium is organized by the Institute of Environmental Ecology of the Czechoslovak Academy of Sciences.

**Information from Ing. J. Vanek CSc.,
Secretary Preparatory Committee,
Institute of Environmental Ecology CSAV,
Bezrucova 927, Ricani 2,
Czechoslovakia.**

Signed:

J. Vanek CSc.

**J. E. Satchell, President
Soil Zoology Committee,
Commission III.**

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

Indian Society of Soil Science

The 37th Annual General Meeting of the Society and a Symposium on "Soil and Water Management — Key to Revolution in Rice Production" were held on 3-5 July 1972 at the Punjab Agricultural University, Ludhiana, Punjab.

The following were elected as office bearers:

- President : Dr. D. R. Bhumbra
 Vice-Presidents : Dr. J. S. Kanwar (ex officio)
 Dr. D. P. Motiramani
 Dr. B. V. Mehta
 Secretary : Dr. T. D. Biswas,
 Division of Soil Science and Agricultural Chemistry,
 Indian Agricultural Research Institute,
 New Delhi - 12, India
 Joint Secretary : Dr. A. B. Ghosh
 Treasurer : Dr. A. S. Gowaikar

About 40 papers were read at the Symposium under different sessions:

- Water management and rice production.
- Efficient fertilizer use and soil management for rice production.
- Physical condition of soil and rice production.
- Chemistry of soils growing rice.

The main conclusions were as follows:

Split application of nitrogenous fertilizers is recommended for highly permeable soils. Efficiency of citric acid soluble and citric acid insoluble phosphates could be increased in acid soils by their application to moist soils two to three weeks before flooding. A few other recommendations and conclusions were also formulated.

In February 1973 a Symposium on Acid Sulphate and Other Acid Soils of India will be organized jointly by the Indian Council of Agricultural Research and the Indian Society of Soil Science and will be held at the Kerala Agricultural University, Kerala, India.

The Society of the Science of Soil and Manure, Japan

The following executive members have been elected for the period April 1972 - March 1974:

- President : Prof. Dr. Kinjiro Kawase
 Niigata University, Niigata
 Vice-Presidents : Dr. Tatsuo Hayase
 National Institute of Agricultural Sciences, Tokyo
 Mr. Ryuichi Hara
 Tokyo Fertilizer and Feeds Inspection Office, Tokyo
 Secretary-General : Dr. Tatsuo Hayase
 National Institute of Agricultural Sciences,
 Nishigahara,
 Kita-Ku,
 Tokyo, Japan.

Malaysian Society of Soil Science

At the Annual General Meeting of the Malaysian Society of Soil Science, held on 11 March 1972, the following were elected office bearers for the 1972/1973 session:

President	: Dr. Ng Siew Kee
Vice-Presidents	: Mr. Law Wei Min Mr. Sim Eng Shiong
Hon. Secretary	: Dr. M. Mohinder Singh, c/o Rubber Research Institute of Malaya, P.O. Box 150, Kuala Lumpur, Malaysia
Hon. Treasurer	: Mr. Hew Choy Kean
Committee Members	: Mr. Chew Poh Soon Mr. E. Pushparajah Mr. Thong Kar Cheong Mr. Tan Meng Hui

The Society was officially registered with the Malaysian Government on 5 October 1971.

The membership of the Society is 66 (March 1972).

Soil Science Society of Pakistan

The following office bearers have been elected till the next election in September 1972:

President	: Dr. Inamul Haque
Vice-Presidents	: Mr. H. M. Bhatti Dr. M. K. Chaudhary
Secretary	: Dr. M. F. Ali Khan, Department of Soil Science, Pakistan Agricultural University, Lyalpur, Pakistan
Treasurer	: Mr. Nazir Ahmad
The Editorial Board of the Journal of the Society is formed by:	
Editor	: Dr. M. F. Ali Khan
Joint Editor	: Dr. Z. Rehman
Members	: Dr. M. A. Hussain Dr. G. Haider Dr. M. Sharif Mr. H. M. Bhatti Mr. T. Muhammad Dr. M. Iqbal

MISCELLANEOUS NEWS - INFORMATIONS DIVERSES VERMISCHTE MITTEILUNGEN

ISSS - Scientific Associate of ICSU

The General Committee of the International Council of Scientific Unions, meeting in Helsinki, Finland, decided on 14 September 1972 to accept the International Society of Soil Science as a Scientific Associate.

Fifth Session of the Commission for Agricultural Meteorology (CAgM), Geneva, October 1971

The CAgM of the World Meteorological Organization (WMO) held its 5th session in the WMO-building in Geneva from 18 till 29 October 1971. Members of CAgM are, as usual for UNO-commissions, different UNO-countries. The session was attended by 76 delegates, representing 47 countries. Besides a group of international organizations was invited to be represented by experts in different related branches. Eight organizations, among which ISSS, were present with a total number of 10 delegates.

The CAgM works mainly by means of working groups and rapporteurs. They collect data with regard to special agricultural meteorological subjects, mostly on a world-wide scale, study them and report on the results. During the session 36 scientific and 24 organizational reports have been discussed. The subjects were very different, varying from meteorological factors affecting plant production, pests and diseases to indoor climates for housed animals and from a revision of the Guide for Agricultural Meteorological Practices to the election of officers, working group members and rapporteurs, as well as the organization of training seminars.

The results of the discussions are summarized in 26 resolutions and 5 recommendations, published in the "Abridged Final Report of the Fifth Session" (WMO-report nr. 318). Within the scope of this bulletin the following decisions may be mentioned:

1. establishment of a working group on meteorological factors concerning certain aspects of soil deterioration and erosion;
2. insertion of the work of the ISSS Working Committee for Soil Fertility into the draft report of the CAgM Working Group on the Effect of meteorological Factors on Crop Yields and Methods of Forecasting the Yield;
3. appointment of a rapporteur to study effects of soil cover on the micro-climate of the air and the soil around crop plants and on plant and soil quality;
4. co-operation with other bodies concerning the problem of measurement and calculation of evaporation;
5. appointment of a rapporteur on measurements of minimum temperature near the surface;
6. revision of the WMO Technical Note nr. 59 on "Windbreaks and Shelterbelts";
7. the CAgM noted with great satisfaction the interest in its work by international organizations as ISSS a.o. and wishes to consolidate and develop the contacts by discussing together problems of mutual interest;
8. since a frequent unawareness of the existence of scientific material on agricultural meteorology, published in the WMO Technical Note series, has been observed, the president was requested to take action for the improvement of the acquaintance with this material.

Lastly some general remarks. About three-fourths of the delegates of CAgM members present at the session are working in meteorological services and about one-fourth in agricultural institutes. A distinct gap between the ways of scientific thinking of both groups appeared to consist. Many countries seem to have the organizational problem whether agricultural meteorological research belongs to meteorological (ev. hydrological) services or to agricultural institutes. As was stated officially the significance of agricultural meteorology is linked with food production and conservation of natural resources. This raises the questions whether the percentage of official delegates, familiar with agricultural problems, must be increased and whether for CAgM the state of FAO commission should be preferred

to that of WMO commission. A continuous want of money forces the rapporteurs and members of working groups of CAgM to restrain their verbal contacts so strongly that they have to communicate almost by letter only, what hinders and confines the work. The CAgM however does its best to get over all these difficulties.

P. K. Peerlkamp
Institute of Soil Fertility
HAREN (Gr.), Netherlands

INTERNATIONAL SYMPOSIUM ON ACID SULPHATE SOILS,
Wageningen, Netherlands, 13 - 20 August 1972

The initiative for this Symposium was taken by soil scientists from the Rothamsted Agricultural Experiment Station and the Agricultural University at Wageningen.

