

bulletin

of the international society of soil science

bulletin

de l'association internationale de la science du sol

mitteilungen

der internationalen bodenkundlichen gesellschaft

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

CHANGES OF ADDRESS

The 11th Congress of the ISSS, held in Edmonton from 19 to 27 June 1978, elected Dr. J.S. Kanwar (India) and Dr. D.R. Bhumbla (India) respectively as President and Vice President of the ISSS for the period 1978/82. At the request of Dr. R. Dudal, the ISSS Council terminated his assignment as Secretary-General and appointed Dr. W.G. Sombroek (Netherlands) to this position. Dr. I. Szabolcs (Hungary) was confirmed as Deputy Secretary-General. Dr. D. Gabriels (Belgium) was appointed as the *Treasurer*. Please note, therefore, the following changes of address, effective immediately.

CHANGEMENTS D'ADRESSES

Le 11ème Congrès de l'AISS tenu à Edmonton, du 19 au 27 juin 1978, a élu le Dr. J.S. Kanwar (Inde) et le Dr. D.R. Bhumbla (Inde) respectivement comme Président et Vice-Président de l'AISS pour la période 1978/82. A la demande du Dr. R. Dudal, le Conseil l'a déchargé de ses fonctions de Secrétaire général et a nommé comme son successeur le Dr. W.G. Sombroek (Pays-Bas). Le Dr. I. Szabolcs (Hongrie) a été confirmé dans ses fonctions de Secrétaire général adjoint. La Trésorerie de l'AISS a été confiée au Dr. D. Gabriels (Belgique). Par conséquent, il y a lieu d'effectuer les changements d'adresses suivants, immédiatement applicables.

ANSCHRIFTENÄNDERUNGEN

Der 11. IBG-Kongress, Edmonton 19. bis 27. Juni 1978 hat Herrn Dr. J.S. Kanwar (Indien) als Präsident der IBG für die Periode 1978/82 ernannt, und Herr, Dr. D.R. Bhumbla (Indien) als Vizepräsident. Auf Wunsch von Herrn Dr. R. Dudal hat ihn der Beirat aus seinem Amt als Generalsekretär entlassen und hat Herrn Dr. W.G. Sombroek (Niederlande) als sein Nachfolger ernannt. Herr Dr. I. Szabolcs (Ungarn) wurde als Stellvertretender Generalsekretär bestätigt. Das IBG-Schatzamt wurde Herrn Dr. D. Gabriels (Belgien) anvertraut. Beachten Sie bitte die ab sofort gültigen Anschriftenänderungen.

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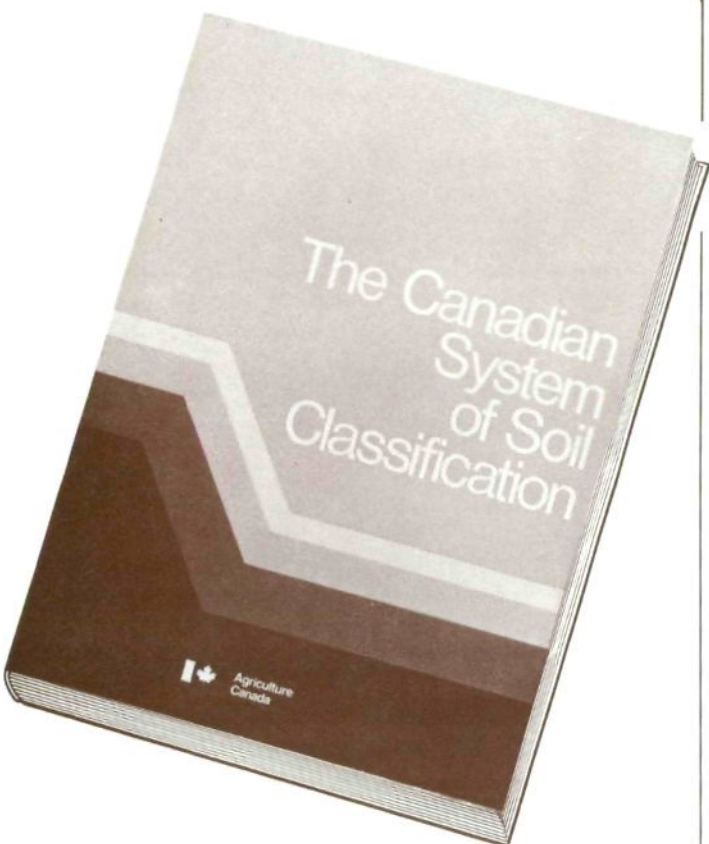
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Agriculture
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The Canadian System of Soil Classification

Canada Soil Survey Committee

Research Branch

Canada Department of Agriculture

Publication 1646 1978

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(continued overleaf)

chapters describe the family category, correlate the Canadian system with others, and outline the terminology used in describing soils. The recently developed system of landform classification for soil surveys is presented in the last chapter. The book contains 50 color photos and 17 line drawings, 17 chapters, and 164 pages.

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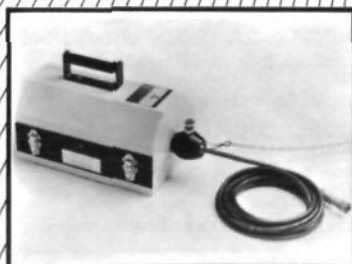
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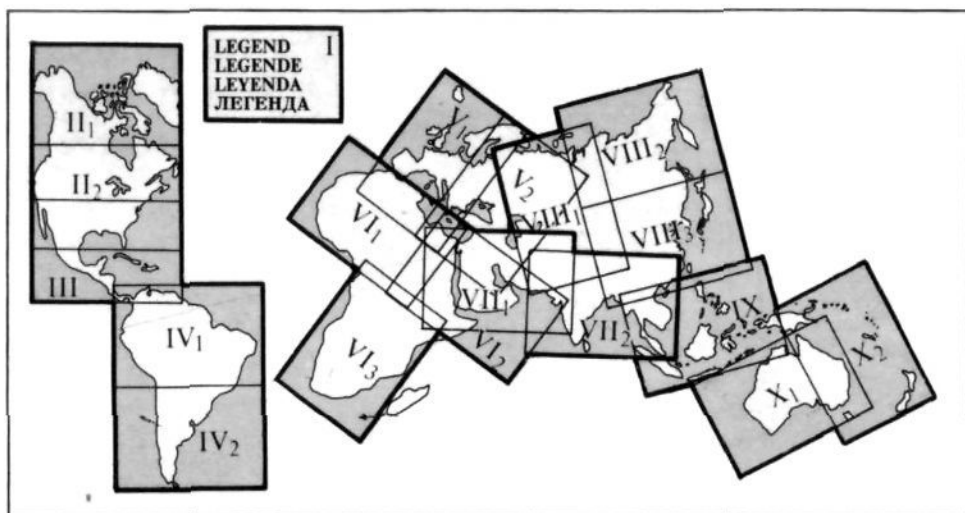
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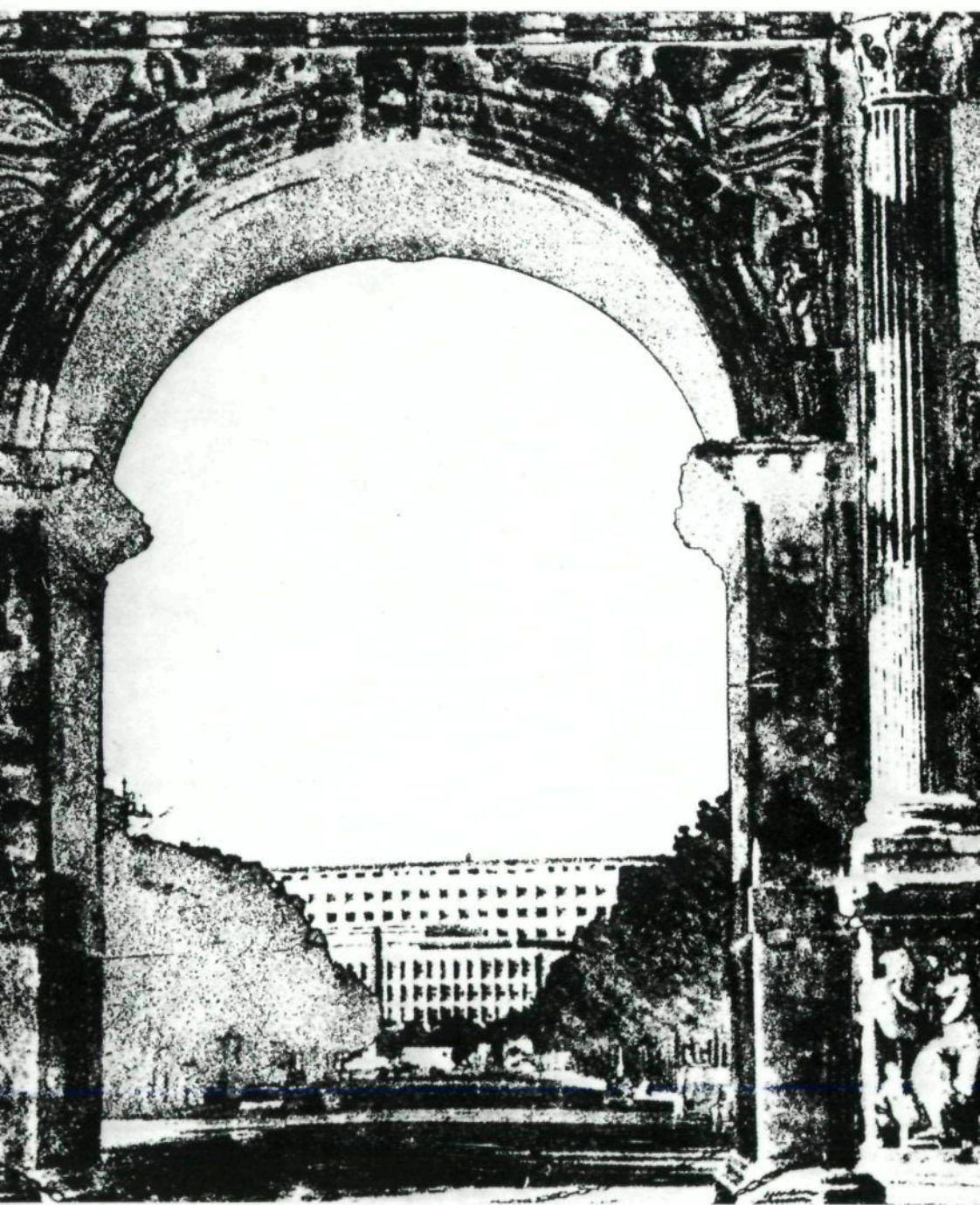
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A word of thanks from Rome

The 11th Congress of the International Society of Soil Science concluded the mandate of the officers who were elected at the 10th Congress in 1974. The report of the Society's activities over the past four years, presented to the Edmonton Congress, will be published in the next issue of the Bulletin.

At this stage I should like to express my sincere appreciation to all those who have contributed to servicing the ISSS secretariat in Rome. It appears that the Bulletin has fulfilled a useful role in establishing a link between soil scientists all over the world and in spreading information of general interest. Circulation has grown from 4 500 copies in 1974 to 6 000 at present. This would not have been possible without the generous and benevolent assistance of many colleagues and secretarial staff who have helped me with translation, typing and book reviews. They are too many to name individually and I should like, therefore, to thank them through the channels of this Bulletin. Special mention should be made, however, of Mrs. Choko Matsuo (Japan) and Mrs. Karin Sillanpää (Finland) who, while stationed in Rome with their husbands, took charge of the membership registration. Miss Ivana Calcagni (USA), Miss Anja Schmidt-Züringer (Fed. Republic of Germany) and Mrs. Luigina Frasca (Italy) served as secretaries in 1974/75, 1975/77 and 1977/78 respectively. Mr. Heinrich Engeler (Switzerland) carried out the typographical design and FAO's Office of Internal Audit and Inspection kindly accepted to audit the ISSS accounts. The Divisional Registry and the Despatch Unit carried out additional work for the handling of ISSS mail.

As out-going Secretary-General I should like to say how much I have enjoyed the relations which I had with the Officers of the Society and with many members of the ISSS and the National Societies of soil science. I thank them for their support and confidence, and I look forward to remaining in close contact with them.

R. Dudal

Un merci de Rome

Le 11ème Congrès de l'Association internationale de la science du sol a marqué la fin du mandat des membres du bureau élus durant le 10ème Congrès en 1974. Le rapport d'activité de l'Association pendant les quatre dernières années, présenté au Congrès d'Edmonton, sera publié dans le prochain Bulletin.

Cependant, j'aimerais dès maintenant exprimer mes sincères remerciements à tous ceux qui ont contribué au fonctionnement du Secrétariat AISS à Rome. Il semble que le Bulletin ait rempli un rôle utile en établissant un lien entre les spécialistes des sols dans le monde et en diffusant des informations d'intérêt général. La distribution du Bulletin a augmenté de 4 500 exemplaires en 1974 à 6 000 maintenant. Ceci n'aurait pas été possible sans l'assistance généreuse et bénévole de beaucoup de collègues et du personnel de secrétariat qui m'ont aidé dans la traduction, la dactylographie et la revue bibliographique. Ils sont trop nombreux pour les nommer individuellement, et je les remercie par l'intermédiaire de ce Bulletin. Je tiens cependant à citer spécialement Mme Choko Matsuo (Japon) et Mme Karin Sillanpää (Finlande) qui, durant leur séjour à Rome avec leur mari, se sont occupées de la tenue du fichier des membres. Mlle Ivana Calcagni (USA), Mlle Anja Schmidt-Züringer (République fédérale d'Allemagne) et Mme Luigina Frasca (Italie) qui ont été les secrétaires du siège de l'AISS respectivement en 1974/75, 1975/77 et 1977/78. M. Heinrich Engeler (Suisse) s'est chargé de la composition typographique. Le Bureau de vérification intérieure des comptes et d'inspection de la FAO a complaisamment accepté de vérifier les comptes de l'AISS. La Section de l'enregistrement et le Bureau d'expédition ont fourni un travail supplémentaire pour la manipulation du courrier.

En tant que Secrétaire général sortant, je voudrais dire combien j'ai apprécié les bonnes relations entretenues avec les membres du bureau de l'Association et avec beaucoup de membres de l'AISS et les associations nationales. Je tiens à les remercier de leur appui et de leur confiance et souhaiterais vivement rester en contact avec eux.

R. Dudal

Ein Danke schön aus Rom

Das Mandat des beim 10. Kongress 1974 gewählten Vorstandes endete mit dem 11. Kongress der Internationalen Bodenkundlichen Gesellschaft. Der Bericht über die Tätigkeit der Gesellschaft erscheint in der nächsten Ausgabe der IBG-Mitteilungen.

Schon jetzt möchte ich jedoch all denjenigen meinen aufrichtigen Dank aussprechen, die zum Funktionieren des IBG-Sekretariats in Rom beigetragen haben. Die Mitteilungen der IBG haben, wie es scheint, eine nützliche Aufgabe erfüllt; durch sie sind Bodenkundler in verschiedenen Ländern mit einander in Kontakt gebracht und Information von allgemeinem Interesse verbreitet worden. Seit 1974 ist die Auflage von 4500 auf 6000 Exemplare gestiegen. Ohne das grosszügige und bereitwillige Mitwirken vieler Kollegen und Sekretärinnen, die mir mit Übersetzungen, Tippen und Buchrezensionen behilflich waren, wäre dies gar nicht zu schaffen gewesen. Sie alle einzeln zu erwähnen ist leider nicht möglich, und so möchte ich ihnen durch diese Zeilen sehr herzlich danken. Mein besonderer Dank gilt jedoch Frau Choko Matsuo (Japan) und Frau Karin Sillanpää (Finland), die während ihres Aufenthaltes in Rom für die Eintragungen ins Mitgliederverzeichnis sorgten. Frl. Ivana Calcagni (USA), Frl. Anja Schmidt-Züringer (BRD) und Frau Luigina Frasca (Italien) übernahmen die sekretariellen Arbeiten für 1975/75, 1975/77, bzw. 1977/78. Herr Heinrich Engeler (Schweiz) war mit typographischen Entwurf behilflich, und das interne Rechenschaftsprüfungsamt der FAO stellte sich bereit, die Bücher der IBG zu prüfen. Die Registratur der Division sowie die Postabteilung leisteten wikommene Hilfe bei der Weiterbeförderung von IBG-Korrespondenz.

Als scheidender Generalsekretär möchte ich noch hinzufügen, dass mir die Zusammenarbeit mit dem Vorstand der IBG wie auch mit vielen Mitgliedern und nationalen bodenkundlichen Gesellschaften sehr viel Freude gemacht hat. Ihnen allen danke ich recht herzlich für ihre Unterstützung und ihr Vertrauen, und ich hoffe, auch weiterhin den engen Kontakt mit ihnen bewahren zu können.

R. Dudal

NEW MEMBERSHIP LIST

For reasons of economy, the new ISSS membership list has been printed and mailed with the present Bulletin. With the very limited resources of the Secretariat, it has not been possible to subject this list to thorough editing. It is likely that a number of names, addresses or titles are not correctly spelled, or are not complete. Apologies are offered for these shortcomings. It is suggested that any adjustments that are required be shown on the correction sheet included in this Bulletin, and returned to the Secretary General. An addendum and corrigendum will then be distributed at a later date. It should be noted that the list has been closed at the end of 1977. New members who have registered since then are not included in the list but will be shown in the Addendum.

NOUVELLE LISTE DE MEMBRES

Pour des raisons d'économie, la nouvelle liste des membres de l'AISS a été imprimée et expédiée en même temps que le présent Bulletin. Etant donné les ressources très limitées du secrétariat, il n'a pas été possible de soumettre cette liste à une correction minutieuse. Il est probable qu'un certain nombre de noms, d'adresses ou de titres ne sont pas exactement libellés ou ne sont pas complets. Nous nous excusons de ces imperfections. Nous suggérons que les corrections requises soient notées sur le formulaire inclus dans ce Bulletin et renvoyé au Secrétaire général. Un addendum et un corrigendum seront alors distribués à une date ultérieure. Il faut noter que la liste a été arrêtée à la fin de 1977. Les nouveaux membres, inscrits depuis cette date, ne sont donc pas inclus dans cette liste mais le seront dans l'addendum.