The topics covered the formation and identification of pyritic parent material, the chemical, geographical and morphological aspects of Acid Sulphate Soils, and their reclamation, improvement and management for agricultural production. In eight ad-hoc sessions these topics were introduced in lectures, supplemented by concise reviews of the relevant papers presented. About half of the available time was reserved for discussions, which were lively and kept the 90 participants from 26 countries intensively busy. During two day-long excursions, demonstrations of Acid Sulphate Soils both in the classical coastal lowland setting and in an interesting upland environment were combined with relaxed sightseeing. The social meetings in the evening hours were attended by everybody and contributed greatly to the atmosphere of fraternization. The content of the introductory lectures and papers, and the tenor of the discussions allowed some pertinent conclusions as to the present state of knowledge and the desirable future trends of research on Acid Sulphate Soils. These conclusions were laid down in a series of resolutions, the most important of which refer to the social setting of the Acid Sulphate Soil problem and to the relation between fundamental and applied research in this specific field of soil science. An other important resolution stresses that Acid Sulphate Soils are problem soils which require high inputs for improvement and therefore should only be given priorities in reclamation, improvement and research if and where growing populations are or will become dependent on these soils for their subsistence.

Several other resolutions emphasize that fundamental research is ahead of applied research and that laboratory methods should be developed to match more closely field conditions.

Long term, well monitored field experiments are urgently needed for application of established principles to suit the varying local conditions. One resolution, which was carried out immediately during the final session, called for the establishment of a commission to select generally acceptable diagnostic criteria, methods and nomenclature, and to promote the exchange of relevant data among research and field workers. The resolutions will be published in 1973 in the Proceedings together with the complete texts of the lectures and papers, and abstracts of the main speeches and discussions. The Proceedings will be edited by the International Institute for Land Reclamation and Improvement at Wageningen.

H. Dost, secretary of the Organizing Committee

British Society of Soil Science, Silver Jubilee Meeting
Silsoe, September, 1972

This year the British Society of Soil Science celebrated its 25th Anniversary. After a successful meeting in the Netherlands last April, a second meeting was held from 18 - 22 September at Silsoe near Rothamsted. In the course of this week attention was given to various aspects of soil science. A sequence of lectures was given dealing with the results and progress made during the last 25 years.

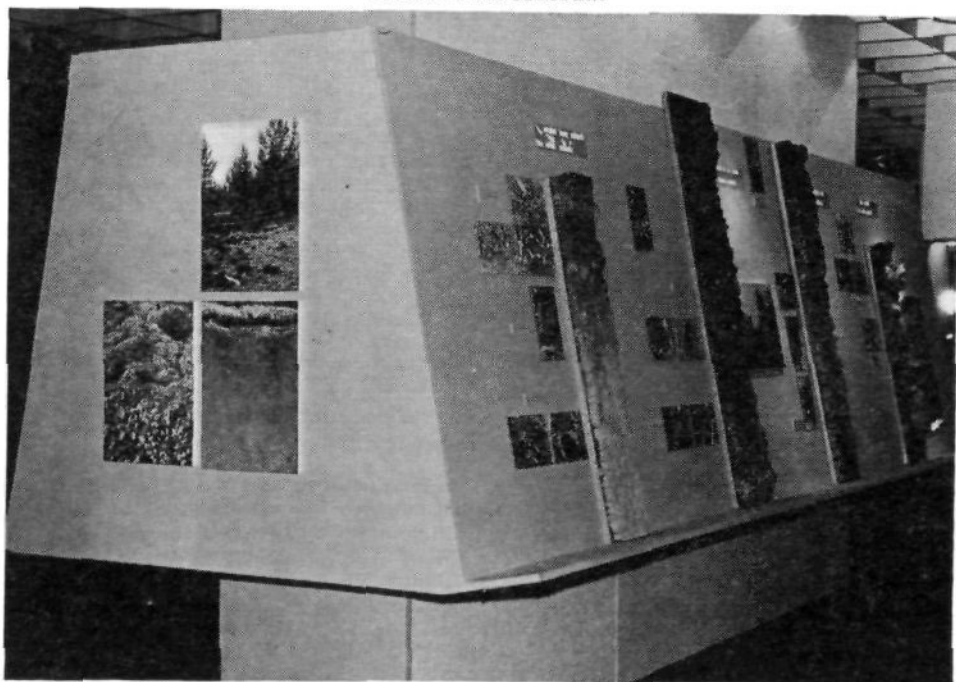
These papers comprise many subjects, including the use and effects of fertilizers, insecticides and herbicides in agriculture and on the soils. Attention was paid to modern soil classification and methods of interpreting soil maps. New aspects of organic matter and clay mineralogy were brought forward, and a variety of problems concerning soil physics were discussed.



**British Society
of Soil Science
Silver Jubilee
Meeting**

Soils in nature (Rothamsted) ...

...and in a Museum



Soils Exhibition, International Soil Museum

During this Silver Jubilee the famous Rothamsted Experimental Station was visited. Past and present research in the laboratories was explained to the participants, while also attention was paid to a number of field experiments of which some were set up more than 125 years ago.

During a very interesting tour through Buckinghamshire a broad spectrum of agricultural activities was illustrated.

Soil pits of selected profiles with detailed analytical data formed the basis for discussions. Starting from soil characteristics the land capability classification on the site, the agricultural management and fertilization and crop production gave an allround indication of the present agriculture.

At the end of the discussions some contemplation was given of the results obtained during the 25 years past and some thought was given for the future.

The B.S.S.S. may reflect on a very successful celebration.

**J. J. Reynders,
Soils Institute, Utrecht**

International Soil Museum Utrecht, Netherlands

From 3-5 October 1972 the Second Meeting of the International Advisory Panel of the International Soil Museum (ISM) took place in Amsterdam, Netherlands. The International Soil Museum, as integral part of the International Institute for Aerial Survey and Earth Sciences (ITC), is a joint Unesco-Government of the Netherlands project, which was founded in 1966 with Professor F. A. van Baren as its Director.

It is the purpose of the ISM to assemble a collection of the world's major soils, which will serve as a basis for comparative studies in the field of pedogenesis and soil classification. In addition, the collection will be a helpful instrument in instruction and demonstration to students in soil science, agriculture, etc.

Each of the soils is represented by a soil monolith, which can be displayed. Also samples are taken for chemical, physical, mineralogical and micromorphological analysis. Results and data are given in soil descriptive booklets, going with each monolith.

To date over 200 profiles from 21 countries in Africa, Asia, Australia, and Europe have been collected and analysed. A small part of the collection of monoliths and accompanying data has recently been on display at the exposition "The Soils of the World - The World of the Soil" at the Royal Tropical Institute. Several thousands of people visited this first-ever international exhibition of a great variety of soils.

The Museum is at present temporarily housed in the premises of the Soils Institute Utrecht. It is planned to construct in Wageningen a specially designed building to house the collection with adequate research facilities and rooms for staff members and guest workers.

The International Panel consists of:

Prof. G. Aubert (France), Dr. R. Dudal (FAO), Dr. S. V. Govinda Rajan (India), Mr. W. M. Johnson (U.S.A.), Prof. V. Kovda (U.S.S.R.), Dr. K. Lange (Unesco), Dr. P. Ryan (Ireland), and Dr. L. D. Swindale (U.S.A.).

From the conclusions and recommendations formulated during the Panel meeting the following may be mentioned here in an abbreviated way.

1. The Panel was presented with a report on the material collected to date. It commended the ISM for assembling 214 profiles representing major soils in 21 countries, accompanied by descriptive and analytical data.
2. The Panel stressed that the planned ISM building in Wageningen is now urgently needed with a view to its further development and adequate storage of the available material and of the material which will be collected.
3. In view of the international character of the ISM, the Panel stressed the importance of a close co-operation with the ISSS and its members, FAO and Unesco. Considering the close links with the FAO/Unesco Soil Map of the World Project, and the Panel being aware of the availability of the basic material, it urged the two organizations to accelerate the publication of the Soil Map of the World.

4. With regard to future activities, the Panel believes that the ISM should concentrate on the collection of additional soil monoliths so as to obtain a collection of representative soils on a global scale. In the immediate future the following activities could be started in addition to establishing the ISM collection:
- assisting in the creation of national soil musea;
 - supply of information on major soils in different parts of the world;
 - assisting in the organization of exhibits;
 - supply of teaching material;
 - distribution of soil descriptive booklets.
5. The Panel suggested that, considering the importance of the ISM, its programme be discussed at the Symposium on the Soil Map of the World, which will be held on the occasion of the 10th International Soil Congress in Moscow, August 1974. Further information on the programme and work of the ISM can be obtained by writing to:

**International Soil Museum
Oude Kamp 9 - 11
Utrecht,
Netherlands**

EXPERT CONSULTATION ON LAND EVALUATION FOR RURAL PURPOSES

6 - 12 October 1972, Wageningen, Netherlands

From 6 - 12 October 1972 a Consultation on Land Evaluation was held in Wageningen, Netherlands, convened by the Food and Agriculture Organization of the United Nations in co-operation with the Agricultural University, Wageningen and the International Institute for Land Reclamation and Improvement (ILRI). Proceedings of the Consultation will be published by the ILRI. These will present a summary of the discussions at the Consultation.

In recent years the need for an exchange of ideas and information at an international level on the subject of land evaluation had become increasingly apparent. There was general agreement on the need for international standards in this field. *The aim of the Consultation, conceived in 1970, was to develop a framework of land evaluation that would be widely acceptable to survey and evaluation organizations and would meet the needs of the widest range of possible users.*

Preparatory work for the Consultation was undertaken by two multi-disciplinary Committees: one in the Netherlands, the other within FAO. A Background Document, jointly prepared by these two Committees, provided the focus for discussions at the Consultation. The main text of this Background Document will be given as an appendix to the Proceedings.

The Consultation dealt with the concepts of 'Land' and 'land utilization types', with diagnostic criteria for land evaluation; requirements for basic surveys; required interpretative classifications, and categories; environmental considerations; the overall approach to land evaluation, including the place of different kinds of evaluation in the total framework; and presentation of land evaluation data.

**R. Brinkman
Agr. University,
Wageningen**

Personal Subscriptions to Geoderma

Members of the I.S.S.S. were in the position to subscribe to the journal **GEODERMA** in 1972 (volumes 7, 8 and 9) at a discount of 25% on the official subscription price.

Starting with volume 10 (1973), the publisher of the journal, Elsevier Scientific Publishing Company, has made it possible for all private persons to enter a personal subscription to **GEODERMA** at a discount of 55%. The personal subscription price for 1973 — inclusive of postage — will be Dfl. 45,50 (approx. U.S. \$ 14,25), compared to a normal institutional price of Dfl. 82,50 (approx. U.S. \$ 25,80).

I.S.S.S. members who wish to enter a personal subscription to **GEODERMA** should send their order directly to the publisher:

**Elsevier Scientific Publishing Company
Journal Division
P.O. Box 211
Amsterdam, Netherlands**

Those subscriptions at a reduced price which were taken out via the I.S.S.S. for the year 1972 (volumes 7 - 9), will automatically be changed to personal subscriptions for 1973 (vol. 10), unless it is clear that the subscriber is not a private person.

News from the U.S.A.

A number of American soil scientists of international reputation have retired recently from the Soil Conservation Service, U.S. Department of Agriculture.

Dr. Guy D. Smith, Director of Soil Survey Investigations, retired on 10 June. Known throughout the world as an outstanding soil scientist, he has given leadership in the development of the *Soil Taxonomy*, a comprehensive system of soil classification. In the development of the system, he visited over 60 countries on all continents to study the soils and discuss the problems of their classification. Dr. Smith was President of the Soil Science Society of America in 1959. He was

awarded a Doctor of Science degree at the University of Ghent, Belgium, in 1968. He is a member of several scientific organizations and the author of many papers.

Mr. Roy D. Hockensmith, Assistant Deputy Administrator for Soil Survey, retired on 30 June. He has traveled and studied soils in several foreign countries and participated in soil studies to locate new areas suitable for settlement in Brazil in 1963, 1964, 1966, and 1968.

Mr. Hockensmith was President of the Soil Conservation of America in 1962. He is a member of several national and international societies and scientific organizations and the author of many papers.

Mr. A. C. (Cliff) Orvedal, Assistant Director for Soil Survey Interpretations, retired also on 30 June.

In his capacity of Chief of the World Soil Cartography Unit (1946 - 1966) he pioneered in the application of soil science to engineering and in the improvement of small-scale maps. In 1965 he served on the U.S. President's Panel on World Food Supply and was responsible for developing new estimates of potentially arable soils in the world.

Mr. Orvedal has served on numerous committees and study groups. He is a member of several scientific organizations and the author of many papers. He has received numerous citations and awards.

Mr. William H. Bender, Assistant Director for Soil Survey Interpretations, retired also on 30 June.

His major contributions have been in developing training methods, in training new employees and in the development and application of soil survey interpretations for many different uses. Mr. Bender has been instrumental in developing and participating in the incorporation of soil surveys in comprehensive land use planning by professional planning agencies.

He has received a number of awards and citations. He is a member of several scientific organizations and the author of numerous papers.

Symposium on Environmental Biogeochemistry **21 - 24 March 1973 Logan, Utah, USA**

Purpose:

It is the purpose of this meeting, organized by the Ecology Center, Utah State University, to review a number of aspects of modern biogeochemical processes, including those that are relevant to the interpretation of ancient organic sediments. The main theme will be the role of the microorganisms in geochemical processes; approaches by purely microbiological means, by reliance on biochemistry and chemical taxonomy, or by use of tracers are all equally acceptable. Sessions concerned with organic-inorganic interactions are included, with the intention of assessing the present position but also in the hope of stimulating organic geochemical interest in the processes involved.

One of the objectives is to bring together soil scientists, organic geochemists and biologists. Each group has techniques and concepts of potential value to the other. The role of microorganisms is perhaps the least understood sector of organic geochemistry, while soil is the one sediment in which the microbiology has been extensively studied. One by-product of the meeting will be, it is hoped, a better understanding of the circumstances in which carbon and other elements may escape from or remain within their respective cycles; such understanding will be an important contribution to the solution of contemporary environmental problems.

Programme:

The Symposium will be divided into the following five sessions:

- Session 1: Chairman: P. H. Given, Pennsylvania State University
Microbiologically induced processes in the accumulation and degradation of terrestrial and marine organic sediments.
 - Session 2: Chairman: S. C. Rittenberg, University of California, Los Angeles
Biogeochemistry of the sulfur cycle.
 - Session 3: Chairman: G. A. Zavarzin, USSR Academy of Sciences
Biogeochemistry of environmentally critical elemental cycles.
 - Session 4: Chairman: E. A. Paul, University of Saskatchewan
Aspects of soil biochemistry pertinent to organic geochemistry.
 - Session 5: Chairman: E. S. Barghoorn, Harvard University
Modern processes bearing on the interpretation of precambrian fossils.
- Keynote address: P. E. Cloud, University of California, Santa Barbara.

The sessions will have one or more invited papers followed by contributed papers. Reports describing original methods, findings or reviews dealing with problems at the geochemical/biochemical/biological interface will be considered. At each session periods for discussion will be provided in order to encourage free exchange of information and ideas.

Information from:

**Mr. J. Skujins,
Ecology Center,
Utah State University,
Logan,
Utah 84322, USA**

**International Post-graduate Course on Soil Salinity and Alkalinity
June - October 1973, Budapest, Hungary**

This course in English is organized by the Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences and the Loránd Eötvös University in Budapest and is sponsored by Unesco.

The tentative programme of the lectures is as follows:

- Salt-affected soils, their properties, genetics and extension.
- Physics and water movement in salt-affected soils.
- Dynamics of salts in soils with particular regard to irrigation.
- Mineralogy, physical chemistry and chemistry of salt-affected soils.
- Improvement and reclamation of salt-affected soils.
- Sampling, field and laboratory analytical methods, survey and mapping of salt-affected soils.

Part of the course will be devoted to individual research work, the results of which will form a thesis. Laboratory studies are also required.