NEUES MITGLIEDERVERZEICHNIS

Aus ökonomischen Gründen wurde das neue Mitgliederverzeichnis der IBG zusammen mit dieser Ausgabe der Mitteilungen gedruckt und ausgeschiedt. Da das Sekretariat nur über geringe Mittel verfügt, war eine gründliche Korrektur des Verzeichnisses nicht möglich. Es gibt daher wahrscheinlich verschiedene Namen, Anschriften oder Titel, die fehlerhaft oder unvollständig gedruckt worden sind. Diese Unzulänglichkeiten bedauern wir sehr. Wir bitten, eventuelle Berichtigungen auf dem in diesen Mitteilungen beigelegten Formular einzutragen und dem Generalsekretär zuzuschicken. Ein Zusatzblatt und ein Corrigendum werden dann später verteilt. Es ist zu beachten, dass das Mitgliederverzeichnis Ende 1977 abgeschlossen wurde. Neue Mitglieder, die nachträglich der IBG beitraten, sind daher nicht angeführt, sondern werden im Zusatzblatt erscheinen.

SOIL MAP OF THE WORLD AT SCALE 1:5 000 000 COMPLETED

The Soil Map of the World prepared by FAO and Unesco, in cooperation with the International Society of Soil Science, is now complete. Our Society has played an important role throughout the implementation of this project.

It was at the 6th ISSS Congress at Paris in 1956 that the idea of a soil map of the world was conceived. The first regional compilations were presented at the 7th Congress at Madison, Wisconsin, U.S.A. in 1960, and the Congress recommended that they be published and further correlated. As a result, the FAO, Unesco and the ISSS embarked in 1961 on the preparation of the Soil Map of the World at scale 1:5,000,000. A first draft was prepared for the 8th ISSS Congress at Bucharest in 1964 and a general agreement on the legend was reached at the 9th Congress at Adelaide, Australia in 1968. The first sheets and the published international legend were presented at the 10th Congress at Moscow in 1974. The complete set of nineteen map sheets was exhibited and presented to the 11th Congress of the ISSS at Edmonton in 1978.

This publication is unique in the sense that it is the result of a broad international cooperation and that the maps are based on actual field observations wherever survey material was available. It is hoped that its legend will serve as a common denominator between soil scientists all over the world and will promote exchange of information and experience. As a next step it could favour international cooperation for the establishment of a generally agreed system of soil classification. In no way is this map to be considered as an end product. It should be updated and continuously improved with new information so as to remain a basic tool for soil science and for development purposes.

CARTE MONDIALE DES SOLS À L'ECHELLE DU 1/5 000 000 TERMINEE

La carte mondiale des sols préparée par la FAO et l'Unesco, en coopération avec l'Association internationale de la science du sol, est maintenant terminée. Notre Association a joué un rôle important dans la réalisation de ce projet.

Ce fut au 6ème Congrès AISS de Paris en 1956, que l'idée d'une carte des sols du monde fut conçue. Les premières compilations régionales ont été présentées au 7ème Congrès, à Madison, Wisconsin, USA, en 1960 et le Congrès recommanda qu'elles soient publiées et ultérieurement corrélées entre elles. En conséquence, la FAO, l'Unesco et l'AISS se sont engagés, en 1961, dans la préparation d'une carte mondiale des sols à l'échelle du 1/5 000 000. Une première maquette a été préparée pour le 8ème Congrès de l'AISS à Bucarest en 1964, et un accord général sur la légende a été obtenu au 9ème Congrès à Adelaïde, Australie, en 1968. Les premières feuilles et la légende internationale furent présentées au 10ème Congrès, à Moscou, en 1974. La série complète de 19 feuilles a été présentée au 11ème Congrès de l'AISS à Edmonton, en 1978.

Cette publication est l'oeuvre d'une large coopération internationale et les cartes sont basées sur des observations de terrain partout où les résultats de prospection étaient disponibles. On espère que cette légende servira de dénominateur commun entre les pédologues partout dans le monde et facilitera l'échange d'informations et d'expériences. Dans une prochaine étape, elle devrait favoriser un mouvement international en vue de l'établissement d'un système de classification des sols agréé par tous. En aucune manière cette carte doit être considérée comme une fin en soi. Elle devrait être mise à jour et continuellement améliorée avec de nouvelles informations, de manière à rester un outil de base pour la science du sol et sa mise en valeur.

WELTBODENKARTE IM MASSTAB 1:5 000 000 FERTIGGESTELLT

Die von der FAO und Unesco in Zusammenarbeit mit der IBG vorbereiteten Weltbodenkarte ist jetzt fertiggestellt. Bei der Durchführung dieses Projektes hat unsere Gesellschaft massgebend mitgewirkt.

Die Idee, eine Weltbodenkarte zusammenzustellen, wurde erstmals beim 6. Kongress der IBG 1956 in Paris erörtert. Aus verschiedenen Gebieten gesammeltes Datenmaterial konnte schon dem 7. Kongress in Madison, Wisconsin, USA 1960 vorgelegt werden, und der Kongress empfahl die Veröffentlichung und weitere Ausarbeitung dieses Materials. Daraufhin wurde 1961 die Arbeit an einer Weltbodenkarte im Masstab 1:5 000 000 von der FAO, der Unesco, und der IBG in Angriff genommen. Der erste Entwurf wurde zum 8. Kongress in Bukarest 1964 fertiggestellt, und beim 9. Kongress in Adelaide, Australien 1968 wurde allgemeine Übereinstimmung hinsichtlich der Legende erreicht. Die ersten Blättern wurden zusammen mit der internationalen Legende dem 10. Kongress in Moskau 1974 vorgelegt. Der vollständige Satz von neunzehn Kartenblättern wurde 1978 dem 11. Kongress der IBG in Edmonton vorgelegt.

Diese Veröffentlichung ist insofern einzigartig, indem sie das Ergebnis breiter internationaler Zusammenarbeit darstellt, und indem die Karten wo immer möglich auf tatsächlichen bodenkundlichen Beobachtungen beruhen. Wir hoffen, dass die internationale Legende dem erweiterten Austausch von Information und Erfahrungen dienen wird. Weiter könnte sie die internationale Zusammenarbeit zur Aufstellung eines allgemein anerkannten Systems der Bodenklassifizierung fördern. Diese Karte soll keineswegs als endgültiges Ergebnis betrachtet werden. Sie muss laufend auf den neuesten Stand gebracht und anhand neuer Daten verbessert werden, damit sie ein verlässliches Werkzeug der Bodenkunde und der Landwirtschaftlichen Entwicklung bleiben mag.

**NEWS FROM NATIONAL SOCIETIES
NOUVELLES DES ASSOCIATIONS NATIONALES
BERICHTE DER NATIONALEN GESELLSCHAFTEN**

Venezuelan Society of Soil Science

In a meeting held in November 1977, the Venezuelan Society of Soil Science elected the following board:

President:	Dr. Ildefonso Pla Sentís
Vice-President:	Ing. Agr. Emilio Hidalgo
Secretary:	Ing. Agr. Ramón Paredes
Treasurer:	Ing. Agr. Fernando Granados
Member:	Ing. Agr. Oswaldo Luque
Address:	Apartado 1208-Sta. Rosa. Maracay. Venezuela.

The Vth Congress of the Venezuelan Society of Soil Science will be held in the city of Barquisimeto, November 5-10, 1978. Further information may be obtained from:

Ing. Agro Jesús Pérez Pérez

Vth Congress of the Venezuelan Society
of Soil Science. MARNR — Zona 3., Av. Morán N. 18-75.
Barquisimeto (Edo. Lara). Venezuela

Sociedad Ecuatoriana de la Ciencia del Suelo

La Sociedad Ecuatoriana de la Ciencia del Suelo vient d'être réorganisée. Elle compte une cinquantaine de membres dont plusieurs ont manifesté leur désir d'appartenir à l'Association Internationale de la Science du Sol. Ing. Jorge Flor en est le Président et Dr. Fausto Maldonado, est le Secrétaire général. L'AISS souhaite la bienvenue à cette jeune Société et lui souhaite une activité fructueuse.

L'adresse de la Sociedad Ecuatoriana de la Ciencia del Suelo est c/o PREDESUR, Cale González Suárez 318, Apartado 305, Quito, Ecuador.

Prof. Dr. Mihovil Gračanin - Half a century of I.S.S.S. membership (1928-1978)

This year Prof. Dr. M. Gračanin is completing 50-years of membership in the International Society of Soil Science. Prof. Gračanin particularly contributed to the Society in the early stages of its existence and more specifically by promoting within the Society the ideas of genetic soil science. He served as Chairman of the Yugoslav Section of I.S.S.S. (1931-1940). Vice-Chairman of the Soil physics Commission (1935-1950), Chairman of the Society's Soil Structure Sub-committee (1935-1950), and Vice-Chairman of IV Commission (1950). He participated in the I.S.S.S. Congresses in Moscow (1930), Oxford (1935); Amsterdam (1950) and Conferences on soil physics in Prague (1929) and Vienna (1937) and soil fertility in Königsberg (1929).

Prof. Gračanin was born on 11 may 1901 in Skelani on Drina, in Yugoslavia. He completed his graduate and post-graduate studies at Karl's University in Prague. His main scientific and educational activities are related to his work as professor and head of Soil Science Institute and head



of Plant Nutrition Laboratory of the University of Zagreb (1929-1952) and as professor of Plant Physiology and Ecology at the University of Skopje (1955-1965). His research was oriented towards careful assessment of soil morphological, physical, chemical, biological and geographical features and processes with objectives to provide the background for the efficient soil management and land use as sound bases for general soil classification and typology. At the same time, his research in the field of plant physiology and ecology was an outstanding contribution for elucidating complex soil-plant environment relationships.

Prof. Gračanin has written more than 135 publications in croatian and world languages. His students and colleagues will particularly remember his «Pedology» (Vol. I, 1946; Vol. II, 1957; and Vol. III, 1952) in which he masterly describes soil genesis, physiography and systematics, drawing essentially on his own research, and elucidating with an exquisite clearness elemental and typical pedogenetic processes. His «Small Practicum of Pedology» (1945) and his extensive contribution to the «Manual for Typological Investigations and Mapping of Vegetation» (1950) are still excellent guidance in soil research methods. In the field of practical application of soil science to agriculture and forestry he published manuals on «Soil Liming» (1947), «Phosphatisation on Soils» (1952), and «General Principles of Soil Fertilisation» (1970). Last year, in collaboration with Prof. L. Ilijanić, he published the textbook «Introduction to the Plant Ecology».

For his work Prof. Gračanin was awarded several yugoslav awards and at the time of his retirement from Skopje University, the President of SFRJ Yugoslavia awarded him the order of «Brotherhood and Unity» with golden wreath, for «outstanding merits acquired through many years of work in the field of science, culture and education».

The present golden jubilee of Prof. Gračanin's membership in the I.S.S.S. provides an example of life-long perseverance in the search of scientific truth and dedication to human well-being.

Dr. Pavao Kovacević,
Zagreb, Yugoslavia

Soil Science Society of Egypt

The new board of the Soil Science Society of Egypt is composed as follows:

President:	Dr. H.M. Hamdi, Prof. of Soil Science University of Ain Shams
Vice President:	Dr. Baliegh Zikry, Vice Director of Soil and Water Resources Institute, Ministry of Agriculture
Secretary General:	Dr. Nabil E. Mowelhi, Senior Researcher, Soil and Water Resources Institute, Ministry of Agriculture
Board Members:	Dr. A. Fathi, Prof. Soil Science University of Cairo, Giza Eng. A. Abu Hussein, Undersecretary, Organization of Soil Improvement, Ministry of Agriculture Dr. I. Zein el Abedine, Ass. Prof., Faculty of Agriculture, University of Cairo.

For the forthcoming period, the Society is planning to organize the following activities:
1. Symposium on Maximizing Soil Productivity (1978); 2. Working Group on the Soil Map of Egypt (1980); 3. Symposium on Improving Sandy Soils (1981) with a field tour to Ismailia; 4. Working Group on Soil Salinity and Alkalinity Problems (1982) with a field tour to the northern part of the Nile Delta.

5th Delegates' Congress of the All-Union Society of Soil Scientists

The 5th Delegates' Congress of the All-Union Society of Soil Scientists took place in Minsk (Byelorussia) from 11 to 16 July 1977. It was attended by more than 1300 participants representing all the branches of the National Society of soil scientists as well as National societies of the following countries: Bulgaria, Hungary, German Democratic Republic, Cuba, Poland, Rumania, CSSR and Yugoslavia.

The Pre-Congress excursion during 4 days had Byelorussia as a study area. The excellent guidebook deserved the compliments of all the participants because of its completeness and made it possible to conduct a very useful discussion on soils of Byelorussia and their utilization. 820 participants took part at this excursion in two tours.

The Congress was opened by Prof. V.A. Kovda, President of the All-Union Society of Soil Scientists. At the Opening Session 4 papers were presented:

- The main tasks of soil science and agrochemistry in the intensification of agriculture, by A.A. Golzov, Deputy Minister of the Agriculture of the USSR;
- Land resources of the USSR and their using and improving, by Prof. V.A. Kovda;
- The main tasks of the agriculture and science in the Byelorussian SSR for the Xth five-year plan, by V.A. Kozlov, Minister of Agriculture of the Byelorussian SSR;
- Conception of elementary soil processes-modern scientific base of understanding of soil genesis and the soil properties regulation, by academician I.P. Gerasimov.

The Congress held 3 Symposia:

1. Soils of the Non-Chernozemic zone and their rational utilization.
2. Soils of arid regions and their rational utilization.
3. Modelling in soil investigations.

The first Symposium discussed 14 papers, including the main paper by academicians T.N. Kulakovskaya and S.S. Skoroparov «Modern Problems of Soil Fertility in the Non-Chernozemic Zone». At the second Symposium 13 papers were presented, among them the paper by Prof. V.V. Egorov and Dr. N. G. Minashina «Arid Soils and their Rational Utilization». The third Symposium was opened by the paper, presented by several authors: Dr. P.V. Galitzky, Dr. E.A. Dmitriev, Dr. L.O. Karpachevsky, Prof. I.S. Kaurichev, Dr. V.A. Rozhkov «Modelling in Soil Science». At the Symposium 18 papers were presented.

The following Commissions of the Society met in sessions:

- I Commission (Soil Physics) with 57 papers,
- II Commission (Soil Chemistry) with 46 papers,
- III Commission (Soil Biology) with 45 papers,
- IV Commission (Soil Agrochemistry and Fertility) with 80 papers
- V Commission (Soil Genesis, Geography and Classification) with 118 papers,
- Sub-Commission on forest soil science with 35 papers,
- Sub-Commission on soil evaluation with 30 papers,
- Sub-Commission on soil micromorphology with 14 papers,
- Sub-Commission on mathematical methods in soil science with 26 papers,
- VI Commission (Soil Melioration) with 64 papers,
- Sub-Commission on melioration of water-logging soils with 38 papers,
- Sub-Commission on soil erosion control with 50 papers,
- VII Commission (Soil Mineralogy) with 17 papers,
- Commission on problems and methods in teaching of soil science and agrochemistry — with 10 papers.

Commission on dictionaries presented to all the participants the program of a new «Explanatory Dictionary on Soil Science».

The abstracts of all the papers, presented at Symposia and Commission sessions were published in Proceedings in 8 volumes before the Congress.

A report on the activity of the Central Council of the Society as well as the Revision Commission was presented to the attention of all the participants. The changes in the Rules of the All-Union Society of Soil Scientists were considered. A new Central Council was elected:

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| President: | Prof. V.A. Kovda |
| Vice-Presidents: | Prof. V.V. Egorov, Prof. V.M. Fridland, Prof. S.V. Zonn. |

At the Congress many Honorary Members were elected, including Honorary Members from other countries:

Prof. J.A. Prescott, Australia
Prof. E. Mückenhausen, Federal Republic of Germany
Prof. Ph. Duchaufour, France
Prof. G. Aubert, France
Prof. I. Szabolcs, Hungary
Prof. Gr. Obrejanu, Rumania
Prof. M. Ciric, Yugoslavia
Prof. R. Shaly CSSR.

In closing the Congress passed the resolution, in which the achievements of Soviet soil scientists were reviewed in the period between the congresses as well as the new scientific program was established for the nearest future. The Congress expressed thanks to the Byelorussian Branch of the Society and the Byelorussian Institute for soil science and agrochemistry for their great help in organizing of this Congress.

Hungarian Society of Soil Science

The Hungarian Soil Science Society held its annual Meeting at the Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, Budapest, on 21 February, 1978, the «Map of Factors Limiting Soil Fertility in Hungary» was demonstrated and a report was delivered on the activity of the Society for 1974-1977.

The Society elected the following Board for the next term:

President:	Prof. I. Szabolcs
Vice-Presidents:	Prof. I. Láng, Prof. I. Stefanovits, I-Vas
Secretary:	F. Jassó
Address for correspondence:	Prof. I. Szabolcs, Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, H-1022. Budapest, II., Herman O. 15. Hungary.

Soil Science Society of America Meeting

Based on the theme «Agronomy in Today's Society,» the joint annual meetings of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America were held in Los Angeles, California, from 13-18 November 1977.

The meetings were attended by 3,500 members and guests. They had the opportunity to select from more than 1,130 papers presented in paper sessions and symposia.

An ASA special session on Tuesday afternoon included papers on «Agronomy in a Global Age» by Dr. Roger L. Mitchell, vice president for agriculture at Kansas State University; «Agronomists and the Food Chain,» by Dr. J.B. Peterson, associate director of the *Laboratory for Application of Remote Sensing at Purdue University*; and «Morality of Agronomy,» by Dr. B. E. Day, professor of plant physiology at the University of California-Berkeley. This session was arranged and presided over by Dr. Johnny W. Pendleton, ASA President-Elect.

Several symposia were held during the week, including «Physiological Aspects of Grain Yield in Maize»; «Tissue Cell Culture Methods in Crop Improvement»; «New Techniques in Soil Mineralogical Investigations»; «Biological Nitrogen Fixation in Crop Plants»; «Spatial Variability of Soil Properties»; «Fertility Management in Tillage Systems»; «Fertilizing Irrigated Crops»; «The Universal Soil Loss Equation: Past Present, and Future»; «Diversity of Soils in the Tropics».