The aim of the course is to give the participants the basis for a modern and scientific approach to soil salinity and alkalinity investigations with particular regard to irrigation.

Application and information:

**Research Institute for Agricultural Chemistry,
Hungarian Academy of Sciences,
Herman Ottó ut 15,
Budapest II, Hungary.**

**4th North American Forest Soils Conference
20 - 25 August 1973, Quebec, Canada.**

Purpose:

The purpose of the Conference is to bring together research scientists and practicing foresters who are concerned with a knowledge of soils and soil-vegetation relationships, to review and discuss recent research contributions in forest soils, soil classification and survey and the use and application of soils information in various phases of forest land management.

Topics:

In emphasizing the use of forest soils information in making forest-land management decisions, the conference will include:

- Recent technical developments and applications in forest land classification and surveys.
- Effects of management techniques on basic properties of sites and ecosystems.
- Soil, silviculture and quality of environment.
- Soil, site and forest-land management decisions.
- A symposium on information requirements of forest land managers.

Information from:

**Dr. B. Bernier, Chairman Planning Committee or
Dr. Carl H. Winget, Secretary Planning Committee,
Faculty of Forestry,
Laval University,
Quebec 10, Canada.**

THE FOURTH INTERNATIONAL WORKING MEETING ON SOIL MICROMORPHOLOGY

Queen's University, Kingston, Ontario, Canada, 27 - 31 August 1973

Further to the notice contained in Bulletin 39 the following news can now be communicated to prospective participants:

— The U.S. Forest Soil Conference and the Canadian Society of Soil Science are co-sponsoring a meeting at Université Laval in Quebec City immediately prior to the Working Meeting. There will be a 7 day post-meeting tour concluding in Montreal.

— Already some sixty titles covering a wide range of topics have been received. In addition to sessions for papers on soil genesis and properties, there are sufficient papers for sessions on Scanning Electron Microscope, applied micromorphology, soil mechanics and recent technological developments in micromorphology.

The Organizing Committee is very desirous of attracting further papers particularly in the microscopy of sediments and deep soil horizons, micromorphometry, and the computerization of micromorphology. It was stated in Bulletin 39 that papers must be in the organizing secretary's hand before 1 January 1973, this date has been changed to 1 June 1973.

— Negotiations are in progress with an air carrier for group flights from and to Europe. Potential participants are reminded of the very reasonable 21 - 45 day return flights available for Trans-Atlantic travel.

— The Organizing Committee for the Fourth International Working-Meeting:

Prof. G. Bourdeau, Chairman

Département des Sols, Université Laval, Quebec City

Prof. G. K. Rutherford, Secretary

Department of Geography

Queen's University

Kingston, Ontario, Canada

Dr. E. Penner, Division of Building Research

National Research Council, Ottawa

Dr. A. McKeague, Canada Department of Agriculture, Ottawa

Dr. J. Dumanski, Canada Department of Agriculture, Ottawa

Dr. C. Acton, Canada Department of Agriculture, Quelp

Dr. R. Mitchell, Department of Civil Engineering, Queen's University

Dr. W. J. Vreeken, Department of Geography, Queen's University.

5th World Congress on Agricultural Credit 17 - 21 September 1973, Milan, Italy

The following general papers will be presented:

— Financing of agriculture in developing countries.

— Evolution of Farm Credit Institutes towards universal banks.

— Reflections on the opportunity of cheap credits available to agriculture.

— Several other subjects have not yet been chosen.

Institutes and persons who are not members of the CICA are required to pay a registration fee of SFr. 500.

Information from:

**Comité d'Organisation Italien CICA,
Piazza S. Bernardo 106,
00187 Rome, Italy.**

**Conference on Improvements in Planning of Water Management
25 - 27 September 1973, Budapest, Hungary**

The aim of this conference, organized by the Hungarian Hydrological Society, the Institute for Hydraulic Planning and the NWA Water Resources Centre, is to survey and discuss the results, which were obtained in the planning of investments and technical, economical aspects of the water management during the past decade. Information from:

**Hungarian Hydrological Society,
Szabadság tér 17,
Budapest, Hungary**

**International Symposium on Underground Waste Management
and Artificial Recharge**

26 - 29 September 1973, New Orleans, Louisiana, USA

Sponsored by the American Association of Petroleum Geologists, the U.S. Geological Survey, and the International Association of Hydrological Sciences, the symposium will include papers on the theory and practice of subsurface waste disposal and the artificial recharge of aquifers. Hydrogeological, geochemical, and environmental aspects related to these subjects will be considered for acceptance on the program. Interesting field trips are planned in New Orleans and the surrounding area.

Offers of papers for presentation at this symposium are being accepted immediately for consideration by the symposium program committee. By January 15, 1973, authors wishing to offer a paper should submit four copies of a summary, not to exceed two typewritten, single-spaced, pages in length. Only English will be considered for the summaries and for presentation of papers.

Foreign participation in this symposium is being coordinated by Arnold I. Johnson, President, International Commission for Subsurface Water, IAHS. Summaries of papers or requests for additional details should be sent to:

**Dr. Arnold I. Johnson,
Office of Water Data Coordination,
U.S. Geological Survey,
2100 M Street, N.W., Room 102,
Washington, D.C. 20242, USA**

First International Congress of Ecology

8 - 14 September 1974, The Hague, Netherlands

The congress represents the Division of Environmental Biology of the International Union of Biological Sciences (IUBS), with the International Association for Ecology (INTECOL), as the organizer.

The main purpose of the congress, titled "Structure, Function and Management of Ecosystems" will be to bring together ecologists (botanists, zoologists, limnologists, marine biologists, microbiologists, agronomists and other disciplines) to discuss the unifying concepts.

Each of the following five themes will be the focus of one morning plenary session:

- Theme I Flow of energy and matter between trophic levels
- Theme II Comparative productivity in ecosystems
- Theme III Diversity, stability and maturity in natural ecosystems.
- Theme IV Diversity, stability and maturity in systems influenced by human activities.
- Theme V Strategies for management of natural and man-made ecosystems.

The last morning (Saturday) will be dedicated to a final review of "The Significance of Ecological Principles for Society".

Three of four concurrent afternoon symposia will be scheduled of the following types:

- a. Every afternoon one session will be reserved for reports on research work related to the theme of the morning plenary session. The size and contents of this type of symposia will depend upon the papers offered for presentation.
- b. A special series of IBP intersectional (biome) synthesis symposia will be held; specific topics to be determined at the SCIBP 5th General Assembly in September 1972.
- c. One or more special symposia will be scheduled each day, dealing with topics of a unifying nature. The following topics have been identified by the International Steering Committee. A few other topics may be added in response to an indication of substantial interest. Suggestions within the general themes are welcome.
 1. Critical evaluation of systems analysis and modelling in ecosystems research and management.
 2. Data collecting and processing for predictive purposes.
 3. Methods of experimentation with ecosystems:
 - a. in the laboratory,
 - b. in the field.
 4. Ecological interpretation of remote sensing data.
 5. Parasitic life cycles as a part of ecosystems.
 6. Population ecology: the Lotka/Volterra concept today (Competition and co-existence).
 7. Ecology of aquatic systems as a reflection of their drainage basins.
 8. Ecological consequences of deforestation (related to theme IV).
 9. Symposium of the International Organization on Biological Control: the importance of naturally occurring biological control in natural ecosystems (as related to theme IV).

The themes of the morning sessions will be introduced by invited speakers, followed by prepared discussions.

For the afternoon sessions a restricted number of contributions can be accepted.

Where there are regional or national societies of ecology, local representatives of the Steering Committee will co-ordinate the selection of the papers to be presented. Ecologists at large are invited to submit abstracts of papers to:

**International Congress of Ecology,
c/o Royal Netherlands Academy of Sciences and Letters,
Kloveniersburgwal 29,
Amsterdam, Netherlands**

The total number of participants is anticipated to be about 1000. The congress fee is Dfl. 300 (about US \$ 96) which includes registration fee and proceedings.

VIIIth International Congress of Agricultural Engineering

23 - 29 September 1974, Elburg, Netherlands

The Commission Internationale du Génie Rural announces that the 8th international congress will take place from 23 - 29 September 1974 in Flevohof, permanent agricultural exhibition near Elburg, Netherlands. The preliminary registration and intention to present a paper should reach the Organizing Committee not later than 31 January 1973. The participation fee is Dfl. 275,— for participants and Dfl. 75,— for accompanying ladies and children.

Information from:

**The Organizing Committee,
VIIIth International Congress of Agricultural Engineering,
International Agricultural Centre,
P.O. Box 88,
Wageningen, Netherlands**

**9th Congress on Irrigation and Drainage
1975, Moscow, USSR**

For this congress of the International Commission on Irrigation and Drainage the following three topics have been selected for discussion:

- Sediment-controlling irrigation intake structures.
- Planning of development of groundwater for irrigation.
- Comparison of advanced methods of irrigation including development of irrigation by pumping.

Subtopics: Comparison of advanced methods of irrigation
Development of irrigation by pumping.

A Special Session has as theme: Environmental Control for Irrigation, Drainage and Flood Control Projects.

Concurrently with the Congress, a Symposium will be held on the "Introduction of automatic facilities for the needs of collecting and processing of information, planning and managing in the fields of irrigation and drainage".

Information from:

**Dr. K. K. Framji,
Secretary-General of the
International Commission on Irrigation and Drainage,
48, Nyaya Marg,
Chanakyapuri,
New Delhi-21, India**

NEW EDITIONS — NOUVELLES EDITIONS — NEUE AUSGABEN
STANDARD LEAF COLOR CHARTS
Fujihira Industry Co., Tokyo, Japan
Official price US \$ 21,70 f.o.b. Tokyo, for
ISSS members US \$ 18,— post free

In the series of colour charts according to the Munsell system, leaf colour charts have recently been issued by the Fujihira Industry Co., Tokyo, Japan. Prepared under the direction of the Agricultural Techniques Laboratory of the Ministry of Agriculture and Forestry, and in co-operation with the Japan Colour Research Institute, a total of 359 colour chips in 17 hues were selected for the charts. The following hues and number of chips are included: 2.5R(7); 5R(11); 7.5R(9); 10R(12); 2.5YR(9); 5YR(14); 7.5YR(13); 10YR(39); 2.5Y(36); 2.5GY(38); 5GY(51); 7.5GY(55); 10GY(24); 2.5RP(8); 5RP(9); 7.5RP(12); 10RP(12).

The solvent type, semi glossy chips are given in 11 unbound charts of approximately 20 x 25 cm, and are, together with black and white masks and a booklet on the Munsell system and colour names, contained in a sturdy plastic cover.

The list price in Japan is US \$ 21,70, f.o.b. Tokyo. Through the kind co-operation of the manufacturers the price for ISSS members is US \$ 18, incl. postage. Price of 50 copies or more on request.

Please direct your order to the

Office of the Secretary-General of the I.S.S.S.
63 Mauritskade,
Amsterdam,
Netherlands

The amount due should be paid in advance, preferably by postal money order.

EDWARDS, C. A. and LOFTY, J. R. Biology of Earthworms.
Chapman and Hall, London, Barnes and Noble, New York, 1972.
Pp.xv + 283. Price £ 3,25

The important role of earthworms in the cycle of organic matter as well as in the development and fertility of soils was, to a certain extent, already recognized at the end of the 18th century. The first significant publication, however, was Darwin's "The formation of vegetable mould through the action of worms, with observations of their habits", which appeared in 1881. The book announced here is the first comprehensive, yet tautly, review of the different kinds of research carried out on earthworms. The book is thought to be essential for students in biology and soil science as well as for teachers.

Many aspects are treated, i.e. morphology, taxonomy, biology, physiology, and ecology of earthworms, the role of earthworms in organic matter cycles, earthworms and micro-organisms, earthworms and soil fertility, effects of agriculture on earthworms as pests and benefactors, simple experiments and field studies with earthworms. Also a simplified key to common genera of terrestrial earthworms is given. It is regretted that one major aspect has not been treated. This is the importance of earthworms on the morphology of the soil.

This omission is also felt in the indistinct description of the aggregates frequently formed by earthworms. Notwithstanding this critical remark, it is an excellent, clearly written and handy-sized book, which can be recommended wholeheartedly.

L. Bal
Soils Institute
Utrecht

EFFECTS OF INTENSIVE FERTILIZER USE ON THE HUMAN ENVIRONMENT

FAO Soils Bulletin 16, May 1972.

In these days of an increased awareness and concern about the habitability of Mother Earth for her ever-increasing number of children, it seems particularly opportune for a gathering of experts to discuss the effects of intensive use of fertilizers on the human environment.

This FAO consultation, in which over 30 people participated, took place in Rome from 25 - 28 January 1972 and was made possible through a grant of the Swedish International Development Authority (SIDA).

Noting the timely publication of papers, recommendations and conclusions, it may be regarded as an important contribution to the Stockholm Conference and to the action programme resulting from it.

Nearly 20 papers were presented, partly by governmental agencies from countries with a relatively high fertilizer consumption, and partly by research institutions of the nitrogen, phosphate and potassium fertilizer industries. The meeting was chaired by Prof. R. A. Olson (University of Nebraska, USA), while Prof. E. W. Russell (Reading University, UK) was FAO Consultant/Rapporteur. The report contains a concise summary of the technical discussions, ably written by Prof. Russell, and a very well written summary review on the subject by Prof. Olsen.

The consultation indicated that the effects of intensive fertilizer use on the environment are mainly positive. Where detrimental effects were observed they could mostly be attributed to an improper use of fertilizers, which could be corrected by rational management practices.

It was noted that "the amounts of fertilizers used at present in developing countries are still very low and that local excesses in some of the industrialized countries should in no way prejudice the intensification of agricultural production in the developing world".

Although it is concluded that "if fertilizers are used efficiently, and good farm practices adopted, there is no evidence that they harm the soil"; the bulk of the papers contain warnings that the words "efficiently" and "good" are presently only poorly understood in most cases. Much research, especially in the developing countries, thereby avoiding at least some of the mistakes made in the industrialized world, is still needed.

The report, *FAO Soils Bulletin 16*, is certainly of interest to a large variety of people. As long as stocks last, it is available free of charge from the Distribution and Sales Section, Publications Division, Food and Agricultural Organization, 00100 Rome, Italy.

J. H. V. van Baren
International Soil Museum

FOTH, H. D. and TURK, L. M. Fundamentals of Soil Science. Fifth Edition.
John Wiley & Sons Ltd. 1972. Pp 454. Price £ 5.75.

This is the fifth edition of the well-known book, originally written by C. E. Millar and the present authors. It is intended for students in soil science and agronomy, but also students in bordering disciplines such as geography, biology and civil engineering may find it profitable.

Comparing it with the fourth edition, it is noticed that many chapters have been rewritten to a greater or lesser extent. Especially the chapters on soil moisture, chemical and mineralogical properties of soils, soil reaction, soil organic matter have been revised and rearranged. The chapter on the Great Soil Groups has been replaced by a concise discussion on the 1970 Soil Taxonomy. The quality of the photographs taken from the previous edition is poor.

Furthermore it is regretted that virtually no references are given for further reading.

The book can certainly be recommended as a concise introduction to soil science.

D. Creutzberg
International Soil Museum

GANSSEN, ROBERT. Bodengeographie, mit besonderer Berücksichtigung der Böden Mitteleuropas. Second ed. K. F. Koehler Verlag, Stuttgart, 1972. Pp. 325, 47 figures and maps, 23 photographs, numerous labels and graphs.

Since the first edition of this book appeared in 1957 soil science in all its aspects has experienced an important development. The publication of this rewritten and very much enlarged second edition is therefore opportune. It has been written with the co-operation of Z. Gracanin, also of Freiburg University. The scope of the book has remained the same. In the first part, forming about one half of the text, the influence of the different soil forming factors appearing in very broad geographical regions on the world are treated.