Several awards were presented at the annual SSSA luncheon on 15 November. Dr. Edwin L. Schmidt, University of Minnesota, received the Soil Science Award for his research in the field of soil microbiology where he has concentrated on nitrification, nitrogen fixation, and microbial ecology. Dr. Paul G. Saffigna, who is studying nitrogen cycling in soils at the

Queensland Wheat Research Institute in Toowoomba, Australia, was named winner of the 1977 Emil Truog Award in Soil Science. This award is given annually to a recent Ph. D. recipient who has made an outstanding contribution to soil science in his thesis. Dr. Saffigna was honored for his work at the University of Wisconsin on irrigation and nitrogen leaching losses in sandy soils.

The luncheon held during the 41st annual meeting of SSSA was also the occasion for the introduction of 12 new Fellows of the Society. In addition to the Fellows introduction, Honorary Membership was bestowed upon Dr. Frank L. Duley, a retired scientist from the USDA-ARS. Dr. Duley was honored for his many years of dedication and outstanding service to the Society. At the conclusion of the luncheon, Victor J. Kilmer, TVA, passed the presidential gavel to Dr. Parker F. Pratt, University of California-Riverside. Dr. Leo Walsh, University of Wisconsin-Madison, was introduced as the new Vice President of SSSA.

Österreichische Bodenkundliche Gesellschaft 1977/78

Die Österreichische Bodenkundliche Gesellschaft wickelt Ihre Tätigkeit im Rahmen von Vortragsnachmittagen und Exkursionen ab. Ein besonderes Anliegen stellen derzeit die hydromorphen Böden und ihre Meliorationsmöglichkeiten dar. Diesem Problemkreis war die Exkursion 1977 in die Aulandschaft der Donau östlich Linz, dem «Machland», gewidmet. Das Thema lautete: Landschaftsformung und Böden im Machland, Beeinflussung durch den Kraftwerksbau. Auch die Vortragsreihe im Dezember 1977 galt diesem Fragenkreis. An der Exkursion und den Vorträgen haben 60 Mitglieder teilgenommen.

Die Exkursion im Oktober 1978 in die Tallandschaften des südöstlichen Alpenvorlandes gilt dem Problemen der trockengelegten, schweren Gleyböden und der Möglichkeit ihrer chemischen und physikalischen Melioration, aber auch der Frage der Eignung dieser Böden für die Mais-Intensivkultur.

Während der Generalversammlung 1978, brachte die Wahl der Geschäftsführung für 1978 folgendes Ergebnis:

Präsident:	W. Hofrat Dipl. Ing. Fritz Ornig, Finanz-Landesdirektion Graz
Vizepräsident:	Doz. Dipl. Ing. Dr. Franz Solar
Schriftführer:	Dr. Maxx Eisenhut, Landw.-chem. Bundesversuchsanstalt Wien Bodenkartierung (Aussenstelle Graz)
Kassier:	W. Hofrat Dr. Franz Stelzer, Landw.-chem. Bundesversuchsanstalt Wien Bodenkartierung

Anschrift der Österreichischen Bodenkundlichen Gesellschaft: Gregor Mendel-Strasse 33, Wien XVIII, Österreich.

Society of the Science of Soil and Manure, Japan

On the occasion of its 50th anniversary, the Society of the Science of Soil and Manure, Japan, organized an International Seminar of the ISSS Commission IV on Soil Environment and Fertility Management in Intensive Agriculture (SEFMIA), from 10 to 14 October 1977, in Tokyo.

More than 300 scientists, including 80 scientists from abroad attended this meeting. On the first day, a special symposium «Soil, Fertility and Function in the Environment» was held, and the following six guest speakers gave lectures: Dr. Brady (IRRI, Philippines); Dr. Pons (Netherlands); Dr. Gardner (USA); Dr. Cooke (UK); Dr. Flaig (F.R.G.); Dr. Dudal (FAO, Rome).

The proceedings of this Seminar can be obtained at the price of US \$60. (including postage by registered surface mail) from: Secretary-General, The Society of Science of Soil and Manure, Japan, Room No. 202, Hongo 6-26-10, Bunkyo-ku, Tokyo 113, Japan.

The memorial ceremony celebrating the 50th anniversary was held on 7 April, 1978, in Tokyo. More than 700 members of the Society gathered at this ceremony.

The newly elected Board of the Society is as follows:

President: Dr. Kyoichi Kumada (Professor of Soil Science, Nagoya University); Vice Presidents: Dr. Kei Akatsuka (Head, 1st Division of Soil, National Institute of Agricultural Sciences) and Dr. Noataka Saga (Consultant, Japan Metals and Chemicals Co. Ltd).

The address of the new office of the Society is: Room No. 202, Hongo 6-26-10, Bunkyo-ku, Tokyo 113, Japan.

Sociedad Chilena de la Ciencia del Suelo

A new Society of Soil Science has been created in Chile. The President is Professor Domingo Suárez and Professor Walter Luzio is the Secretary-General.

As a first activity the new Society is organizing the 2nd National Symposium on Soil Science of Chile, which will be held at the Faculty of Agronomy, University of Chile, from 17 to 20 October 1978. While the symposium will be devoted essentially to soil studies carried out in Chile, papers from other countries will be very welcome.

The ISSS wishes the new Society all the best for the success of its activities.

The address of the new Society is: Chilean Society of Soil Science, Universidad de Chile, Casilla 1004, Santiago, Chile.

1977 Conference of British Society of Soil Science

The annual field meeting of the British Society of Soil Science was held at Writtle Agricultural College, Chelmsford, Essex, from 12 to 16 September 1977. The theme of the meeting was «Pressure on Land as a Resource» and the object was to identify and examine the main soil problems and offer solutions where possible.

Symposia on Pedology, Pollution, Water, Land Reclamation, Soil Conditions and Soil Management were held at the beginning of the meeting. They were followed by excursions featuring reservoirs and irrigation schemes, nutrient cycling in salt marshes, paleosols, woodland soils, land dereliction and reclamation, arterial drainage and land use, management of high grade soils, and visits to research stations for water, herbicide and pesticide research. The meeting concluded with a major symposium at which a planner, a conservationist and a farmer presented papers which appeared to suggest competing interests. However, in the general discussion that followed areas of mutual interest were revealed with the possibility of rational resolution of conflicting problems.

Other features of the meeting included an exercise in information retrieval using the Lockheed DIALOG system, various exhibitions by research, education and advisory bodies and the presentation of scientific posters, a new form of communication of scientific research.

Nouvelle Association de la Science du Sol en Tunisie

L'Assemblée constitutive de l'Association Tunisienne de la Science du Sol a eu lieu le 15 avril 1978. Le Comité Directeur provisoire de cette association est composé comme suit:

Président:	Mohsen Hamza
Vice Président:	Tahar Gallali
Secrétaire Général:	Ali Hamza
Secrétaire Général Adjoint:	Ali M'Hiri
Trésorier:	Abderrahmane Mami

Cette association représente les pédologues tunisiens en remplacement de l'Association Tunisienne des Sciences de la Terre. Adresse du Secrétariat: Division des Sols, Avenue de la République, Tunis Port, Tunisie.

L'AISS souhaite la bienvenue à l'association tunisienne et lui présente ses meilleurs vœux de succès dans ses activités futures.

B.E. Butler, Honorary Life Member of the Australian Society of Soil Science



Bruce Butler's long career with the Division of Soils began in 1937 and ended with his semi-retirement in 1976, with a break during the war years when he served with the R.A.A.F. Since retirement he has been active in contributing to various symposia and books, including the forthcoming Jubilee Book of the Division. In all, he has published, or has in preparation, some 35 papers ranging from the standard soil survey of the early days of the Division, published as Bulletins of CSIR, to some of the most important Australian contributions to the principles of soil distribution in relation to landscapes. These latter include a number of papers that are landmarks in pedological thinking, such as his theory of prior streams and recognition of parana, his concept of periodic phenomena in landscapes, and his development of the concept of ground surfaces. He was also the first to recognize subplasticity in soil materials of the Riverine Plain.

Altogether, Bruce can be proud of these contributions that have formed the basis for so much of the more recent field studies in Australia. To quote J.K. Taylor, Chief of the Division for so many years of Bruce's career: «Butler's papers had an impressive impact on Australian pedologists and his principles have been nicely applied by others. . .».

Bruce's contribution to ASSS has been no less impressive. He was active in the formation of the society, and, in 1956, was the first president of the A.C.T. Branch, and a foundation member. From 1960 to 1962 he was vice-president of the society, and president from 1962 to 1964; his presidential address, «Can Pedology be Rationalized», was published by the society. In 1968, he was a member of the organizing committee of the ninth congress of ISSS held in Adelaide. During his career, he has acted as convenor of the Soil Classification Committee which reported on the Seventh Approximation and Northcote's proposal, convenor of the Stratigraphic Nomenclature Committee, member of a sub-committee on conferences, and, until his retirement, keeper of the society's repository.

Bruce can be well satisfied with his achievements in pedological research, and his contributions to the society, which are now recognized by his election to life membership.

A.S.S.S.

**ACTIVITIES OF THE ISSS COMMISSIONS
ACTIVITES DES COMMISSIONS AISS
TÄTIGKEIT DER IBG KOMMISSIONEN**

Symposium on «The influence of physical properties of soil environment on plant production», Lublin, Poland, 11-14 October, 1977.

Understanding the effects of the physical properties of soil environment on plant production has been, and still is, one of the fundamental objectives of soil scientists and physicists working with soils. The participants of the Symposium, besides investigating those natural physical properties of soil that so far are little, or not at all known paid special interest to the influence of the activities of man on plants, reflected by the physical changes of soil caused by cultivation, the use of agricultural chemicals, and the harmful effects of human activity.

It seems that such changes in the physical properties of soil have not been sufficiently examined experimentally, nor described whereas the influence of these changes is at present very considerable, and rapidly increases. The development of agricultural technology all over the world cause both favourable and unfavourable changes in crop yield.

The obvious need to expand investigations of the effect of the physical properties and factors of the soil environment on plants makes precise formulation of the scope of future investigations desirable. The papers presented and the discussion conducted during the Symposium provided an orientation of future research requirements:

1) Theoretical investigations aiming, through understanding physical processes, at the creation of system simulation models in the soil - plant - atmosphere continuum.

2) Considering the difficulties involved in theoretical investigations, resulting from the immense complexity of media included in the models, requiring in the initial stage the introduction of far reaching and often arbitrarily chosen simplifications, experimental investigations, carried out in laboratory, and first of all in field conditions on a scale enabling the application of results in agricultural production, should be simultaneously expanded.

3) Adequate attention should be paid to the investigations of methods and of equipment necessary for their realization. This will enable comparable measurements of the characteristics of soil material, both of undisturbed structure and of structure changed by the influence of the environment and of man, to be obtained.

4) Emphasis should be given to investigations to optimize those physical properties of soil environment that are significant for plant production. At the present stage of the development of science the creation of models for different crop species, and even for their particular development stages, is necessary.

5) In the basic investigations particular emphasis should be put on problems of heat and mass transfer. In this content gas exchange in the soil - plant - atmosphere continuum should receive as much attention as other processes.

6) The terminology of agrophysical processes should be expanded in such a way that the new terminology, which is rapidly developing in this field is not only comprehensible to research workers using the same language, but can also rapidly, and without ambiguity be translated into other languages.

7) Inasmuch as it may be of interest to create a working group concerned with the changes in the physical properties of the soil environment caused by human activity and in the effect of those changes on crops, it seems necessary to determine the precise objectives and the scope of the activities of such a group.

Polish Academy of Sciences
Institute of Agrophysics
ul. Krakowskie Przedmieście 39
20-076 Lublin - Poland

Working-Group on «Hydromorphic Soils»

At the end of the Joint Session of Commissions V and VI on «Pseudogley and Gley», held in Stuttgart-Hohenheim (Federal Republic of Germany) Sept. 6-13, 1971, the following was recommended (see ISSS-Bulletin No. 40, p. 11):

The meeting specifically draws attention to the fact that in the research of and experiments on hydromorphic soils a clear distinction is to be made between groundwater soils and rain-water logged soils. It is proposed that a working group within Commissions V and VI be formed with the task to study and correlate the nomination and classification of hydromorphic soils and to record in which way differences in soil-water systems are reflected in existing classification systems.

The following participants were elected members of the working group: F. Blümel (Austria), Ph. Duchaufour (France), R. Dudal (FAO), V.A. Kovda (USSR), E. Schlichting (F.R.G.), R. Simonson (U.S.A.). At the 10th International Congress of Soil Science held in Moscow, Aug. 12-20, 1974, M. Cirić succeeded R. Dudal as chairman of Commission V (he nevertheless continued to cooperate with the working group), and E. Schlichting was asked to act as convener. Due to geographical reasons and/or to lack of funds a session of this group could not be arranged yet. But the members living near Middle-Europe (F. Blümel, M. Cirić, Ph. Duchaufour, R. Dudal, E. Schlichting) and J. Schelling (Netherlands) as a guest, met in Stuttgart-Hohenheim, Oct. 14-16, 1976, for a discussion.

The main points were: 1) All soils are somehow hydromorphic (influenced by water) and only the submerged «soils» totally. A sound definition should lie between these extremes. 2) This requires a definition of «hydromorphic» processes and properties, of which many are reductomorphic rather than hydromorphic, whereas others are not generally accepted as being hydromorphic (e.g. salt accumulation). 3) In order to understand better the distribution and the use of such soils, combinations of processes and properties specific for the action of ground-stagnation — and slope-water as well as their physical conditions have to be defined. 4) These soils have different positions in various classification systems; a correlation and an unification is necessary.

A preliminary report is submitted to all members of the working-group. After further discussion by letter it is hoped, that the final final report can be submitted to Commission V on the occasion of the 11th International Congress of Soil Science in Edmonton.

E. Schlichting, Stuttgart-Hohenheim

Groupe de Travail sur les «Sols Hydromorphes»

La session «Pseudogley et Gley» organisée conjointement par les Commissions V et VI à Stuttgart-Hohenheim (République fédérale d'Allemagne), du 6 au 13 septembre 1971, formula la recommandation suivante:

La réunion attire spécialement l'attention sur le fait que dans la recherche et l'expérimentation sur les sols hydromorphes une distinction doit être faite entre les sols de nappe phréatique et les sols saturés par l'eau de pluie. Il est proposé qu'un groupe de travail soit formé dans le cadre des Commissions V et VI avec mission d'étudier et d'établir une corrélation entre les noms et les classifications de sols hydromorphes et de déterminer de quelle façon les différences des systèmes sol-eau sont reflétées dans des classifications existantes.

Les membres suivants furent élus pour former le groupe de travail: F. Blümel (Autriche), Ph. Duchaufour (France), R. Dudal (FAO), V.A. Kovda (USSR), E. Schlichting (RFA) et R. Simonson (USA).

Lors du 10ème Congrès International de la Science du Sol, tenu à Moscou, du 12 au 20 août 1974, M. Cirić succéda à R. Dudal en tant que président de la Commission V (celui-ci continua toutefois à coopérer avec le groupe de travail) et E. Schlichting fut prié de convoquer le groupe de travail. En raison de la dispersion géographique des membres et un manque de ressources financières propres, le groupe de travail n'a pas encore pu se réunir au complet. Toutefois, les membres résidant à proximité de l'Europe centrale (F. Blümel, M. Cirić, Ph. Duchaufour, R. Dudal, E. Schlichting) et J. Schelling (Pays-Bas) en tant qu'invité, se réunirent à Stuttgart-Hohenheim, du 14 au 16 octobre 1976. Les points discutés furent les suivants: (1) Dans un sens tous les sols sont hydromorphes (c'est-à-dire influencés par l'eau), mais seuls les sols subhydriques le sont pleinement; (2) Il apparaît qu'une définition précise de processus et de phénomènes d'hydromorphie soit nécessaire et qu'une distinction doit être faite entre ceux qui sont réductimorphes plutôt qu'hydromorphes, alors que certains processus ne sont pas généralement acceptés comme étant hydromorphes (par exemple la salinisation); (3) Afin de mieux saisir la répartition et l'utilisation de ces sols il y aura lieu

d'établir les relations entre les caractères de ces sols et les processus spécifiquement liés à l'action de la nappe phréatique, d'eau stagnante ou de suintements de pente, ainsi que leurs propriétés physiques; (4) Ces sols figurent à des positions différentes dans les différents systèmes de classification et une corrélation et harmonisation s'avèrent nécessaires.

Un rapport préliminaire a été envoyé aux membres du groupe de travail. Après un échange de vues par correspondance, le rapport sera préparé en forme finale pour présentation à la Commission V lors du 11ème Congrès International de la Science du Sol à Edmonton.

E. Schlichting, Stuttgart-Hohenheim

Arbeitsgruppe «Hydromorphe Böden»

Am Ende der gemeinsamen Sitzung der Kommissionen V und VI über «Pseudogley und Gley» in Stuttgart-Hohenheim (Bundesrepublik Deutschland), 6.-13. Sept. 1971, wurde folgendes empfohlen (s. IBG-Mitteilungen No. 40, S.17):

Die Tagung lenkte besondere Aufmerksamkeit darauf, dass bei Forschungen und Versuchen mit hydromorphen Böden ein klarer Unterschied zwischen grund- und stauwasserbeeinflussten Böden zu machen ist. Desweiteren wurde vorgeschlagen, eine Arbeitsgruppe innerhalb der Kommissionen V und VI zu schaffen, um die Benennung und Klassifikation hydromorpher Böden zu untersuchen und zu korrelieren, und festzulegen, wie gewichtig Unterschiede im Bodenwassersystem sich in bestehenden Klassifikationssystemen widerspiegeln.

Die folgenden Teilnehmer wurden zu Mitgliedern der Arbeitsgruppe gewählt: F. Blümel (Österreich), Ph. Duchaufour (Frankreich), R. Dudal (FAO), V.A. Kovda (UdSSR), E. Schlichting (BRD), R. Simonson (USA). Anlässlich des 10. Internationalen Bodenkundlichen Kongresses in Moskau, 12.-20. August 1974, folgte für Komm. V.C. Cirić für R. Dudal (der sich gleichwohl zur Mitarbeit in der Gruppe bereit erklärte), und E. Schlichting wurde mit der Federführung beauftragt. Aus geographischen Gründen und/oder wegen Mangels an Mitteln konnte eine Sitzung dieser Gruppe noch abgehalten werden. Aber die nahe Mitteleuropa wohnenden Mitglieder, (F. Blümel, M. Cirić, Ph. Duchaufour, R. Dudal, E. Schlichting) sowie J. Schelling (Niederlande) als Gast, trafen sich in Stuttgart-Hohenheim, 14.-16. Okt. 1976, zu einer Diskussion.