The second part deals with the geographical distribution of soils over the continents. In accordance with the subtitle of the book, more importance has been given to the soil forming processes and the description and geography of the soils in (central) Europe.

In seventy pages the soils of Asia, North and South America, Australia and Africa, have been dealt with. The book contains over 750 references.

In a book of this size many subjects can necessarily only be touched upon.

Notwithstanding this, according to the reviewer somewhat more attention could have been given to the different approaches of soil classification, to soil classification systems and correlation, the FAO/Unesco Soil Map of the World Project, and to the FAO Soil Map of Europe. Together with the well-known book of Scheffer and Schachtschabel this study- and handbook of Professor Ganssen will find its way to many students and soil scientists. The book is clearly written, the tables, graphs and photographs well chosen and illustrative, and can certainly be recommended.

J. H. V. van Baren
International Soil Museum

HILLEL, DANIEL, Editor. Optimizing the Soil Physical Environment Toward Greater Crop Yields. Academic Press, 1972. Pp. XXI + 240.

This book presents papers that were given at a special invitational panel convened as part of the International Symposium on Soil-Water Physics and Technology, which was held at the Hebrew University, Faculty of Agriculture in Rehovot, Israel, from 29 August - 5 September 1971.

The Symposium was sponsored jointly by the International Soil Science Society (Commission I and VI) and the Israel Society of Soil Science.

The book contains the following contributions:

Hillel, D. Prologue: Soil Physics and Technology: The Task before Us.

Gardner, W. R. Criteria for Determining the Aims and Directions of Research in Soil Physics and Technology.

Marshall, T. J. Efficient Management of Water in Agriculture.

Van Bavel, C. H. M. Soil Temperature and Crop Growth.

Erickson, A. E. Improving the Water Properties of Sand Soil.

De Boodt, M. Improving of Soil Structure by Chemical Means.

Taylor, H. M., Huck, M. G., and Klepper, B. Root Development in Relation to Soil Physical Conditions.

Hillel, D. The Field Water Balance and Water Use Efficiency.

Bresler, E. Control of Soil Salinity.

Jensen, M. E. Programming Irrigation for Greater Efficiency.

Gardner, H. R. Water Utilization by a Dryland Rowcrop.

Fuchs, M. The Control of the Radiation Climate of Plant Communities.

Danielson, R. E. Nutrient Supply and Uptake in Relation to Soil Physical Conditions.

Zaslavsky, D. Analysis of Growth Parameters and Their Fluctuations in Searching for Increased Yields.

HUSZ, G.S. Sugar cane. Cultivation and Fertilization. Bochum (W.-Germany), Ruhr-Stickstoff A.G. Series of Monographs on Tropical and Subtropical Crops, 1972. Pp. 116.

This monograph is intended to be a compendium for the experienced sugar-cane planter who wishes to obtain, as quick and simply as possible, a survey of the question involved. Greater emphasis is therefore placed on practical subjects. General rules have been given and elaborated, thus enabling the cane grower to draw the proper conclusions for his specific case. Where he cannot do this, because of complex and complicated conditions, he will at least be able to recognize his situation and solve his problems with the aid of local experts.

History and distribution of sugar-cane growing, botany, climatic, soil and water requirements, and planting and maintenance are briefly treated. Plant nutrition and fertilizing are discussed more extensively as is chemical weed control. Only the major pests and diseases are dealt with, while harvesting and ripening control, production control and processing are treated to some extent. General aspects of production in Australia, Hawaii, S.-Africa, the Philippines, and Peru are briefly discussed.

Royal Tropical Institute

INDONESIAN SOIL BIBLIOGRAPHY 1940 - 1972. Compiled by the Central Library for Biology and Agriculture (Bibliotheca Bogoriensis), Bogor, Indonesia

This bibliography, containing 742 references, appeared on the occasion of the Second Asian Soil Conference, Djakarta, 17 - 29 July 1972. It covers the years 1940 - 1972 and comes in addition to the Bibliography which C. H. Edelman published in 1941.

It is stated that only titles which could be consulted have been inserted. Being aware that many more articles do exist co-operation is sought to compile a supplementary issue. The bibliography can be obtained by writing to the above-mentioned library at the address Djalan Ir. H. Djuanda 20, Bogor, Indonesia.

MICRONUTRIENTS IN AGRICULTURE. Soil Science Society of America, Inc., Madison, Wisc., USA. Pp. XVIII + 666. Price: ASA, CSSA, SSSA members: \$ 10, for first, \$ 12,50 for all subsequent copies. Non-members \$ 12,50 per copy. Advance payment and 50 cents postage required on all orders outside the USA. Orders to: American Society of Agronomy, 677 South Segoe Road, Madison, Wisc., 53711, USA.

The Soil Science Society of America and the Tennessee Valley Authority sponsored the April 20 - 22, 1971 symposium from which this publication arises. It should prove indispensable to those involved in work with fertilizers, crop growth, and human and animal nutrition.

The topics discussed are:

- *Chemistry of Micronutrients in Soils (Micronutrients in agriculture, geochemistry, inorganic phase equilibria, adsorption reactions, organic matter reactions, metal-chelate equilibria).*
- *Concepts of Micronutrient Uptake and Function in Plants. (Movement to plant roots, mechanisms of uptake by plants, translocation in plants, function in plants, interactions).*
- *Diagnostic and Correction of Micronutrient Deficiencies. (Climate and soil conditions promoting deficiencies, soil tests, plant tissue analysis, correction of deficiencies with fertilizers, differential response of plant genotypes).*
 - *Micronutrient Fertilizer Technology. (Trends in use, production of fertilizers, chemical reactions in fertilizers, agronomic effectiveness when applied with macronutrient fertilizers).*
- *Trace elements in Animal and Human Nutrition. (Geographic distribution of problems, animal nutrition, human health, quality of the environment, a look ahead).*

NIELSON, D. R., JACKSON, R. D., CARY, J. W., and EVANS, D. D., Editors.
Soil Water. American Society of Agronomy, Soil Science Society of America,
Madison, Wisc., 1972. Pp. 175. Price: Members ASA \$ 6,50, Non-members \$ 8,50.
Advance payment and 50 cents postage required on all orders outside the USA.

This book, dedicated to the memory of Professor Sterling A. Taylor (1918-1967), Late Chairman of the Department of Soils and Meteorology, Utah State University, USA, deals with problems related to the movement of water in soils. It represents the outgrowth of the discussions and co-operative work of a group of soil scientists sponsored by the Western Regional Technical Committee W.68, USDA, in co-operation with ASA and SSSA.

Since 1957 the annual meetings of the co-operating scientists provided opportunities for the exchange and expansion of ideas from contacts with scientists having somewhat different backgrounds and interest.

The subject is treated in nine chapters, the first two introducing the soil-water system and its solid and fluid properties. In the third chapter a theoretical analysis is given of various approaches to the theory of waterflow, incl. hydrodynamics, diffusion and dispersion mechanisms and the application of electrostatics, electrokinetics and non-equilibrium thermodynamics.

In the following chapters water movement under isothermal conditions, the effect of temperature on waterflow and the isothermal flow of non-homogeneous aqueous solutions is discussed.

In a final chapter an appraisal is given of field methods to determine hydraulic conductivity and to predict waterflux under various conditions. It is rightly stated in the preface that "The basic concepts developed in this book will be of benefit and stimulation to many persons interested in flow of water in unsaturated soil".

D. Creutzberg
International Soil Museum

NORTHCOTE, K. H. and SKENE, J. K. M. Australian Soils with Saline and Sodic Properties. Soil Publication No. 27. CSIRO, Australia, 1972. pp. 62 and map.

The book on the European Solonetz soils, edited by Professor Szabolcs and reviewed in Bulletin 39 has been followed by one on the Australian soils with saline and sodic properties.

Mr. Skene was for many years a member of the Board of the Subcommission on Salt-Affected Soils of the ISSS.