Die wesentlichen Punkte waren: 1) Alle Böden sind irgendwie hydromorph (wasserbeeinflusst) und nur die Unterwasser-Böden gänzlich. Eine vernünftige Definition sollte zwischen diesen Extremen liegen. 2) Das erfordert eine Definition «hydromorpher» Prozesse und Merkmale, von denen manche eher reduktomorph als hydromorph sind, während andere nicht allgemein als hydromorph anerkannt werden (z.B. Salzakkumulation). 3) Um die Verbreitung und Nutzung solcher Böden besser zu verstehen, müssen für die Wirkung von Grund-, Stau- und Hang-Wasser spezifische Prozess- und Merkmals-Kombinationen sowie ihre physikalischen Bedingungen definiert werden. 4) Diese Böden haben in verschiedenen Klassifikationssystemen unterschiedliche Positionen; eine Korrelation und Vereinheitlichung ist nötig.

Ein vorläufiger Bericht wird allen Mitgliedern der Arbeitsgruppe vorgelegt. Nach weiterer brieflicher Diskussion kann der abschliessende Bericht der Kommission V hoffentlich anlässlich des 11. Internationalen Bodenkundlichen Kongresses in Edmonton vorgelegt werden.

E. Schlichting, Stuttgart-Hohenheim

5th International Working Meeting of Soil Micromorphology, May 24th - 28th 1977

A highly successful 5th International Working Meeting of Soil Micromorphology, sponsored by the University of Granada and the Instituto Nacional de Edafología y Agrobiología Jose Maria Albareda, was held in the University of Granada from the 24th - 28th May, 1977. There were 126 participants. Seventy five papers were presented on six chosen themes: (i) Methods in Soil Micromorphology; (ii) Soil Biology and Humus

Formation; (iii) Soil Formation and Classification; (iv) Micromorphology of Special Features; (v) Palaeopedology; and (vi) Soil Micromorphometry. A special session also was devoted to reports from the Working Group of Soil Micromorphology and its Sub-groups. There was a one-day excursion to examine the soils of the Alhambra Formation around Granada and a 5-day post-Meeting excursion to the soils in the Provinces of Granada, Malaga, Cordoba and Sevilla. The Proceedings of the Working-Meeting will be published in 1978.

Chairman: Dr. Ir. A. Jongerius, Soil Survey Institute, P.O. Box 98, Wageningen, The Netherlands.
Secretary: Dr. P. Bullock, Soil Survey of England and Wales, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ, England.

Prof. Dr. J. Aguilar (Spain); Dr. H.-J. Altemüller (Germany); Dr. U. Babel (Germany); Prof. Dr. G. V. Dobrovolski (U.S.S.R.); Dr. N. Fedoroff (France); Dr. E. A. Fitzpatrick (Great Britain); Prof. Dr. St. Kowalinski (Poland); Prof. Dr. G. Paneque (Spain); Prof. G. K. Rutherford (Canada); Prof. Dr. G. Stoops (Belgium) and Dr. T. V. Tursina (U.S.S.R.); Prof. S. Buol (U.S.A.) and Dr. J. Sleeman (Australia) are corresponding members.

Sub-Group on Weathering and Neoformations

Chairman: Prof. Dr. G. Stoops, Rijksuniversiteit Gent, Geologisch Instituut, Krijgslaan, 271, B-9000 Gent, Belgium.

Sub-Group on Organic Matter

Chairman: Dr. P. Bullock, Soil Survey of England and Wales, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ, England. (New Chairman likely to be appointed at next Sub-Group Meeting due to Dr. P. Bullock being appointed Secretary of the Main Working Group).

The next Working-Meeting will be held in London, England in August 1981, organised by Dr. P. Bullock, Soil Survey of England and Wales, Rothamsted Experimental Station.

Symposium on Assessment of Erosion in U.S.A. & Europe Ghent, Belgium, 27 February - 3 March 1978.

In the framework of the world assessment of soil degradation, the Agricultural Faculty of the University of Ghent held a symposium on assessment of erosion in the U.S.A. and Europe. This symposium was organized and chaired by Prof. Dr. M. De Boodt, Chairman of the ISSS Commission I. Sixty-two papers were presented on the following themes: 1. Evaluation of erosion risks and mapping of erosion; 2. Rain erosivity; 3. Land factors affecting erosion; 4. Erosion and weathering mechanics.

With regard to actual erosion mapping, it appeared that country and regional assessments presently available are relatively scarce. In discussing rain erosivity, the application of the universal soil loss equation was reviewed. While this equation is still extensively used, the need is felt for other models of a more conceptual nature. It was suggested that where limited data are available, assessments can be based land factors effecting erosion, by testing qualitative comparisons through quantitative parametric equations. The assessment of wind erosion is making a start mainly through experimental field plots and wind tunnels.

The symposium ended with a field tour to a wind erosion station at Kalmthout and to a project for sand fixation in the new industrial areas near Antwerp. It was recommended that increased efforts be made to apply research results to actual soil conservation techniques. It is planned that a following symposium, possibly to be organized by the National College of Agricultural Engineering, Silsoe, Bedford, U.K. be devoted more specifically to soil conservation field activities.

The proceedings of the symposium will be published at the end of the year.

**MEETINGS, CONFERENCES, SYMPOSIA
REUNIONS, CONFERENCES, SYMPOSIUMS
TAGUNGEN, KONFERENZEN, SYMPOSIEN**

1978

13th Brazilian Meeting on Soil Fertility, Goiana, July 1978.

Information: Prof. J. Cecilio, GO Caixa Postal 697, 74000 Goiana-GO, Brazil

Remote Sensing for Exploration of the Earth, its Natural Resources and Endangered Biosphere. Symposium organized by Comm. VII of the International Society for Photogrammetry, Freiburg, Fed. Rep. Germany, 3-8 July, 1978.

Information: Dr. H.J. Boehnel, Erbprinzenstr. 17a., D-7800 Freiburg, Fed. Rep. Germany.

Tenth International Congress on Sedimentology, Jerusalem, Israel, 9-14 July, 1978, under the auspices of: International Association of Sedimentologists (IAS); Israel Academy of Sciences and Humanities; Geological Survey of Israel.

Among the themes of the Congress are two topics of special interest to soil scientists, namely:

— Sedimentary aspects of geomorphology, paleoclimatology and hydrogeology including duricrusts and paleosols;

— Calcrete, past and present (criteria for recognizing calcrete in ancient sediments; environmental interpretation; age determinations).

Pre- and post-congress excursions in Israel, Cyprus and Turkey.

Information: Secretariat, 10th Int. Congress on Sedimentology, P.O. Box 16271, Tel Aviv, Israel.

Third International Conference on Permafrost, Edmonton, Alberta, Canada, 10-13 July 1978.

General topics: Permafrost Science and Permafrost Engineering.

Information: Dr. M.K. Ward, Executive Secretary, c/o National Research Council of Canada, Ottawa, Ontario, Canada K1A 0R6.

6th International Clay Conference, Oxford, England, 10-14 July, 1978.

Information: International Clay Conference, c/o Institute of Geological Science, 64/78 Gray's Inn Road, London WCX 8NG, England.

New Zealand Society of Soil Science Conference, Hamilton, 14-18 August, 1978.

Information: Secretary, NZSSS c/o Soil Bureau DSIR, Private Bag, Lower Hutt, New Zealand.

African Regional Conference of the International Geographic Union, Lagos, Nigeria, August.

Information: Prof. J. Kostrowicki, IGU, Kratowskie Przedmiescie 30, 00-337, Warsaw, Poland.

8th International Colloquium on Plant Analysis and Fertilizer Problems, University of Auckland, Auckland, New Zealand, 28 August - 1 September, 1978.

Major topics: problems of nutrient stress, problems of efficient fertilizer use, problems of plant analysis, problems of intensive horticulture.

Information: Dr. R.L. Bielecki, Plant Diseases Division, DSIR, Private Bag, Auckland, New Zealand.

United Nations Conference on Technical Cooperation among Developing Countries, Buenos Aires, Argentina, 30 August-12 September, 1978.

Information: United Nations, New York, N.Y. 10017, U.S.A.

11th Congress of the International Potash Institute (IPI), on the occasion of the 25th Anniversary of its Scientific Board, Bern, Switzerland, 4-8 September, 1978.

Information: IPI, P.O. Box CH-3048 Worblaufen - Bern, Switzerland.

British Society of Soil Science, Annual field meeting, Exeter, 18-21 September, 1978.

Information: Dr. D.V. Crawford, Univ. of Nottingham, Sutton, Bennington, Loughborough, LE 12 5RD, England.

Symposium on Clay Minerals and Soil Fertility, Prague, Czechoslovakia, 18-22 September, 1978.

Information: Dr. J. Vanek, Research Inst. for Soil Reclamation, 25580 Prague 5, Zbraslow, Czechoslovakia.

Seminar on Agricultural Soil Erosion in Temperate Non-Mediterranean Climate, Louis Pasteur University, Strasbourg, 20-23 September 1978.

Colloque Erosion agricole des sols en milieu tempéré non méditerranéen, Université Louis Pasteur, Strasbourg, 20-23 Septembre 1978.

Information: Mme T. Vogt, Institut de Géographie, 43, rue Goethe, 67083 Strasbourg Cedex, France.

Veranstaltungen der Deutschen Bodenkundlichen Gesellschaft.

— Kommissionen IV und VI, Giessen, «Bedeutung und Problematik von Siedlungsabfällen als Meliorations- und Düngemittel», 2. und 3. Oktober 1978.

— Kommission II, Braunschweig, «Einfluss organischer Substanzen auf Löslichkeit, Bindung und Umwandlung mineralischer Bodenkomponenten», 4. und 5. Oktober 1978.

— Kommission III (in Vorbereitung) Erarbeitung eines Sonderheftes «Bodenbiologie» der ZPD mit 5 bis 8 Sammelreferaten.

Auskunft: DBG, Von Siebold-Str. 4, 3400 Göttingen, Bundesrepublik Deutschland.

1st AIPEA International Congress on Bentonites, Sassari, Italy, 9-13 October 1978.

Information: Istituto di Mineralogia e Geologia, Università di Sassari, 070100 Sassari, Italy.

12th International Symposium of 'Agrochimica' under the theme Soil Colloids and their Agronomic Role. Pisa, Italy, 10-13 October 1978.

Information: Agrochimica, c/o Institute of Agricultural Chemistry, University of Pisa, Via S. Michele degli Scalzi 2, 56100 Pisa, Italy.

2° Simposio Nacional de la Ciencia del Suelo, Facultad de Agronomía, Universidad de Chile, Santiago, 17-20 October 1978.

Information: Prof. W. Luzio, Casilla 1004, Santiago, Chile.

8th World Forestry Congress, Djakarta, Indonesia, 16-28 October, 1978.

Information: Secretary General, World Forestry Congress, c/o FAO, Viale Terme di Caracalla, Rome, Italy.

5th Congress of the Venezuelan Society of Soil Science, Barquisimeto, 5-10 November 1978.

Information: Ing. J.P. Perez, Marna, Zona 3, Av. Morán N. 18-75, Barquisimeto, Venezuela.

Agronomy: Science in Action, 70th Annual Meetings of the Amer. Soc. Agron., Crop Sci. Soc. of Amer., Soil Science Soc. of Amer., 3-8 December 1978, Chicago, Illinois, USA.

Information: SSSA, 677 South Segoe Rd., Madison, Wisconsin 53711, USA.

International Symposium on the Use of Isotopes and Radiation in Research on Soil-Plant Relationships, Colombo, Sri Lanka, 11-15 December, 1978.

Organized by FAO and IAEA.

Information: International Atomic Energy Agency, P.O. Box 590 Kärntner Ring 11, A-1011 Vienna, Austria.

1979

3rd International Symposium on Computer-Assisted Cartography, San Francisco, U.S.A., 16-21 January 1979.

Information: J.E. Chamberlain, US Geological Survey, 345 Middlefield Rd., Menlo Park, California 94025, U.S.A.

Veranstaltungen der Deutschen Bodenkundlichen Gesellschaft.

— Kommission VII in Hannover, Sitzung «Tonmineralzusammensetzung von Böden und Lockergesteinen in Beziehung zu deren physikalischen Eigenschaften», Januar/Februar 1979.

— Jahrestagung der DBG in Freiburg/Br. mit Exkursionen in die Schweiz und nach Frankreich, 9.-15. September 1979.

Auskunft: DBG, Von Siebold-Str. 4, 3400 Göttingen, Bundesrepublik Deutschland.

The Mineral Nutrition and Storage Disorders of Temperate Tree Fruits, symposium organized by the International Society of Horticulture Science, East Malling, U.K., April, 1979.

Information: Dr. D. Atkinson, East Malling Research Station, Maidstone, Kent ME19 6BJ, United Kingdom.

11th International Congress of the International Union of Biochemistry (IUB), Toronto, Canada, 8-14 July, 1979.

Information: Secretary General IUB, Biochemistry - UMED, P.O. Box 520875, Miami, Florida 33152, U.S.A.

United Nations Conference on Agrarian Reform and Rural Development, Rome, July, 1979.

Information: FAO, Via delle Terme di Caracalla, 00153 Rome, Italy.

17th Congress of the Brazilian Society of Soil Science, Manaus July 1979.

Information: Jose M.A.S. Valadares, C.P. 28, 13.100 Campinas, S.P., Brazil.

International Symposium Humus et Planta VII, Agricultural University, Prague, 26 August-2 September 1979.

Themes:

- Chemistry and physico-chemistry of humus substances
- Biotransformations of organic substances in soil, earth or composts
- Effect of humus substances on physiological functions in plants.

Information: Ing. J. Damaska, Research Institutes of Crop Production VURV, 16106 Ruzyně, Prague, C.S.S.R.

United Nations Conference on Science and Technology for Development, Vienna, 22-30 Aug. 1979.

Information: United Nations, New York, N.Y. 10017, U.S.A.

8th Conference of the International Soil Tillage Research Organization (ISTRO), Stuttgart-Hohenheim, Fed. Rep. of Germany, 10-14 September, 1979.

Information: Dr. G. Kahnt, Inst. für Pflanzenbau, Universität Hohenheim, D-7000 Stuttgart 70, Fed. Rep. Germany.

14th Congress of the Pacific Science Association, Khabarovsk, U.S.S.R.

Information: Pacific Science Association, P.O. Box 6037, Honolulu, Hawaii 966819, U.S.A.

Fourth International Symposium on Environmental Biogeochemistry under the theme Evolving Ecosystems. Canberra, Australia, 26-31 August 1979:

Topics: Early development of biochemical systems; Development and maintenance of atmospheric oxygen and ozone; Element transformations in the oxygenic environment; Consequences of oxygen depletion; Agricultural and industrial practices and water quality.

Information: Australian Academy of Science, P.O. Box 783, Canberra City, A.C.T. 2601 Australia.

1980

26th International Geological Congress, Paris 7-17 July, at the Centre International de Paris, Palais des Congrès.

Information: Secretariat, 26th International Geological Congress, Maison de la Géologie, 77-79 rue Claude Bernard, 75775-Paris, France.

6th Congress of the Yugoslav Society of Soil Science, Novi Sad.

Information: Prof. Dr. N. Miljkovic, Faculty of Agriculture, Novi Sad, Yugoslavia.

1981

Soils with variable charge, Joint meeting of Commissions IV, V and VI of the ISSS Massey University, Palmerston North, New Zealand, 11-18 Feb. 1981. Under the Auspices of the N.Z. Society of Soil Science and The Royal Society of N.Z.

Information: Soil Bureau, DSIR, Private Bag, Lower Hutt, New Zealand.

International Working Meeting on Soil Micromorphology, London, August 1981.

Information: Dr. P. Bullock, Soil Survey of England and Wales, Rothamsted Experiment Station, Harpenden, Herts., England.

International Congress of Geography, Tokyo, Japan.

Information: International Geographic Union, Geographisches Institut, Universität Freiburg, 78 Freiburg, Bundesrepublik Deutschland.

1982

11th International Congress on Sedimentology.

11th Congress of INQUA, Union internationale pour l'étude du quaternaire, Moscow.

12th Congress of the ISSS, New Delhi, India.

NEW PUBLICATIONS*
NOUVELLES PUBLICATIONS*
NEUE VERÖFFENTLICHUNGEN*

Les grands traits de la pédogenèse au Niger méridional, par M. Gavaud, pédologue de l'ORSTOM, Travaux et Documents de l'ORSTOM No. 76, 1977, 102 p.

Les données résumées dans cet ouvrage ont été recueillies lors d'une cartographie à l'échelle du 500 000 des sols du Niger méridional. Elles sont généralement d'ordre typologique et géographique du fait de leur origine, des méthodes de prospection extensives employées, de caractères saillants de la répartition des sols du Niger.

Les sols observés sont présentés par associations. Chacune est définie par une combinaison spécifique de processus pédogénétiques s'étendant à un paysage caractéristique dans sa topographie, ses éléments biocénétiques et ses matériaux. Les associations sont présentées dans un ordre d'évolution décroissante qui pourrait être celui de leurs apparitions successives au cours du Quaternaire.

Commandes: Service des Publications de l'ORSTOM, 70-74 route d'Aulnay, 93140 Bondy, France.

Le sud-ouest de Madagascar - Morphogenèse et pédogenèse, par M. Sourdat, Travaux et Documents de l'ORSTOM No. 70, 1977, 212 p. 12 planches photographiques, 32 annexes.

Dans la première partie de cet ouvrage, après avoir rappelé les grands traits de la géologie, l'auteur fait le point des connaissances acquises concernant l'histoire morpho-climatique de Madagascar et définit le climat actuel du sud-ouest. Puis, il évoque les paysages qui illustrent la diversité des milieux naturels de cette région, regroupés en trois domaines: le domaine côtier, le domaine calcarobasaltique et le domaine de l'ISALO.

Les quatre parties suivantes sont consacrées à l'étude des modelés et des sols correspondants. L'articulation de chaque partie est adaptée à l'originalité propre du domaine considéré et à l'intérêt des problèmes qui s'y trouvent posés.

Commandes: Service des Publications de l'ORSTOM, 70-74 route d'Aulnay, 93140 Bondy, France

Potassium and Plant Health, IPI Research Topics No. 3, by S. Perrenoud, 1977, 218 p., 147 tables, 59 figures.

Potassium has been regarded as a major plant nutrient that plays a very important role in determining plant health as long as fertilizers have been used. This publication follows the 12th Colloquium of the International Potash Institute, «Fertilizer Use and Plant Health» held in Izmir, Turkey in 1976, in order to supply a complete survey of the literature dealing with the effects of potassium on plant health.

Existing literature gives a total of 1200 indications concerning the relationship between potassium and plant health — this data being extremely heterogeneous, a great part originating from chance observations made in experiments which were not laid down with the prime aim of investigation of fertilizers in relation to plant health.

In this book, sections cover the effect of potassium on fungal diseases; on nematodes; on viruses; bacteria; factors influencing the effect of potassium; the nature of the potassium effect; and the effect of potassium on yield or growth.

Includes an Index of parasite names and Bibliography.

Orders to: International Potash Institute, CH-3048 Bern-Worblaufen, Switzerland.

Recent Developments in Nitrogen Fixation, Proceedings of the Second International Symposium, Salamanca 1976, W. Newton, J.R. Postgate and C. Rodríguez-Barrueco (Eds.), 1977, xxiv + 622 p., 37 papers.

* Titles of new publications are listed here for information. Orders can however not be handled by the ISSS Secretariat but should be placed through a bookstore or directly with the publishers.

* Les titres de nouvelles publications sont mentionnés à titre d'information. Le Secrétariat de l'AISS ne peut toutefois pas se charger de commandes, celles-ci devant être adressées à une librairie ou directement aux éditeurs.

* Die Titel neuer Veröffentlichungen sind hier zur Information angeführt. Bitte richten Sie Ihre Bestellungen nicht an das IBG Sekretariat sondern an den Buchhandel oder direkt an die Verlage.

Nitrogen is of paramount importance to all forms of life on earth. Yet plants and animals can make no use of elemental nitrogen by themselves. They rely on certain bacteria and algae which fix nitrogen in a combined form that they can use as a nutrient. Thus it is essential that scientists striving to increase the world food supply understand how nitrogen is fixed by these vital organisms and the methods used to make it generally available.

This present book, a record of the proceedings of the Second International Symposium on Nitrogen Fixation, presents comprehensive and up-to-date coverage of the topic. It contains invited papers reporting the most recent advances in the chemistry, biochemistry, physiology, enzymology, genetics and agronomy of nitrogen-fixing systems. In addition, for each subject area, a synthesis lecture is published in which a distinguished contributor brings together the advances made since the first such symposium held in the U.S.A. in 1974.

Price: £16.00/\$31.25

Orders to: Academic Press, 24-28 Oval Road, London NW1, England;
in U.S.A.: 111 Fifth Avenue, New York, NY 10003. (No. 0.12.517350.4)

The Blue-Green Algae, by G.E. Fogg, W.D.P. Stewart, P. Fay and A.E. Walsby, 1973, xii + 420 p.

Blue-green algae, can be found in fossils from as early as the Pre-Cambrian era. Today they are distributed all over the world, flourishing in hot deserts and Antarctica, and in such extreme habitats as brine ponds and hot springs.

Their fine structure and biochemistry are similar to those of the bacteria, but they have photosynthetic mechanisms like those of the higher plants, the chloroplasts of which may even have originated as symbiotic blue-green algae. This book provides an integrated view of the blue-green algae and their role in the environment, where they are increasingly recognized as being economically and ecologically important, because they can fix nitrogen, they help to maintain the fertility of rice fields and temperate soils. At the same time, their frequent mass occurrence in fresh water aggravates pollution problems.

The four authors, biologists themselves responsible for many important advances in blue-green algae research, have reviewed the voluminous and scattered literature on the subject from various fields, carefully assembling it together with their own findings to form a comprehensive treatise.

Subjects cover form and structure of blue-green algae; cellular organization; cell biology; culture nutrition and growth; photosynthesis and chemosynthesis; nitrogen metabolism; terrestrial ecology, symbiosis, evolution and phylogeny.

References. Index

Price: £12.00/\$27.50

Orders to: Academic Press, 24-28 Oval Road, London NW1, England;
in U.S.A.: 111 Fifth Avenue, New York, NY 10003 (No. 0.12.162650.2)

Concrete Pipe and the Soil-Structure System, Special Technical Publication 630, M. Bealey and J.D. Lemons (Eds.), 1977, 147 p., soft cover.

This publication consists of nine papers which outline problems faced by the researcher, the student, and the engineer or designer. It presents the history and development of present concrete pipe design theory and practice, along with the results of current research and development of new design theory and applications.

Specific topics include: Structural Design of Precast Concrete Box Sections for Zero to Deep Earth Cover Conditions and Surface Wheel Loads; Discussion and Application of CANDE Computer Program to Design of Reinforced Concrete Culverts; Evaluating Four Types of Soil-Structure Conduit Systems; Assessment of Soil Constitutive Models for Numerical Analysis of Buried Concrete Pipe Systems; and Computer-Aided Structural Analysis and Design of Concrete Pipe.

Price: \$14.00 (less 20% to ASTM members)

Orders to: American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103 U.S.A. Attn: Sales Service Department. (Publication code No. 04-630000-07)

Soil Water Regimes - Soil Survey, Technical Monograph No. 11, by J.D. Robson and A.J. Thomasson, Rothamsted Experimental Station, Harpenden, Herts., England. 57 pages, 12 figs, 22 tables, soft cover.

Since 1963 the Soil Survey of England and Wales has recorded the duration of soil waterlogging at many places on agricultural land and under semi-natural vegetation. Many of the results have been published in Soil Survey Records and Memoirs accompanying the published soil maps of particular districts. This information is brought together here in one volume to improve understanding of soil water regimes among development and research workers, and the agricultural industry in general.

Price: £ 0.80

Orders to: Soil Survey, Rothamsted Experimental Station, Harpenden, Herts. AL5 2JQ, England.

An Introduction to Environmental Biophysics, by Gaylon S. Campbell, Department of Agronomy and Soils, Program in Biochemistry and Biophysics, Washington State University, Pullman, Washington 99163, U.S.A. 55 Figs. XV, 159 pages, soft cover. ISBN 3-540-90228-7.

This publication describes the physical micro-environment of living organisms. It presents a simplified discussion of heat and mass transfer models and applies them to exchange processes between organisms and their surroundings. Emphasis is placed on teaching the student how to calculate actual transfer rates, rather than just studying the principles involved. Numerical examples are provided to illustrate many of the principles, and problems are included at the end of each chapter to help the student develop skills in using the equations and to gain an understanding of modern environmental biophysics.

Price: DM 20,20; US \$ 8.90

Orders to: Springer-Verlag KG, Postfach, Heidelberger Platz 3, D-1000 Berlin 33.

Resource Sensing from Space - Prospects for Developing Countries. This report is the work of the Ad Hoc Committee on Remote Sensing for Development. It was prepared for the Office of Science and Technology, Bureau for Technical Assistance, Agency for International Development, Washington D.C. 202 pages, 10 figs, 9 tables, soft cover.

This report conveys the findings and recommendations of a Committee named by the National Academy of Sciences to consider the relevance of present and future earth resource sensing satellites to resource planning in developing countries, and to suggest U.S. policies appropriate to the developmental and institutional issues to which this new family of technologies gives rise. The Committee discusses first the matter of resource information and its use in developing countries. It then describes, especially for the benefit of those unacquainted with it, the new technology of earth resource sensing from space. Then summarizes the tested usability of the satellite data in various sectors of application and the improvements anticipated from future technological advances. The report then considers the prospects and problems of utilization of satellite data by developing countries, and proceeds to the international issues that need to be resolved to facilitate widespread availability and exploitation of the data. The report concludes with recommendations that address certain policy issues and technical cooperation initiatives that would foster the diffusion of the technology.

Price: free copies will be sent to institutionally affiliated recipients (in government, education or research) upon written request on organization's letterhead.

Orders to: Commission on International Relations (JH 214), National Academy of Sciences — National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418, U.S.A.

Soil Maps of Poland, with explanatory text, **Evaluation of the Natural Capability of Agricultural Areas in Poland**, by T. Witek, T. Górski and M. Koter, for the Institute of Soil Science and Cultivation of Plants in PulaWY; IN English, 1977, 21 p, three maps.

Soil-Agricultural Map of Poland, scale 1:1000 000 (T. Witek, M. Koter) — This map has been based on the assumptions accepted for analogous maps of larger scale; the complexes of the soil agricultural usefulness constitute the essential contents of this map. As well the complexes of genetic soil types and the mechanical composition of soils are taken into consideration on this map. Maps of more detailed scale (viz., 1:5000) which evaluate and give detailed inventories of soils (classifications registers), are disposed of here. Complexes as chief elements, are represented by means of colours and numerical symbols; typological units are taken into account only in a general way and their division is simplified.

Up to the present, the soil-agricultural maps of Poland in the scale of 1:5000 (i.e., of particular villages, state or collective farms) cover about three-fourths of the area used for agriculture; as maps in the scale 1:25000 (i.e., of communes). This map of review scale for about three-quarters of the total area of Poland is an attempt at synthetic valuation of the natural conditions of agriculture, independent of an agricultural interpretation of each element of the environment.

Evaluation of Agroclimate of Poland, scale 1:1000 000 (T. Górski, M. Koter) — This synthetic map of agroclimate evaluation is the result of accepting determined presumptions about the mean yields of Poland, the disposition of sown area and the relative value of yields in relation to anticipated yields for 1980.

Valorization of the Agricultural Productive Area of Poland, scale 1:1000 000 (T. Witek) — Based upon first drawings of the relief of terrain and water conditions of the environment, this map has been worked out on the basis of analytical maps concerning the four main elements of the natural environment.

On the basis of results of field experiments the coefficients for different classes and separately for the complexes of agricultural soil usefulness were established. The scale of 100 points was accepted. The best soils (Class I) obtained in it 100 points, the weakest ones (Class VI) - 18 points. Besides the level of yields, such elements as the possibility of cultivation of particular plant species on the soils of the given class, the difficulty of cultivation as well as the cost of production were taken into consideration. In this manner an estimation in points of particular classes and complexes of agricultural usefulness was obtained.

Text: Soils — a short characterization of the complexes of agricultural soil usefulness; arable soils and grasslands; genetic soil types; soil families and soil textural groups. Agroclimate — method of agroclimate evaluation, conception of dependence of yields on weather conditions, climatic requirements of essential crop plants, construction of indices of agroclimate evaluation. With bibliography.

Orders to: Druk. Wyd. Geologiczne, Warszawa. Zam. 11.F-38, Poland.

Structure et fertilité de sols limoneux sur fermes mécanisées

(Structure and Fertility of Silt Soils on mechanized Farms)

(Struktur und Fruchtbarkeit von Lehm Böden auf mechanisierten Betrieben)

(Etude faite de 1961 à 1975). par De Leenheer L., Professeur de Pédologie Agricole, Faculté de Sciences Agronomiques, Gand, Belgique et une équipe de 7 collaborateurs. 2 Tômes; 817 pag.; 357 tableaux; 225 fig. Ed. 1977.

Cette recherche de longue durée a été demandée par la Fédération Belge des planteurs de betteraves.

La complexité du problème posé: «les soins culturaux les meilleurs pour sauvegarder la fertilité du sol sur fermes mécanisées» est exposée au chapitre premier et l'aménagement des 4 grands champs d'essai, chacun de 8 à 10 ha (répartis sur 2 fermes), y est décrit. Au second chapitre on trouve les propriétés du sol avant la première rotation triennale choisie (betterave sucrière, froment d'hiver, escourgeon) et les rendements en 1961 (sur une des 2 fermes, souffrant d'une structure dégradée du sol, le rendement moyen est inférieur de 25% à celui sur l'autre ferme). Les chapitres 3, 4 et 5 décrivent l'évolution (au cours de 12 ans) de la teneur en carbonate et humus, de la compaction du sol et des rendements, y compris l'interprétation statistique des variations du rendement (des 3 cultures) dues à l'influence du relief, de la fumure organique et du chaulage. L'étude de l'économie en eau du sol limoneux, de l'influence des 3 cultures sur cette économie et des relations entre l'économie en eau et la récolte ou la teneur en azote et potasse de la culture est faite aux chapitres 6 et 7. Les chapitres 8, 9 et 10 sont consacrés à l'étude des propriétés structurales (perméabilité à l'eau; instabilité des agrégats; porosité totale et distribution des pores) et à l'examen de leur influence sur la production. Au chapitre 11 on décrit l'influence du relief et de la fumure organique sur la croissance des 2 céréales d'hiver (nombre de plantes, de tiges et d'épis bien formés par m²; coefficient de tallage; production de masse verte et sa teneur en azote et potasse au début d'avril et à la floraison).

D'autres données relatives à la fertilité chimique du sol sont discutées aux chapitres 12, 13 et 14. D'abord on examine l'influence du relief et des fumures organiques sur les quantités totales de N-P-K assimilées par les 3 cultures; ces quantités servent ensuite à calculer la balance des exportations (par les récoltes) et des importations (fumures organiques et engrais chimiques) des éléments fertilisants pour la rotation triennale, d'où on déduit un avis de fumure. Une attention particulière est consacrée à l'évolution de l'humus du sol et la balance d'azote.

Connaissant les propriétés structurales et les variations dans la croissance et l'assimilation de N-P-K, on fait l'étude (chapitres 15 et 16) des relations linéaires entre ces données et les rendements; finalement on déduit la régression simple ou multiple la meilleure de chaque année. Le chapitre 17 est consacré à l'examen des influences météorologiques (pluviosité, insolation et température); l'étude des relations avec la croissance, l'assimilation de N-P-K et le rendement des 3 cultures est faite moyennant des régressions linéaires et curvilinéaires (courbes oscillantes, d'après Fisher). Au dernier chapitre on trouve les résultats de l'étude des populations microbiennes, activités enzymatiques et processus de minéralisation dans ces sols limoneux, aussi que des relations entre ces propriétés et les autres propriétés déjà décrites et les rendements (tenant compte des traitements).

Prix: 1.000 FB.

Commandes: Faculté des Sciences Agricoles, 533 Coupure, Gand, 9000, Belgique.

Ideas Underlying Soil Systematics, by M. Strzemiński, Institute of Soil Science and Cultivation of Plants, Pulawy, Warsaw, 1971, English translation published for the Department of Agriculture and National Science Foundation, Washington, D.C., 1975, 542 p., with looseleaf charts.

It has become common practice for soil scientists in many countries to distinguish between soil systematics and classification. The dividing line between the two concepts, however, is drawn in a most diverse manner. As a rule classification is looked upon as the more general of the two. But to be recognized as a system (systematics), any division of soils must satisfy specified conditions.

Some authors contend that any natural or objective classification of soils satisfies the basic conditions of systematics; others hold the view that only such a classification of the various forms of the soil body can be regarded as systematics that reflects their genealogy in conjunction with their developmental conditions and their evolution.

This monographic study is concerned primarily with the ideas underlying the various divisions of soils evolved in the different periods of history. This theme is developed first by a degree of qualification and a relative appraisal of the divisions involved, while recognizing systematics and classification as almost synonymous.

With 8 annexes concerning US soil classification system (1967 and 1968); and a summary.

Orders to: U.S. Department of Commerce, National Technical Information Service, Springfield, Virginia 22161 U.S.A.

Energetical Significance of the Annelids and Arthropods in a Swedish Grassland Soil, *Ecological Bulletins/NFR 23*, by T. Persson and U. Lohm, 1977, 211 p., 27 figures, 65 tables. ISBN 91-546-0221-1.

The aim of the study published here is to give an account of the contribution by individual species to the below-ground annelid and arthropod abundance, biomass and respiratory metabolism in a grassland ecosystem and to provide a synthesis of this information in relation to other biotic components in the ecosystem.

The abundance, biomass and respiratory metabolism were estimated for the individual species, larger taxa and feeding categories of the litter-and soil-inhabiting annelids and arthropods in an abandoned field. The sampling scheme covered one year, and the samplings were allocated in time and space, in order to obtain unbiased mean estimates.

The net primary production, plant litter production and the rejecta and carcasses from the above-ground arthropods were also estimated in order to relate the soil animal respiration to various inputs of energy to the soil system. The results indicate that the litter — and soil — inhabiting annelids and arthropods contributed 6-7% to the annual heterotrophic soil respiration. The significance of this contribution is discussed with regard to the energy flow through the ecosystem. The seasonal fluctuations in abundance and biomass are also discussed and compared with other grasslands. The study also includes a review of data on respiratory rates.

Orders to: Editorial Service, Swedish Natural Science Research Council NFR, Wenner-Gren Center, Box 23136, S-104 35, Stockholm, Sweden.

Proceedings of the Fourth Symposium of the International Society for Tropical Root Crops, edited by J. Cock, R. MacIntyre and M. Graham, International Development Research Centre, 1977, 277 p., 57 papers, ISBN 0-88936-115-0.

The International Society for Tropical Root Crops held its Fourth International Symposium at the Centro Internacional de Agricultura Tropical (CIAT) in Cali, Colombia, from 1 to 7 August 1976. There were four parts to the proceedings, presented in this publication: 1) Origin, dispersal and evolution; 2) Basic productivity; 3) Preharvest and postharvest losses; and 4) Utilization. Each theme is discussed in a plenary paper by a scientist from outside the tropical root crop field, followed by papers on specific aspects of the theme topic. Many of these deal with the better-known root crops as cassava, yams, potatoes, and sweet potatoes; a number of contributions discuss some of the lesser-known root crops and include a paper on the potential of a virtually unknown species.

The format of this publication follows that used for the proceedings of the cassava workshops sponsored by IDRC in that the discussion has been included in point form rather than in question and answer style.

Price: US\$12.00/Microfiche Edition \$1.

Orders to: IDRC, Box 8500, Ottawa, Canada K1G 3H9.

USA orders only: UNIPUB, Box 433, Murray Hill Str., New York, NY 10016.

Soil Organic Matter, Developments in Soil Science 8, edited by M. Schnitzer and S.U. Khan, 1978, xiv + 319 p., ISBN 0-444-41610-2.

A textbook on the fundamental and practical aspects of soil organic matter, this publication gives detailed account of recent developments in chemical instrumentation such as chromatographic methods, the gas chromatographic-mass spectrometric-computer system and advanced electron spin resonance spectrometers.

The first three chapters deal with the principal components of soil matter, i.e., humic substances, carbohydrates and organic N-, S-, and P-containing compounds, whilst the following three chapters cover the more practical aspects of the subject such as reactions of organic matter with pesticides and how it is affected by management and environmental factors. Text supplemented throughout by tables and figures.