An interesting discussion on the difficulties in the recognition and mapping of salt-affected soils and the preparation of a continental map is followed by listing the chemical criteria and limits for salinity, sodicity and alkalinity. Based on these defined criteria 27 classes of soils were established, 25 of which were regarded as salt-affected classes. From these, 12 classes accommodate most of the more than 1500 profiles studied. A study of the relation between the morphology of these profiles as principle profile forms of the "Factual Key for the Recognition of Australian Soils" (Northcote, 3rd ed., 1971) and the salt-affected soil classes resulted in six broad categories of morphologic soil groupings, each with distinctive assemblages of the salt-affected soil classes. From these groupings and their soil classes six broad mapping units were defined: saline soils; alkaline strongly sodic to sodic clays; alkaline strongly sodic to sodic coarse-to-medium-textured soils; alkaline strongly sodic to sodic duplex soils; non-alkaline sodic to strongly sodic neutral duplex soils; non-alkaline sodic to strongly sodic acid duplex soils.

A 1 : 5,000,000 map, using the map units delineated on the "Atlas of Australian Soils" (Northcote et al, 1960-1968, sheets 1-10) which are dominated by soils with morphologies associated with the salt-affected soil classes, shows these six map units.

The map indicates that nearly one-third of Australia is covered with salt-affected soils. The agricultural land use is reviewed and discussed as is the question of secondary salinization. The area affected by this process is estimated at 85,000 ha of irrigated soils and not less than 197,000 ha of dry-land soils.

The appendix gives 31 soil profile descriptions with the relevant chemical and physical data of the salt-affected soil classes.

This interesting, concisely written and well-presented CSIRO publication is a welcome addition to the literature on salt-affected soils and to their geographical distribution.

It is hoped that maps of other continents will appear in due course, thus satisfying the requirements of the Subcommittee on Salt-Affected Soils.

J. H. V. van Baren
International Soil Museum

PROCEEDINGS 12TH PACIFIC SCIENCE CONGRESS. 2 Volumes. Pp. 480 and pp. 139 resp.

This Congress took place from 18 August - 3 September 1971 in Canberra, Australia, and was attended by over 1000 participants, nearly half of them from 43 foreign countries. The proceedings have now been published in two volumes. Volume 1 contains the abstracts of the nearly 400 papers presented, volume 2 records the formal proceedings. The general topics of the Congress were:
Section A - Productivity and Conservation in the Pacific, including the following

Symposia:

- a 1. Problems and Production Potentials on Certain Soils in the Pacific.
- a 2. Physical Background to Plant Production and Conservation.
- a 3. *Nitrogen Economy of Plant Communities.*
- a 4. Crop Productivity.
- a 5. Survey and Assessment of Biological and Economic Production from Forests.
- a 6. Exploration and Conservation of Plant Genetic Resources.
- a 7. Productivity of the Pacific Ocean.
- a 8. Protein Nutrition in the Pacific Area.
- a 9. Interaction between Organisms in Insect Pest Regulation.
- a 10. Problems of Nature Conservation in the Pacific.

Section B — Man in the Pacific, including 3 Symposia.

Section C — Environmental Quality and Resource Management: Political Legal and Administrative Realities, including 3 Symposia.

Section D — Geological Structure and Mineral Resources in the Pacific including 5 Symposia.

The 13th Pacific Science Congress will be held at Vancouver, Canada, from 18 - 30 August 1975. The Second Inter-Congress will be held at the University of Guam, Guam, in 1973.

The Secretariat of the Pacific Science Association is sited at:

Bernice P. Bishop Museum,
P.O. Box 6037,
Honolulu, Hawaii, USA

PROCEEDINGS OF THE SECOND SYMPOSIUM ON FUNDAMENTALS OF TRANSPORT PHENOMENA IN POROUS MEDIA. 7 - 11 August 1972, Guelph, Ontario, Canada.

This Symposium was sponsored by the International Association for Hydraulic Research (Section Committee on Flow Through Porous Media) and the International Society of Soil Science (Commission I).

The Proceedings, published in two volumes, contain 51 papers, totals 797 pages and is available upon request to:

Office of Continuing Education,
University of Guelph,
Guelph, Ontario, Canada

The price of the two volumes is Can. \$ 23,—, which includes mailing and handling charges.

Advance payment is required.

RUELLAN, A. Les sols à profil calcaire différencié des plaines de la Basse Moulouya (Maroc Oriental). Pp. 302. Publication Mémoires O.R.S.T.O.M. No. 54. Paris, 1971. Price FFrs. 110.

This study on the soils of the Basse Moulouya plain, north-east Morocco, is a valuable contribution to the knowledge of the soils in the Mediterranean region. The first part deals with the environmental factors and the soil characteristics. The second part discusses the soils and their place in the Moroccan pedology and classification. In the third part an interpretation is given of the pedological phenomena which originated in the Quaternary period. This is supplemented with descriptions and analytical data of 42 profiles.

In the first part the various environmental factors are treated in detail, illustrated with clear and instructive photographs of landscape types, tables and graphs. Many soil profiles are shown in colour. A detailed account is given on the features of special interest in the region. The morphological descriptions include data on distribution and forms in which the carbonate accumulations occur, distribution of the clay fraction in the various profiles, structure, and other characteristics. In the chapter on the chemical and mineralogical properties of the soils, attention is also given to clay mineralogy. The discussion on the neo-formation of attapulgite in the horizons having strong calcium accumulation, is of particular interest. Attention is also given to the occurrence of the soils in relation to the climatic conditions, relief and age during the Quaternary period, leading to a conclusion on the kind of carbonate accumulation in connection with the age of the soils in this part of the world.

This publication on an important part of the Moroccan Mediterranean region gives a comprehensive and systematic view of soils which either have been developed on limestone or have been strongly influenced by carbonate infusion and accumulation. A comparison with other regions with similar climatic conditions may be very valuable.

The book deserves a wide interest.

J. J. Reijnders
Soils Institute
Utrecht

R. M. SAMISH, EDITOR: Recent Advances in Plant Nutrition, Volumes 1 and 2, 736 pp. Gordon and Breach Science Publishers, New York, London and Paris. Price: Vol. I & II. Separate £ 10,20 each. 2 Volume set £ 16,65.

The sixth International Colloquium on Plant Analysis and Fertilizer Problems was held in Tel Aviv, March 1970. The collected papers presented on this colloquium have been published under the title Recent Advances in Plant Nutrition.

The colloquium was composed of six sessions.

The titles of the six sessions are as follows:

1. The use of inorganic tissue analysis for the determination of the nutritional status of plants.
2. Bio-chemical approaches in the study of the nutritional status of plants.
3. Evaluation of the nutritional potential of the soil.
4. Methods to increase the efficiency of fertilizers.
5. Nutrient interaction in the root medium and the plant in relation to the nutrient status of plants.
6. The effect of environmental conditions on the nutrient requirements of plants.

More than in previous colloquia, emphasis was laid on soil-plant relationships. Next to papers reporting on progress made in the application of already established techniques, papers were presented in which new approaches to a better understanding of the processes taking place at the root-soil interphase, were outlined.

This broadening of the scope of the colloquium has led to the publication of two volumes of papers in which many soil scientists will find thought-provoking ideas. The discussions following the presentation of each paper, and the general discussions at the end of each session, are also recorded in the volumes and provide

the reader with an opportunity to take part in sometimes very interesting exchanges of thoughts.

The volumes can be recommended as interesting reading material to all soil scientists who take an interest in the relationships between soils and plants developing on soils.

A. van Diest
Agr. University
Wageningen

SANCHEZ, P. A., Editor. A review of soil research in tropical Latin America. Pp. 263. Soil Science Department, North Carolina State University at Raleigh, N.C., 1972.

The purpose of this publication is to compile the available literature on soil research in the American Tropics (Latin America and the Caribbean excluding Argentina, Chile and Uruguay) concentrating on research carried out on the main food and feed crops grown in the area.

It is mainly based on approximately 1000 abstracts on research published since 1960 by Biological Abstracts and supplemented by material from Tropical Abstracts, the Latin American Bibliography of Agriculture and the personal files of the six contributors.

In chapter I, S. W. Buol gives a very generalized picture of the soil regions, the major soil forming factors and the correlation of the soils in the USDA, and *Brazilian classification systems and the legend of the FAO/Unesco Soil Map of the World*.

In chapter 2, a ten page review on the soil physical properties, J. F. Lutz gives some general information on climate, evapotranspiration, infiltration rates, water-soil-plant relations, water conservation and soil erosion. In chapter 3, P. A. Sanchez treats the soil management under shifting cultivation, which type of cultivation in the predominant agricultural system in terms of total cultivated area in tropical America. The extensive research conducted in Africa is also relevant to Latin America. Contributions are given on the soil-forest nutrient cycles, the changes in soil properties and crop performances under shifting cultivation.

In chapters 4, 5, 7, 8, and 9, together forming the bulk of the report, reviews are given on respectively soil nitrogen (by W. V. Bartholomew), nitrogen fertilization (by P. A. Sanchez), soil potassium (by F. R. Fox), phosphorus (by E. J. Kamprath) and sulphur (by E. J. Kamprath).

Conclusively it may be stated that, although applied as well as basic research in these fields has been substantial, the amount and quality of information obtained is unbalanced both geographically and in terms of relative crop importance.

In the case of nitrogen it is said that beyond simple response curves, extensive information is available for crops such as corn, rice, potatoes and forages only in one or two countries per crop.

In chapter 6 E. J. Kamprath reviews the nature of soil acidity and crop response to lime in the light of modern concepts of soil acidity in which the importance of exchangeable aluminium is stressed.

In chapter 10 the information on the micronutrient status of soils and plants is reviewed by F. R. Fox. Although observations of deficiency symptoms have been made on many crops, the diversity of soil and climatic conditions and the lack of an adequate reporting system has kept the picture incomplete. Also, in correcting micronutrient deficiencies often mixtures of trace elements have been used, making it impossible to tell which of the nutrients was effective. However, certain data on Zn, B, Mo, Cu, Fe, and Mn are given, mostly from Brazil. All contributors point to the need for a considerable increase in applied and basic research on a great variety of urgent problems, many of which are mentioned specifically. The bibliographies following each chapter are very extensive indeed. Altogether an estimated 1000 references are given.

This very interesting and valuable report, of which a Spanish edition will be available soon, deserves a wide circle of readers not only in the countries dealt with.

J. H. V. van Baren
International Soil Museum

SOIL MAP OF ASIA

1 : 6,000,000

The Soil Map of Asia, published as a contribution to the FAO/Unesco Soil Map of the World, has been prepared by a large group of soil scientists from the USSR. Editors-in-Chief are Prof. V. A. Kovda and Dr. E. V. Lobova.

The map at a scale of 1 : 6,000,000 consists of 6 sheets of about 60 x 100 cm and covers the area of Asian USSR, China, the Indian subcontinent, Indonesia, Japan and smaller regions such as Thailand, Malaysia, Indo-China and the Philippines. The legend of the map is in Russian and English, the map itself in Russian only.

The legend is based upon the Russian soil classification: the basis is the genetic soil type, corresponding in general to a well-defined geographical zone. In the mountain regions 31 soils have been recognized. Soils in the plains are occurring in five belts: the polar belt (3 soils), the boreal belt (22), the subboreal belt (29), the sub-tropical and moderately warm belts (12) and the tropical and equatorial belts (13). Within each of the second, third and fourth belt, three facies types are based upon the degree of continentality, while in the last belt three subdivisions are made on account of the length of the dry season.

The map also shows the regions with hydromorphic soils (10 soils), saline soils (6) and soils changed by cultivation (3).

Of the above-mentioned 129 different soils, 5 soils are represented as overprints in symbols only, the other 124 occur in colours and, mostly in the plains, also as overprints in symbols.

As overprints in symbols are also given regions with soils on compact rocks, and the coral reefs, cuirasses, salt and gypsum crusts, rock outcrops, etc., which are mentioned under the heading "additional signs". Also belonging to these "signs" are the Andosols, sands and skeletal soils, which are represented in colour as well as by overprints in symbols.

On the map the sources of information are given briefly. Missing are the indications on the reliability of the map, the homogeneity of the mapping units, the use of colours and overprints.

It is hoped that an explanatory text will appear later. It may contain inter alia an introduction to the legend, comprising the criteria of the belts, facies and mapping units and a correlation table of the legend of the original soil maps and the Soil Map of Asia reviewed here.

Although the appearance of the Soil Map of Asia must be regarded as a major achievement and a welcome contribution to continental soil geography, it should be added that the legend of the map is not identical nor comparable to the one used for the FAO/Unesco Soil Map of the World.

The legend can only be correlated in some occasions. Also it seems that most of the information on the soils outside the USSR and China is at least a decade old and much new information on the repartition of soils has become available since. These critical remarks do certainly not outweigh the overall favourable attitude of the reviewer towards this new map.

The Editors-in-Chief and the Editorial Group consisting of many well-known soil scientists and geographers are to be congratulated on this major achievement.

J. H. V. van Baren
International Soil Museum

FAO/UNESCO SOIL MAP OF THE WORLD. Volume IV, South America. Map and text, US \$ 24,—.

As was already announced in Bulletin 38 the first two sheets of the Soil Map of the World, together with an explanatory text, have now been published. Reference is also made to Bulletin 33, page 48, on the presentation of the World Soil Map at the Adelaide congress in 1968.

It will be known to most readers that the joint FAO/Unesco project was started in 1961 following a recommendation of the 7th Congress in Madison.

This first of a series of ten volumes covers South America and consists of the soil map in two sheets at a scale of 1 to 5 million and the explanatory text of nearly 200 pages. As a basis for the map was used the topographical map of the American Geographical Society of New York, which has a bipolar oblique conformal projection.

The map shows a total of 469 mapping units of 387 different soil associations built up by combinations of 68 soil units, of which 57 occur as dominant soils. On the map itself are shown the dominant soils, all differently coloured, followed by a number (indicating the composition of the association), the textural class of the dominant soil (coarse, medium or fine), and an indication of the slope class of the soil association (level to undulating, rolling to hilly, or steeply dissected to mountainous). Clusters of closely related colours have been used for soils with similar characteristics and therefore major soil regions can be easily recognized. Besides the soil units six soil phases and three miscellaneous land units are distinguished. The legend of the map is printed in four languages (English, French, Spanish, and Russian).

The number following the dominant soil specifies the composition of the soil association and the associated soils and the inclusions are indicated on the back of the map. The composition is also given in the text, together with extension, climate, location, dominant vegetation and parent material. The text contains brief contributions on the environmental conditions in South America: climate, vegetation, physiography, and lithology, followed by an interesting discussion on the environment and major soils of the 27 broad soil regions recognized on the continent.

The agricultural angle is treated in an important chapter on land use and soil suitability of the different soil units. In the appendix data are presented on typical profiles representing several of the major soil units. It contains profile descriptions and analytical results of 33 profiles.

This first 1 to 5 million map and write-up on the soils of South America ought to be regarded as a milestone in the history of soil science in general and in soil geography in particular.

Both international organizations are to be complimented with the appearance of this first set of maps and the wish is expressed that the other continental maps and explanatory texts will be available for distribution soon. This is especially so for Volume I, which will treat the elements of the legend, and is in fact a prerequisite for a detailed study of publication reviewed here.

For most readers of this Bulletin it will be clear that the World Soil Map has a very important scientific and practical value, and it has in common with most other soil maps that its uses are numerous. It will, among others, prove to be a very helpful teaching aid, not only for soil scientists, but also for geographers, biologists, geologists, etc.

The price of this very well printed publication (map and text in covers US \$ 24,—, £ 7.20, F.Fr. 96,— or local equivalent, available from the national distributors of Unesco publications) seems not to be too high for institutes, universities and the like. Interested individual soil scientists may wish to start building up a unique collection of correlated continental soil maps.

J. H. V. van Baren
International Soil Museum

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