Contents include: 1. Humic Substances: Chemistry and Reactions 2. Carbohydrates in Soil 3. Organic Nitrogen, Phosphorus and Sulfur in Soils 4. The Interaction of Organic Matter with Pesticides 5. Soil Organic Carbon, Nitrogen and Fertility 6. Soil Organic Sulfur and Fertility.

Price: US\$65.25/Dfl. 150.00.

Orders to: Elsevier Scientific Publishing Company, Box 211, Amsterdam, The Netherlands (or USA & Canada: Elsevier North-Holland, 52 Vanderbilt Avenue, New York, NY 10017).

Paddy Soils in Tropical Asia, Their Material Nature and Fertility, by K. Kawaguchi and I.K. Kyuma, Monograph of the Center for Southeast Asian Studies, Kyoto University, English-language Series No. 10, 1977, 258 p., with tables and figures.

This book is the outcome of a research project organized by the Center for Southeast Asian Studies of Kyoto University with the aim of gaining a better understanding of the foundations of rice cultivation, which sustains the way of life of the people of South and Southeast Asia.

Paddy soils or lowland rice soils are the media of food production for many millions of people. In spite of their importance, paddy soils have received relatively little attention from soil scientists, because of their localized occurrence and their unusual, at least to western people, management practice of water-logging. In fact, for rice cultivation, water conditions are more important than soil conditions. However, soil factors are relevant. In Japan, paddy soils have been the object of intensive studies for the last forty years. These studies have clarified many aspects of paddy soils in relation to rice cultivation.

The acreage of paddy soil in Japan constitutes only a little more than 2% of the world total, and the greater part of the remaining acreage occurring in tropical Asia has been little studied. The research project which resulted in this publication attempts to fill this gap, and is a first attempt of its kind. Appendix I: List of Samples; Appendix II: Methods of Analysis. Indexed.

Orders to: The University Press of Hawaii, Honolulu, U.S.A.

Saharan Desert, Mobilization, Transport, Deposition, C. Morales (Ed.), 1977, pamphlet, 24 p.

Review and recommendations from a workshop held in Gothenburg, Sweden, April 25-28, 1977; prepared as background material for the U.N. Desertification Conference held in Nairobi, Kenya, August-September, 1977.

In recent years, and particularly during the Sahelian drought and famine catastrophe, a question has been raised concerning the quantity, origin and ecological impact of the soil dust which is being blown out of the Sahara and surrounding areas. The workshop on Saharan dust was arranged in order to contribute to more efficient counteraction of desertification by producing recommendations for future research and monitoring concerning mobilization, transport and deposition of airborne Saharan soil dust and connected ecological implications.

Orders to: The Swedish Natural Science Research Council, Ecological Research Committee, Wenner-Gren Center, Sveavägen 166, 15th floor, S-113 46, Stockholm, Sweden.

Glossary of Soil Science Terms, revised, Soil Science Society of America Journal, Jan. 1978, 40 p.

This edition contains nearly 1,100 terms and includes a revised Appendix I for terminology in clay mineralogy with 25 new terms on nomenclature in thermal analysis. New Appendix VII contains 24 new terms dealing with soil physics.

The Glossary now has the following appendices: I - clay mineralogy, II - soil classification, III - soil chemistry, IV - soil microbiology and biochemistry, V - tillage terminology, VI - soil fertility and plant nutrition, and VII - soil physics. These appendices contain 360 definitions and several tabular listings. The basic glossary contains 730 terms plus 4 tables and 1 graph.

Price: \$1.00 each, 1-4 copies; 80c, 5-25 copies; 70c, 26 or more copies.

Orders to: Book Order Department, Soil Science Society of America, 677 South Segoe Road, Madison, Wisconsin 53711 U.S.A.

Agronomists and Food: Contributions and Challenges, by M.D. Thorne, M. Stelly, et al (Editors), ASA Special Publication Number 30, 1977, 108 p., 9 papers.

Papers presented at the annual meeting of the American Society of Agronomy in Houston, Texas, November 28 to December 3, 1976.

Besides the title chapters which consider the professional history and achievements of agronomists, as well as the future problems of supplying food for the world's ever-growing population, there are chapters on «Ecology and Agricultural Development», soil physics, wheat, «Crop Physiology to the Year 2000», and «The Role of Agronomists in international Agricultural Development.»

Orders to: American Society of Agronomy, 677 South Segoe Road, Madison, Wisconsin, 53711.

Studies on Soils of India, by S.V. Govinda Rajan and H.G. Gopala Rao, Vikas Publishing House, 1978, 425 p., with tables and figures.

This publication attempts to bring together a survey of the research work that has been carried out on various aspects of the soils of India. The first two chapters cover background information regarding historical development of studies of the varied soils of the country, their origin and classification, with stress on the more recent classification systems and on the nomenclature adopted to designate the soils. Pedological aspects of the different soils are summarized in the following chapter, giving an assessment of the basis for future studies. Studies on soil physics, soil structure, soil moisture relationships, soil clays and their mineralogy are covered in subsequent chapters.

Problems on the utilization of major and minor plant nutrients are also considered, as well as the question of amelioration of acid, saline and alkali soils. A chapter on the soils of forest areas reviews comprehensively the most important studies made on these soils in India and affords information on lines in which future work can be developed. Each chapter has a full list of references to publications in India so that the reader has ready guidance to original papers.

Price: Rs 45.

Orders to: Vikas Publishing House Pvt. Ltd., 5 Ansari Road, New Delhi 110002.

Trends in Consumption and Production of Fertilizers, Proceedings of FAI-IFDC Fertiliser Seminar, New Delhi, 1978.

The publication of the proceedings of the 13th Annual Seminar of the Fertiliser Association of India, held in New Delhi, December 1-3, 1977, contains the texts of addresses and papers and brief synopses of the discussions during the seminar.

Two parallel sessions organized the proceedings: 1) production processes, and 2) marketing, distribution, promotion and use. The text covers a very wide spectrum of subjects including raw materials for the fertiliser industry, technology of production, pollution control and by-products recovery; promotion and distribution of fertilisers; development and use of organic and biofertilisers; crop nutrition and water management practices.

Price: Rs. 25.00.

Orders to: The Fertiliser Association of India, Near Jawaharlal Nehru University, New Delhi-110 057.

Minerals in Soil Environments, by J.B. Dixon and S.B. Weed (Editors), Soil Science Society of America, 1977, xxiii + 972 p., 26 papers.

Written from the perspective of the soil scientist, this publication integrates the existing information on soil minerals with special reference to source and occurrence, and to their detailed properties in relation to the physical and chemical reactions of soils and sediments.

It is a comprehensive treatise on the roles of individual minerals in the total soil environment. Through electron micrographs, diagrams, and graphs, it illustrates the preparation of specimens, techniques of examination, and reactions of minerals.

The first two chapters supply the fundamentals of elementary thermodynamics and surface chemistry. The properties of soil mineral constituents by structural group are presented in the next 16 chapters. The remainder of the 26 chapters examine shrink-swell, mineral-organic reactions, mineralogy in soil taxonomy, X-ray powder diffraction, electron microscopy, and infrared and thermal analyses.

Price: \$25.00 (ASA, CSSA, SSSA members' first copy, \$20.00) (US funds only; add \$1 invoicing charge/50c postage outside USA).

Orders to: Book Order Department, Soil Science Society of America, 677 South Segoe Road, Madison, Wisconsin 53711 U.S.A.

Soil Organisms as Components of Ecosystems, Ecological Bulletins/NFR 25, by U. Lohm and T. Persson (Eds.), 1977, 614 p., 94 papers (in English, French and German).

This Bulletin publishes the proceedings of the VI International Colloquium of the International Soil Science Society, Soil Zoology Committee, assembled at Uppsala 21-25 June 1976. The theme emphasizes the fact that soil fauna is only part of the below-ground organisms, and that plant roots, microorganisms and soil animals interact in ways that cannot be understood if the study is restricted to only one of these components.

Four sub-themes were chosen for the plenary sessions of the colloquium: 1) Community structure and niche separation, 2) Soil organisms in nutrient cycling, 3) Plant roots in the soil system, and 4) Simulation models of soil organisms.

Price: 140 SwCr (ca. US\$31, incl. air mail postage).

Orders to: Edit. Service/NFR, Box 23136, S-104 35 Stockholm, Sweden. (ISBN 91-546-0235-1).

The Physical Chemistry and Mineralogy of Soils, Volume II: Soils in Place, by C. Edmund Marshall, 1977, 313 p., 84 figures, 28 tables, author and subject index.

This book explains the processes of soil formation and development by examining the new thermodynamic approach and reviewing earlier methods. It provides a modern expression of the chief link between geographical and chemical aspects of soil.

The subject of rock weathering is approached from a geochemical viewpoint, using the thermodynamic formulation with the Garrels and Christ diagram and pays particular attention to G.B. Harrison's work on rock weathering under tropical conditions. The effects of climatic variations on chemical reactions in soil profiles is examined, as well as the use of lysimeters for obtaining a quantitative measure of the movement of soil constituents in solution, and the index and related methods for calculating changes due to formation and development processes in soil profiles.

The Physical Chemistry and Mineralogy of Soils assumes some background in physical chemistry and mineralogy, and the equivalent of a course in soil development and morphology.

Price: £17.70.

Orders to: John Wiley & Sons Limited, Baffins Lane, Chichester, West Sussex, England PO19 1UD, U.K.

Le calcium et le magnésium dans les sols des régions tropicales humides et sub-humides, par J. Boyer, Directeur de Recherches à l'ORSTOM, Initiations-Dokumentations Techniques No 35, 1978, 173 p.

Cette étude sur le calcium et le magnésium dans les sols tropicaux concerne essentiellement les sols où la dynamique de ces deux éléments relève plus des mouvements *per descensum* que *per ascensum*, c'est-à-dire principalement les sols ferrallitiques, les sols podzolisés, les sols ferrugineux tropicaux, les sols bruns eutrophes, ainsi que les vertisols où cette dynamique est quelque peu particulière. Elle néglige donc les sols où les sels se concentrent dans la partie supérieure ou moyenne du profil par suite de la prédominance des phénomènes d'évaporation sur ceux qui résultent de la percolation des eaux de drainage. Quant aux sols hydromorphes, les problèmes relatifs au calcium et au magnésium sont abordés plus dans une optique d'utilisation par la culture qu'au strict point de vue du chercheur qui cherche à dégager leurs caractéristiques et leur évolution *in situ*.

Malgré ces restrictions, l'étude concerne la majeure partie des sols situés entre les tropiques et certainement la plupart des terres cultivables de ces régions, puisqu'elle couvre *grossa modo* tous les sols qui reçoivent plus de 500 à 600 mm de précipitations annuelles.

Commandes: Service Central de Documentation de l'ORSTOM, 70-74 route d'Aulnay, 93140 Bondy, France.

Erosion et ruissellement en Afrique de l'Ouest - vingt années de mesures en petites parcelles expérimentales, par E. Roose, Travaux et Documents de l'ORSTOM No 78, 1977, 108 p.

L'auteur présente une synthèse des résultats obtenus depuis une vingtaine d'années en cas d'érosion sur des sols ferrallitiques et ferrugineux tropicaux de l'Ouest africain. Il en tire les conséquences sur l'évolution actuelle de ces sols. Après avoir estimé la précision des dispositifs de mesure, il quantifie l'influence des facteurs modifiant l'érosion et le ruissellement dans le cadre général de l'équation de prévision de l'érosion de Wischmeier.

L'analyse du sol en place, du bilan hydrique et des pertes d'éléments minéraux par érosion montre l'importance de l'aspect qualitatif de l'érosion en nappe sur les sols tropicaux. Plus la pente est faible et le couvert végétal important, plus l'érosion est sélective vis-à-vis des éléments nutritifs et des colloïdes organiques et minéraux.

En conclusion, il semble que sur les vieilles surfaces pénéplanées de l'Afrique de l'Ouest, les techniques de conservation de l'eau et du sol complètent celles qui permettent une exploitation intensive du milieu tout en maintenant son potentiel de fertilité.

Commandes: Service des Publications de l'ORSTOM, 70-74 route d'Aulnay, 93140 Bondy, France.

Land Evaluation for Agricultural Development, some explorations of land-use systems analysis, with particular reference to Latin America, by K.J. Beek, International Institute for Land Reclamation and Improvement (ILRI) Publication No 23, 1978, 333 p., English and Spanish summary, glossary, 17 p. literature.

During the last three decades great progress has been made in identifying and characterizing the world's major soils. The use which is being made of resource data for development projects, however, has been lagging far behind. The reasons for this situation are that these data are often presented in a form which is not readily accessible to the potential user, or that land use planners find it more convenient to handle economic parameters without taking physical variables into account.

The increasing and competitive demand for land, both for agricultural production and for other purposes, requires that decisions be made on the most beneficial use of limited land resources, whilst at the same time conserving these resources for the future. It is a function of land evaluation to bring about an understanding of the relationships between the conditions of the land and the uses to which it is put, and to present planners with comparisons and options of promising alternative. Through an international cooperative effort, FAO developed a framework for land evaluation by which land can be assessed, with regard to its soil and climatic conditions, in terms of requirements for successful growth of different crops, or for alternative types of land use.

Since the early days Dr. Klaas Jan Beek has been closely associated with this effort. Dr. Beek was instrumental in defining different types of land utilization. The principal objective of his book is to strengthen the foundation of land evaluation by consolidating the «land utilization type» concept, which expresses the use of land in terms of produce, labour, capital, management, technology and scale of operations. The rapidly increasing number of land use systems and the great variety of the related land requirements and management alternatives, called indeed for an in-depth study of the land utilization type itself, including the application of statistical methods and modelling.

The synthesis presented in this book should promote the further application of a methodology which, through an interdisciplinary approach, provides a basis for land use planning decisions that take into account the qualities and constraints of the physical and socio-economic environment.

Price: Dfl. 30.

Orders to: ILRI, P.O. Box 45, Wageningen, The Netherlands.

Soil Erosion Prediction and Control, Special Publication No 21, Soil Conservation Society of America, 1976, 393 p.

Proceedings of a national conference on soil erosion, which took place May 24-26, 1976, at Purdue University on the occasion of the retirement of Dr. W.H. Wischmeier, the «father» of the Universal Soil Loss Equation.

Price: US\$ 11,00, hardbound; US\$ 8,00, softbound.

Orders to: Soil Conservation Society of America, 7515 Northeast Ankeny Rd., Ankeny, Iowa 50021, U.S.A.

Introduction à la micrométéorologie, transferts d'énergie atmosphère-sol, A. Poggi, Lab. de glaciologie du C.N.R.S., 1977, 160 p., 46 fig. ISBN 2-225-46222-4.

The book is intended for readers without specialized knowledge of fluid dynamics or meteorology. However, an appreciable background in mathematics and physical reasoning is required in these semi-empirical fields. The book provides a clear introduction to atmosphere modelling and boundary layer physics including Monin-Obukhov's and Kolmogorov's theories. Surface heat balance is treated in an interesting chapter on real surface boundary layers (including changes in surface properties) and a brief chapter on radiation. The application to the author's own work on glaciers is described. Thermal behaviour of soils and its interaction with the heat balance is, however, not treated in any detail.

With special reference to soil science the book may not be suitable as an introduction to micrometeorology in connection with soil studies.

Price: FF 80.

Orders to: Masson et Cie., 120 Bd St-Germain, 75006 Paris, France.

W.J. Derksen, Agricultural University, Wageningen, Netherlands.

Soils of Cheshire, Soil Survey Bulletin No. 6, by R.R. Furness, Harpenden, 1978, 240 p., 49 figures, 38 tables, 24 plates, with soil map 1:250,000.

Cheshire is known primarily as a rural county and agriculture continues to be the most important industry despite important industrial sectors. Although arable farming is widespread in some districts, the soils and climate over much of Cheshire County are best suited to grass and dairy farming. Fine clayey soils, formed on reddish till or boulder clay are extremely important, but many other soil types are represented, from coarse freely drained sandy soils formed on glaciofluvial sand or Triassic and Carboniferous sandstone to large areas of hill and lowland peat. Cheshire in fact has an extremely wide range of soils reflecting variations in geology and climate.

This Bulletin and map, the result of work carried out over a period of more than twenty-five years, groups the soil into broad units containing soils which occur together consistently, with characteristic relief features and climate. Though made chiefly for the purpose of long-term agricultural planning and development, it should also be of use for non-agricultural purposes such as new town development, amenity and mineral extraction purposes. The survey was made in 1972-73. Referenced with five appendices.

Price: £10.

Orders to: The Soil Survey, Rothamsted Exp Station, Harpenden, Herts. AL5 2JQ, U.K.

Problems of Soil Science, Soviet pedologists to the XI International Congress of Soil Science, V.A. Kovda (Ed.), «Nauka», Moscow, 1977, 508 p.

This book presents the results of the most recent investigations of Soviet pedologists. Under consideration are problems of land aridization, soil-water-salt balance control and forecast during irrigation; new data on fertilizer-introduced nitrogen, phosphorus and potassium compound cycles are cited.

The section «Soil Physics» contains experimental data on the properties of the solid and liquid interface, alternation of the capillary-absorption moisture potential in the course of moisture infiltration, the impact of roots distribution on moisture consumption. In the sections of soil chemistry and biology, investigations on humus substances are described as well as problems of biological nitrogen and some specific aspects of the soil microbiocenoses functioning. Papers pertaining to the section «Soil genesis and soil geography» analyse general regularities of the soil pattern on the worldwide scale and in large natural districts; the substances balance research using new approaches and techniques is discussed. Micromorphological features disclosing basic pedogenetic processes are characterized as well as transformations of clay minerals in soils.

Orders to: U.S.S.R. Academy of Sciences, All-Union Society of Soil Scientists, Institute of Agrochemistry and Soil Science, Moscow.

Dictionar de Stiinta Solului - Romanian Soil Science Dictionary with corresponding terms in French, German, English, Russian, by Ana Conea, Irina Vintilă, Andrei Canarache, Editura Stiintifica si Enciclopedica, Bucharest, 1977, 671 p.

Soil Science Dictionary including more than 4 500 terms. Definitions are given in Romanian and the terms are listed in alphabetical order, according to this language. Alphabetical indexes for foreign translations are to be found in each of the other four languages. Soil Science Dictionary refers to all branches of soil science, in the broader sense of this term: soil physics; soil chemistry; soil biology; soil fertility and plant nutrition; soil genesis, classification and cartography; soil technology; soil mineralogy and micromorphology. Names of soils from various national and international nomenclature systems have been included, as for instance the classical Russian genetical school, the American Soil Taxonomy, the FAO/Unesco list, the classical and the new Romanian classifications. Terms belonging to related fields of science (agronomy, forestry, reclamation, engineering) as well as to general fields of science (physics, chemistry, geology, geography, biology) have been included.

Price: 31 Lei.

Orders to: Institutul de Cercetari Pentru Pedologie si Agrochimie, Bd. Mărăști No 61, Bucharest, 71331 Romania.

Remote Sensing for Soil Surveys, by Michel C. Girard (Edit.), 1977, 394 p., illustrated.

Proceedings of the ISSS Workshop on Remote Sensing for Soil Surveys held in Rome (FAO), Italy, 31 August-9 September, 1977.

29 papers were presented giving the state of the art in the use of remote sensing in soil science. The main topics dealt with are: (1) Soil characteristics directly sensed, (2) Relationships soil/water and soil/salt, (3) Erosion, state of soil surface, (4) Landscape and soil, (5) Use of remote sensing and photo-interpretation for soil mapping, (6) Methodology, (7) General discussion. Conclusion.

Price: FF 70 or US\$ 18.00, payable in advance by cheque to Mr. Girard, ISSS, B.N.P. Agence Alésia, Paris 75014, Account Number 043467-70.

Orders to: M.-C. Girard, I.N.A. P.-G. - 78850 Thiverval-Grignon, France.

A Framework for Land Evaluation, Soils Bulletin No 32, FAO, Rome, 1976, 72 p. English version reviewed in Bulletin No 51. (Review of French and Spanish versions given below).

Cadre pour l'évaluation des terres. Bulletin pédologique No. 32, FAO, Rome, 1976, 68 p. Comme, en 1970, de nombreux pays avaient déjà élaboré leurs propres systèmes d'évaluation des terres, il était difficile d'échanger des informations, d'où nécessité d'organiser des débats au niveau international pour parvenir à une certaine normalisation. Les travaux préparatoires de deux comités, l'un aux Pays-Bas et l'autre à la FAO, ont produit un document de base (FAO, 1972) qui, de pair avec la description des systèmes de classification des terres utilisés de par le monde (FAO, 1974), ont fait l'objet des délibérations d'une réunion d'experts qui s'est tenue à Wageningen en octobre 1972. A cette occasion, on a arrêté la plupart des principes du cadre proposé pour l'évaluation des terres.

Un système d'évaluation des terres doit servir à des fins pratiques. Diverses ébauches du cadre ont déjà été utilisées dans un certain nombre de projets FAO de mise en valeur des terres. Il faut maintenant l'appliquer à une vaste gamme d'objectifs de planification dans des conditions écologiques, physiques, économiques et sociales très différentes. Ce n'est que grâce à cette application pratique que le cadre peut remplir la fonction pour laquelle il a été conçu, à savoir, aider l'homme à utiliser judicieusement les ressources en terres.

Commandes: Service de Distribution et Ventes, FAO, Via delle Terme di Caracalla, 00153 Rome, Italie, ou Agents de Vente de la FAO.

Esquema para la evaluación de tierras. Boletín de Suelos de la FAO No. 32, FAO, Roma, 1976, 66p. Hacia 1970 muchos países habían dado forma a sus propios sistemas de evaluación de tierras. Esto dificultaba el intercambio de información y resultaba evidente la necesidad de deliberaciones para llegar a alguna forma de uniformación. Los trabajos preparatorios realizados por dos comités, uno en los países Bajos y otro en la FAO condujeron a la producción de un documento básico (FAO, 1972). Este documento, junto con otros en que se describían los sistemas de clasificación de tierras en todo el mundo (FAO, 1974), se discutió en una reunión de expertos internacionales celebrada en Wageningen en octubre de 1972. Se llegó a un acuerdo acerca de casi todos los principios del esquema propuesto para la evaluación de tierras.

La evaluación de tierras está concebida para servir finalidades prácticas. El esquema, en sus versiones provisionales, se ha empleado ya en diversos proyectos de la FAO de fomento de tierras. Es esencial que ahora se someta a ensayos extensivos aplicándolo a una gran variedad de ambientes físicos, económicos y sociales y a otra amplia gama de finalidades de planificación. Sólo mediante tales aplicaciones prácticas, el esquema puede servir para su finalidad propuesta: contribuir al uso juicioso de los recursos de tierras por parte del hombre.

Peticion de envío: Sección de Distribución y Ventas, FAO, Via delle Terme di Caracalla, 00153 Roma, Italia, o Agentes de ventas de la FAO.

Inventaire des études pédologiques effectuées dans le bassin du fleuve Niger (Bénin, Côte d'Ivoire, Haute-Volta, Mali, Niger, Cameroun et Tchad), par V. Eschenbrenner, ORSTOM pour le Ministère de la Coopération, 1978, 159 p.

Etude réalisée par l'ORSTOM à la demande du Ministère de la Coopération. Les travaux cités couvrent la période 1939-76, et en partie l'année 1977. En ce qui concerne les travaux de cartographie pédologique, des cartes en cours de publication sont également mentionnées ainsi que des cartes en cours de réalisation. Les travaux sont regroupés par pays et classés alphabétiquement.

Commandes: Service des Publications de l'ORSTOM, 70-74 route d'Aulnay, 93140 Bondy, France.

Cours de physique du sol - Volume II, L'eau et le sol - les propriétés mécaniques, la chaleur et le sol, par S. Hénin, 1977, ORSTOM, Initiations-Documents techniques No 29, Paris, France, 222 p., ISBN 2-7099-0417-9.

Cet ouvrage fait suite au Volume I (Cf. ISSS Bulletin No 52, p. 58) qui rassemblait l'essentiel des textes des cours de physique du sol du Prof. Hénin. Dans ce second volume, la description des phénomènes implique beaucoup plus l'utilisation de modèles mathématiques.

L'étude des relations entre le sol et l'eau comporte trois chapitres: le premier est relatif à l'aspect statique des relations sol-eau, c'est-à-dire la rétention de l'eau; le second porte sur la dynamique de l'eau dans le système biphasé sol-eau, c'est-à-dire les propriétés du filtre saturé par l'eau et sur la circulation de l'eau dans le système triphasé terre-eau-air; le troisième est consacré à l'étude des mécanismes déterminant le bilan de l'eau dans le milieu naturel.

Commandes: Service des Publications de l'ORSTOM, 70-74 route d'Aulnay, 93140 Bondy, France, et EDITEST, rue de Chambéry, 16, 1040 Bruxelles.

Directives pour la description des sols (seconde édition), Division de la mise en valeur des terres et des eaux, FAO, Rome, 1977, 72 p. ISBN 92-5-200508-0.

Le but de ces directives est d'aider les pédologues et autres techniciens qui ont à décrire des sols ou enseignent les méthodes de description des profils. L'utilisation généralisée, dans leur sens exact, des termes techniques qui ont été largement acceptés par les pédologues contribuera à la standardisation et l'uniformité des méthodes de description des sols et facilitera la corrélation au niveau international. Ces directives visent donc à fournir une collection de termes descriptifs qui, s'ils sont correctement utilisés, peuvent être interprétés par tous les lecteurs et peuvent éventuellement servir de base à une description plus détaillée du profil.

Dès ses débuts, la FAO a utilisé le «Soil Survey Manual» (Agricultural Handbook No 18) du Département de l'Agriculture des Etats-Unis comme base des descriptions de profils. C'est la raison pour laquelle la plus grande partie des directives proviennent telles quelles du Soil Survey Manual. La nomenclature des horizons pédologiques résulte des recommandations d'un groupe de travail organisé par l'AISS dans le cadre du projet FAO/Unesco de la Carte mondiale des sols.

Cet ouvrage est composé de six sections: Présentation des données; Informations concernant la station échantillonnée; Informations générales concernant le sol; Description des horizons; Exemples de description de profils; Description d'un ensemble de sols.

Prix: \$ 3,00

Commandes: Section Distribution et Ventes, FAO, via Delle Terme di Caracalla, 00100 Rome, Italie, et Agents de Ventes de la FAO.

Guidelines for soil profile description (second edition), Land and Water Development Division, FAO, Rome, 1977, 66 p., ISBN 92-5-100508-7.

These guidelines have been prepared to assist field staff who may be called upon to describe soils or to teach methods of soil description. The use of descriptive terms which have received wide acceptance amongst soil surveyors will do much to improve the standard and uniformity of soil descriptive method. These guidelines provide a selection of descriptive terms which, if used in their correct sense, can be interpreted by all readers and used as a basis for more elaborate soil description.

From its earliest days, FAO has used the Soil Survey Manual (Agricultural Handbook No 18) of the U.S. Department of Agriculture as its standard reference book for soil description. Consequently, the greater part of the guidelines are extracted directly from the Soil Survey Manual. The soil horizon designations are the result of the recommendations of panel of experts convened by the ISSS within the framework of the FAO/Unesco Soil Map of the World project.

The book includes six sections: Presentation of data; Information on the site sampled; General information on the soil; Description of individual soil horizons; Example descriptions of individual profiles; Description of a whole body of soil.

Price: \$ 3,00

Orders to: Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Roma, Italy, and FAO Sales Agents.

Guía para la descripción de perfiles de suelo (segunda edición), Dirección de Fomento de tierras y aguas, FAO, Rome, 1977, 70 p. ISBN 92-5-300508-4

Esta guía ha sido preparada con el objeto de ayudar a todo el personal de campo que deba describir suelos o enseñar métodos de descripción de suelos. El uso de términos descriptivos que han recibido amplia aceptación entre los edafólogos, contribuirá a mejorar el nivel y uniformidad de la descripción de suelos. Esta guía ofrece una selección de términos descriptivos que, de ser usados en su sentido preciso, pueden ser interpretados por todos los lectores y utilizados como una base para descripciones de suelo más detalladas.

Desde su comienzo, la FAO ha utilizado el Manual de Levantamiento de Suelos (Manual de Agricultura No 18) de la Secretaría de Agricultura de los Estados Unidos como modelo de referencia para las descripciones de suelos. En consecuencia, la mayor parte de las normas han sido extraídas directamente del Manual de Levantamiento de Suelos. La nomenclatura de los horizontes de suelos es el resultado de las recomendaciones del Cuadro de expertos organizado por la ISSS dentro del marco del proyecto del Mapa mundial de suelos FAO/Unesco.

Esta obra está dividida en seis secciones: Presentación de los datos; Información acerca del sitio de la muestra; Información general acerca del suelo; Descripción de los horizontes del suelo; Ejemplo de descripciones de perfiles; Descripción del suelo como entidad.

Precio: \$ 3,00

Peticion de envío: Sección de Distribución y Ventas, FAO, Via delle Terme di Caracalla, 00100 Roma, Italia, y Agentes de Ventas de la FAO.

Land Limitation and Agricultural Land Use Potential Map of Papua New Guinea, four sheets, scale 1:1 000 000, with explanatory notes, by P. Bleeker, Land Research Series No. 36, Commonwealth Scientific and Industrial Research Organization, Australia, 1975, 80 p., 8 figures, 30 tables, 19 plates.

The principal sources of information for this map were the 14 reconnaissance land system surveys in the Land Research Series, covering nearly half of the 470,000 km² land mass. The purpose of the map is to show the broad distribution of land with respect to terrain, wetness and soil limitations: It is a general land inventory indicating areas requiring more study.

Descriptions of the mapping units, particularly those showing agricultural potential, are orientated towards soils. This is due to the fact that Papua New Guinea still relies heavily on agricultural exports. Together with maps on vegetation and geomorphology, this map should serve purposes related to natural resources as road planning, new land settlement areas and other engineering assessments.

Orders to: Division of Land Use Res., CSIRO, P.O. Box 1666, Canberra City, A.C.T. 2601.

An Introduction to Environmental Biophysics, by G.S. Campbell, Department of Agronomy and Soils, Washington State University, 1977, xv + 159 p. ISBN 0-387-90228-7 Springer-Verlag, New York; ISBN 3-540-90228-7 Berlin/Heidelberg.

This book describes the physical micro-environment in which living organisms reside. It presents a simplified discussion of heat — and mass — transfer models and applies them to exchange processes between organisms and their surroundings. The intent is to teach the student to calculate actual transfer rates, in an engineering approach to environmental biology, rather than to study only the principles involved. Numerical examples are presented to illustrate many of the principles, and problems are given at the end of each chapter to help the student develop skill in using the equations.

The last four chapters of the book deal with the application of physical principles to exchange processes of living organisms.

Orders to: Springer-Verlag, Heidelberg (Heidelberg Science Library).

A Sample of Coordinated Research for the Recovery of Productivity of Marginal Lands, Parma, 24 May 1977, National Council of Research, 1977, 190 p., 13 papers (in Italian)

The recovery of the productivity of marginal terrain represents one of the principle themes of the Progetto Finalizzato, «The Promotion of the Quality of the Environment». This theme was considered in Parma in May 1977 at a workshop to explore and discuss developments reached by experts and representatives of corporations, interested in the application on a wide scale of these development.

In the course of the workshop, they examined many related aspects of the growth of basic production that relate to the re-establishment of a vegetation cover of the soil that contributes to its protection.

With the publication of these proceedings, and the formulation of them as legal Acts it is proposed to give to the results a wider audience, thus soliciting those interested to provide their observations and suggestions for the propagation of this research.

Orders to: Serie di Contributi a Congressi (AC/4/1-13), Collana del Programma Finalizzato «Promozione della Qualità dell'Ambiente» Consiglio Nazionale delle Ricerche Roma, Italy.

Soil Factors in Crop Production in a Semi-arid Environment Editors J.S. Russel and E.L. Greacen, University of Queensland Press, St. Lucia, Queensland, 1977, 327 p.

This well referenced 327 page book has been prepared under the auspices of the Australian Society of Soil Science, with contributions from soil scientists working in a wide range of research institutions and government departments in that country. It contains a wealth of soil information.

The 14 individual chapters are arranged in three main parts. The first part is concerned with the properties of semi-arid soils, these being considered from their morphological, mineralogical, physical and chemical aspects. The second part looks at first order interactions, that is between soils and both climate and plants, and examines mechanisms and processes. The third part of the book deals with second order interactions, that is between soils, climate, plants, and man. It assesses significant practices that man can use in growing plants on semi-arid soils, such as cultivation, fertilization and crop sequential practices, and examines their effects on ecosystem stability.

To the land quality oriented reader, Chapter 2 (Morphological Properties) holds particular promise. The various semi-arid zones of the continent are inventoried and soil attributes for crop production are discussed in relationship to these zones and five generalized morphologic profiles of Australia. Thus, in considering gross physical dimensions of «coherent earth» soils, criteria for suitability assessment emerge, such as «... this, with the heavier rainfalls and high evapotranspiration of crops between rains, makes a minimum depth of 150 cm desirable for these soils in the tropical semi-arid zones». That such quantitative suitability criteria are not further developed is disappointing. As stated in the introduction, «... well-defined cropping boundaries have yet to be established» and the title of this book suggested that its contents might have provided an answer.

The book well attains its objective of gathering together a large amount of information about Australian semi-arid soils, which will lead to further interpretation in terms of crop requirements.

Orders to: Queensland Press, St. Lucia, Queensland, Australia.

G. Higgins, Rome

Soil Combinations and Their Genesis, V.M. Fridland (Editor-in- Chief), Nauka Publishers, Moscow, 1972, English translation published for the Agricultural Research Service, USDA, Amerind Publishing Co., Pvt. Ltd., New Delhi, 1976, 272 p.

This book contains the proceedings of a symposium on «The problem of the pattern of Soil Cover and Soil Combinations: their genesis and the methods of studying them», organized jointly by the Institute of Geography of the Academy of Sciences, USSR, and the Scientific Council on the problems of soil science and soil reclamation of the Academy of Sciences, USSR.

The 26 papers assembled in this book address basic ideas on soil combinations and the pattern of soil cover, present the results of regional studies, analyse the spatial variability of individual soil properties, and review the practical effectiveness of theoretical and methodological approaches in estimating, evaluating and utilizing land resources.

During the first stages of the formulation of generic soil science it was found that the marked diversity of the Great Groups showed a very orderly distribution on the earth's crust. Further acquaintance with the soil cover of the earth, however, revealed the fairly complex picture of changes in zonal soils.

The subjects dealt with in this book link up with the concepts of soil associations, catenas «ensembles de sols» and soil complexes which are also applied in other countries.

The heterogeneity of the soil cover is accounted for by the existence of specific combinations of various soils in nature. Soil combinations are exceedingly diverse and the factors or causes influencing their formation are very numerous. Most of these factors, moreover, are complexly inter-related.

Orders to: U.S. Department of Commerce, National Technical Information Service, Springfield, Virginia 22161.

Modifications of Soil Structure, edited by W.W. Emerson, R.D. Bond and A.R. Dexter, John Wiley and Sons, 1978, 438 p.

This book is based on papers presented at a meeting on Soil Structure held in Adelaide, Australia (Aug. 23-27, 1976), sponsored by Commission I (Soil physics) of the International Society of Soil Science. The meeting was organized by a committee in which the Division of Soils, C.S.I.R.O., the Waite Agricultural Research Institute at Adelaide, and the South Australian Department of Agriculture participated. It followed earlier international symposia on soil conditioning but its scope was broadened to include tillage and biological factors.

The 56 papers are grouped in six major sections: 1. Clay particle interactions; 2. Soil geometry and strength; 3. Soil bonding agents; 4. Soil stability and permeability; 5. Modification of structure in the field; 6. Soil management for agriculture. The first four sections (35 papers) set out the current understanding of the interactions between the individual particles in a soil — particularly the clay minerals and oxides — and how these determine the bulk physical properties of a soil, such as strength, porosity and aggregation. The two last sections (21 papers) deal with methods of modifying these properties for specific purposes such as for growing crops, maintaining turf, dams and water harvesting. Methods advocated to improve growth conditions and to prevent soil degradation include the addition of plant residues, synthetic organic polymers, gypsum and iron, and the selection of a tillage programme.

The book reflects a welcome trend to carry soil physical studies into the field. The papers on modification of structure in the field and on soil management seem essentially based on field experimentation, the first four sections in the book being devoted especially to laboratory measurements and results of basic research. The role of soil physics in increasing agricultural production could be very significant in the years to come. A closing of the gap between fundamental work and its actual application in the field should be consciously aimed at. This meeting has certainly contributed to this objective and its proceeding should be of interest to those who use soil as a working material as well as a means of production.

Price: £ 18.50

Orders to: John Wiley & Sons Limited, Distribution Centre, Southern Cross Trading Estate, Oldlands Way, Shripney, Bognor Regis, West Sussex, England PO22 9SA

Managing Saline Water for Irrigation, edited by H.E. Dregne, Director, International Center for Arid and Semi-Arid Land Studies, Texas Tech University, 1977, 613 p.

Proceedings of the International Conference on Managing Saline Water for Irrigation: Planning for the Future, held at Lubbock in 1976 under the sponsorship of the ISSS, Subcommission on Salt-Affected Soils, the Soil Science Society of America, New Mexico State University, Texas A & M University, Texas Tech University, the U.S. Environmental Protection Agency and the U.S. Salinity Laboratory.

Salinity is becoming an increasingly serious problem as water of less and less desirable quality is exploited for irrigation and as greater intensity of water use leads to degradation. Deteriorating quality, combined with rapidly increasing energy costs, has caused a crisis in water use in pump-irrigated areas. Similarly, river waters have become more highly regulated, water evaporating from reservoirs concentrates the salts, and new irrigation projects aggravate the salinity problem for downstream users.

Plant scientists, soil scientists, and engineers from 20 countries participated in this conference, assessed the current state of knowledge about managing saline water for irrigation and presented new information on how to cope with salinity. Their findings are presented in this volume. The tone of the papers is one of optimism that moderately saline water can be used successfully for irrigation if what is known already and what is being learned now is used effectively. Mixed with the optimism is the realization that careless management of saline irrigation water can be disastrous to the land and, more important, to the people living on that land.

Orders to: International Centre for Arid and Semi-arid Land Studies, Texas Tech University, Lubbock, Texas, USA.

Subsurface Drainage Instructions by Rudolf Eggelsmann. Arbeitsgruppe für Internationale Zusammenarbeit (AIZ), 1978. 283 p. 149 fig.

The book is a translation from the German «Dränanleitung», edited by the ICID National Committee of the Federal Republic of Germany. It addresses itself to experts of various disciplines who turn to drainage to improve agricultural production. Thus theories have been dealt with in summary form and full emphasis has been placed on practical information on such aspects and stages of drainage planning as field investigations, subsurface drainage methods, subsurface drainage efficiency, hydraulic calculations, technical planning principles, drainage materials, construction of subsurface drainage systems, and maintenance.

The book deals primarily with instructions for work in Germany and refers to German DIN standards and prescriptions for further information and details. Information on the factors and considerations that have led to the choice of flow equations or values of design criteria and parameters is limited. Consequently, the book will be of interest primarily to countries with climatic soils and cropping conditions that are similar to those in Germany.

In irrigation areas, the rapid development of which prompted the English translation, sections on engineering and design, in particular, will provide useful information.

Orders to: Verlag Paul Parey, Spitalstrasse 12, D-Hamburg Federal Republic of Germany.

P. Dieleman, Rome

Soil Map of the World. Vol. VI. Africa, 299 pages, 3 map sheets at scale of 1:5 000 000, 7 inlay maps, 1978, Unesco, Paris.

This volume describes the African section of the 1:5 000 000 Soil Map of the World. The introduction provides the history of the project and the past work which lies at the basis of this general Soil Map of Africa. Subsequently, the 4 factors of the environment that have close relationships with the distribution of soils in Africa are dealt with: soil-climate, vegetation, physiography and surface geology and lithology.

The major part of the publication is devoted to the soil associations of the African continent, to their utilization and their suitability for agriculture. An appendix presents the description and analysis of 40 profiles which are representative of the major soils which occur in the region.

The cartographic information and the quantitative data on the soil resources of Africa and of their potential constitute a valuable basis for development programmes. Furthermore, the didactic and scientific values of this publication have to be acknowledged. This volume is also available in French (see Bulletin No. 49).

Orders to: Unesco Press, Place de Fontenoy, Paris 7ème, France, or National Sales Agents of Unesco Publications.

Soil Map of the World, Vol. VII. South Asia. 117 pages, 2 map sheets at scale 1:5 000 000, and 6 inlay maps, 1977, Unesco, Paris.

This volume describes the South Asia section of the 1:5 000 000 scale Soil Map of the World. This publication deals with the four factors of the environment of South Asia that have close relationships with soil distribution in this part of the world, namely: soil climate, vegetation, physiography and surface geology. A major part of the publication is devoted to a description of the soils and a discussion of land use and soil suitabilities for agriculture. The description and distribution of soils are discussed on the basis of 19 major soil regions. Profile description and analysis are given in an appendix for the main soil units of South Asia.

This study of the soils of South Asia indicates that 60% of the area is seriously limited for agricultural development by aridity and steep topography. Of the remaining 40%, large areas are subjected to severe flooding mainly in the large deltas.

The Soil Map makes it possible to obtain an overview of the lands where intensification is possible and where additional land may be made available for cultivation.

Orders to: Unesco Press, Place de Fontenoy, Paris 7ème, France, or National Sales Agents of Unesco Publications.

DIRECTORY OF NATIONAL SOCIETIES OF SOIL SCIENCE

The societies affiliated with the ISSS have increased from 37 in 1974 to 51 at present. Over the last four-year period, new societies were created in Chile, East Africa, Ecuador, Ireland, Norway, Morocco, Tunisia and Switzerland. Plans are being made to form Soil Science Societies in Cameroon, Nepal, Pakistan and Peru.

The list below shows successively: the name of the national societies (with the year of foundation), the name of the President and Secretary General for 1978, and the address of the Secretariat. The two figures in brackets indicate the membership in the national society and the membership in the ISSS at the end of 1977.

For some societies not all information was available in which case some of the elements mentioned above are missing.

ANNUAIRE DES ASSOCIATIONS NATIONALES DE LA SCIENCE DU SOL

Les associations affiliées à l'AISS ont augmenté de 37 en 1974 à 51 maintenant. Durant les quatre dernières années, de nouvelles associations ont été créées ou reconstituées au Chili, en Afrique de l'Est, Equateur, Irlande, Norvège, Maroc, Tunisie et Suisse. Des projets de création d'associations de science du sol ont été élaborés au Cameroun, Népal, Pakistan et Pérou.

La liste ci-dessous donne successivement: le nom de l'Association nationale (avec l'année de fondation), le nom du Président et du Secrétaire général en 1978, et l'adresse du Secrétariat. Les deux chiffres entre parenthèses indiquent le nombre de membres de l'Association nationale et le nombre des membres de l'AISS à la fin de 1977:

Pour quelques associations, les informations ne sont pas toutes disponibles; dans ce cas certains des éléments mentionnés ci-dessus sont manquants.

VERZEICHNIS DER NATIONALEN BODENKUNDLICHEN GESELLSCHAFTEN

Im Jahre 1974 waren 37 bodenkundlichen Gesellschaften der IBG angegliedert; diese Zahl ist inzwischen auf 51 gestiegen. Neue Gesellschaften wurden während der letzten vier Jahre in Chile, Ecuador, Ostafrika, Irland, Norwegen, Marokko, Tunesien und der Schweiz gegründet. Weiter bodenkundliche Gesellschaften sollen in Kamerun, Nepal, Pakistan und Peru entstehen.

Auf der untenstehende Liste sind aufgeführt: der Name jeder nationalen Bodenkundlichen Gesellschaft (mit Gründungsjahr), die Namen ihres Vorsitzenden und ihres Generalsekretärs für das Jahr 1978 und die Anschrift des Sekretariats. Die Zahl der Mitgliedschaft der nationalen Gesellschaft sowie die Mitgliederzahl bei der IBG - in 1977 - sind in Klammern aufgeführt.

Leider konnten wir nicht für alle Gesellschaften vollständige Angaben einholen, so dass im Verzeichnis das eine oder das andere fehlen mag.

- Asociación Argentina de la Ciencia del Suelo (1960)**
 Ing. Agr. Oscar J. Guedes
 Dr. Dino A. Cappannini
 Cervino 3101, 1425 Buenos Aires, Argentina (350/2)
- Australian Society of Soil Science Incorporated (1956)**
 Dr. A. N. Smith
 Mr. G. D. Batten
 Agricultural Res. Inst., Wagga Wagga, N.S.W., Australia 2650 (644/262)
- Österreichische Bodenkundliche Gesellschaft (1954)**
 Hofrat Dipl. Ing. Dr. Fritz Ornig
 Dr. Max Eisenhut
 A-1180 Wien, Gregor Mendel-Strasse 33, Austria (249/72)
- Société Belge de Pédologie - Belgische Bodemkundige Vereniging (1950)**
 Prof. Dr. M. Van Ruymbeke
 Prof. Dr. C. Sys
 Geologisch Instituut, Krijgslaan 271, B-9000 Gent, Belgique (213/112)
- Sociedade Brasileira de Ciência do Solo (1947)**
 Dr. Luiz Bezerra de Oliveira
 Dr. José M. A. S. Valadares
 Caixa Postal 28, 13.100 Campinas-S.P., Brasil (730/115)
- Bulgarian Society of Soil Science (1958)**
 Dr. sci. Lulcho Raikov
 Dr. sci. Ivan Atanasov
 Institute of Soil Science «N. Poushkarov», 5 Shosse Bankya,
 Sofia, Bulgaria (200/38)
- Canadian Society of Soil Science (1955)**
 Dr. G. C. Topp
 Dr. G. J. Wall
 University of Guelph, Agriculture Canada, Guelph, Ontario, Canada (350/304)
- Sociedad Chilena de la Ciencia del Suelo**
 Prof. Domingo Suárez
 Prof. Walter Luzio
 Universidad de Chile, Casilla 1004, Santiago, Chile (21/21)
- Chinese Society of Soil Science**
 Prof. Li Ching-kuei
 Institute of Soil Science,
 Chinese Academy of Sciences, Nanking,
 People's Republic of China
- Sociedad Colombiana de la Ciencia del Suelo**
 Instituto Geográfico Augustin Codazzi, Bogota, Colombia (/13)
- Czechoslovak Societies of Soil Science (1968)**
 Dr. Juraj Hraško
 Dr. Miloš Valla
 Agricultural University, 160 21 Praha-Suchbát, Czechoslovakia (183/34)

Dansk Forening for Jordbundsvidenskab -

Danish Society of Soil Science (1958)

Prof.Dr. Kjeld Rasmussen

Dr. Aage Henriksen

State Laboratory for Soil and Crop Research,
24 Lottenborgvej, D K 2800 Lyngby, Denmark

(70/69)

Soil Science Society of East Africa (1974)

Dr. A.P. Iriyo

Dr. A.O. Moshi

c/o EAAFRO, P.O. Box 30148, Nairobi, Kenya

(49/14)

Soil Science Society of Egypt (1950)

Prof. Hassan M. Hamdi

Dr. Nabil El Mowelhi

Soil and Water Res. Inst., Min. of Agric., Cairo-Giza, Egypt

(180/25)

Sociedad Ecuatoriana de la Ciencia del Suelo

Ing. Jorge Flor

Dr. Sc. F. Maldonado

c/o Predesur, Calle González Suarez 318, Apt. 305, Quito
Ecuador

(50/36)

Finnish Society of Soil Science (1971)

Prof.Dr. Mikko Sillanpää

Miss Leila Urvas (B. Sci.)

Institute of Soil Science, Agricultural Research Centre,
Box 18, 01301 Vantaa 30, Finland

(32/32)

Association française pour l'étude du sol (1934)

M. Philippe Duchaufour

M. Jean-Claude Begon

C.N.R.A., route de Saint-Cyr, 78.000 Versailles, France

(392/115)

Deutsche Bodenkundliche Gesellschaft (1926)

Prof.Dr. D. Schroeder

Prof.Dr. Brunk Meyer

34 Göttingen, v.-Siebold-Str. 4, Bundesrepublik Deutschland

(644/218)

Bodenkundliche Gesellschaft der DDR (1967)

Prof.Dr. sc. Peter Kundler

1086 Berlin, Postfach 1295, Deutsche Demokratische Republik

(330/62)

Soil Science Society of Ghana (1964)

Dr. H.B. Obeng

Dr. P.K. Kwakye

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Kwadaso - Kumasi, Ghana

(28/20)

Hungarian Soil Science Society (1957)

Prof.Dr. István Szabolcs

Mr. Ferenc Jassó

Research Institute for Soil Science and Agricultural Chemistry,
Hungarian Academy of Sciences, H-1022 Budapest II,
Herman O. 15, Hungary

(850/59)

- Indian Society of Soil Science (1934)**
 Dr. T.D. Biswas
 Dr. A.B. Ghosh
 Division of Soil Science & Agricultural Chemistry,
 Indian Agricultural Research Institute, New Delhi
 110012, India (808/32)
- Indonesian Society of Soil Science (1972)**
 Prof. Ir. Soegiman
 Dr. Ir. J. Soedarsono
 Departmen Ilmu Tanah, Universitas Gajah Mada,
 Yogyakarta, Indonesia (220/20)
- Iranian Soil Science Society (1974)**
 Dr. Ali M. Massoumi
 Dr. Ali A. Salardini
 c/o Dep. of Soil Science, Univ. of Teheran, Karadj, Iran (90/53)
- Soil Science Society of Ireland (1978)**
 Dr. M. Gardiner
 Dr. J. Collins
 Faculty of Agriculture, Univ. College, Belfield, Dublin 4, Ireland (30/11)
- Israel Society of Soil Science (1950)**
 Prof. D.H. Yaalon
 Dr. A. Feigin
 Institute of Soils and Water, Agricultural Research Organization,
 Volcani Center, POB 6, Bet Dagan, Israel 50-200 (90/70)
- Società Italiana della Scienza del Suolo (1952)**
 Prof. Gino Florenzano
 Prof. Riccardo Materassi
 c/o Istituto di Microbiologia Agraria e Tecnica,
 Piazzale delle Cascine 27, 50144 Firenze, Italy (248/193)
- The Society of the Science of Soil and Manure, Japan (1927)**
 Dr. K. Kumada
 Dr. T. Egawa and Dr. S. Shimane
 Room 202, Hongo 6-26-10, Bunkyo-Ku, Tokyo 113, Japan (2000/187)
- Korean Society of Soil Science and Fertilizer (1968)**
 Dr. Yung - Sup Kim
 Mr. Bok - Jin Kim
 Institute of Agricultural Sciences, Suweon 170, Korea (251/5)
- Malaysian Society of Soil Science (1971)**
 Mr. Chew Poh Soon
 Mr. Han Siew King
 Highlands Res. Unit, P.O. Box 209, Klang, Malaysia (90/10)
- Association Marocaine des Sciences du Sol (1977)**
 Dr. M. Abdouh Yacoubi
 Mr. Mohamed Benmiloud
 3, Avenue Bin El Ouidane, Rabat-Agoal, Maroc (45/40)

- Sociedad Mexicana de la Ciencia del Suelo (1962)**
 Dr. Horacio T. Hernández H.
 Dr. David Reyes Manzanares
 Apartado Postal No. 45, Chapingo, Edo. de Mexico (950/21)
- Netherlands Society of Soil Science (1935)**
 Prof.Dr. A. van Diest
 Ir. J.C. Pape
 Staringebouw, Marijkeweg 11, Wageningen, The Netherlands (548/155)
- New Zealand Society of Soil Science (1952)**
 Dr. M.L. Leamy
 Dr. R. Lee
 Soil Bureau, DSIR, Private Bag, Lower Hutt, New Zealand (475/122)
- Soil Science Society of Nigeria (1968)**
 Dr. S.A. Adetunji
 Dr. W.O. Enwezor
 c/o Department of Soil Science, University of Nigeria,
 Nsukka, Nigeria (46/28)
- Norsk forening for jordforskning -
 Norwegian Society of Soil Science (1977)**
 Prof. Arnor Njos
 Prof. Ole Ovind Hvatum
 Box 72, N-1432 As-NLH, Norway (56/56)
- Soil Science Society of the Philippines**
 c/o Bureau of Soils, Ma. Y. Orosa Street, Ermita,
 Manila, Philippines (/29)
- Polish Soil Science Society (1937)**
 Prof.Dr. Lucjan Królikowski
 Ass. Prof.Dr. Alojzy Kowalkowski
 Ul. Wiśniowa 61, 02-520 Warszawa, Poland (1011/34)
- Sociedade Portuguesa da Ciencia do Solo**
 Quinta do Marques, Oeiras, Portugal
- Societatea Nationala Romana Pentru Stiinta Solului (1961)**
 Academician Prof. G. Obrejanu
 Dr. D. Teaci
 Bucuresti 1, Bd. Marasti 61, 71331 Romania (523/29)
- Soil Science Society of Southern Africa (1953)**
 Dr. M.C.F. du Plessis
 Prof. E. Verster
 P.O. Box 1821, Pretoria 0001, Republic of South Africa (178/166)
- Sociedad Espanola de Ciencia del Suelo (1947)**
 Prof.Dr. A. Hoyos de Castro
 Dr. E. Dorado Bernal
 Instituto de Edafología y Biología Vegetal, Serrano 115.
 dupldo. Madrid-6, Spain (190/51)

- Soil Science Society of Ceylon (1969)**
 Prof. M.W. Thenabadu
 Dr. C.S. Weeraratna
 Dept. of Agricultural Chemistry, Faculty of Agriculture,
 Peradeniya, Sri Lanka (72/2)
- Swedish Society of Soil Science (1943)**
 Dr. L.G. Nilsson
 Agr. L. Mattsson
 Department of Soil Sciences, S-750 07 Uppsala, Sweden (262/63)
- Bodenkundliche Gesellschaft der Schweiz -
 Société Suisse de Pédologie (1975)**
 Prof.Dr. H. Sticher
 Dr. L.-F. Bonnard
 Eidgenössische Forschungsanstalt für landwirtschaftlichen
 Pflanzenbau, 8046 Zürich-Reckenholz, Switzerland (94/71)
- Association Tunisienne de la Science du Sol (1978)**
 M. Mohsen Hamza
 M. Ali Hamza
 Division des Sols, Avenue de la République,
 Tunis-Port, Tunisie (25/25)
- British Society of Soil Science (1947)**
 Dr. G.W. Cooke, F.R.S.
 Dr. D.V. Crawford
 University of Nottingham, School of Agriculture,
 Sutton Bonington, Loughborough, Leics. LE12 5RD, U.K. (766/347)
- Soil Science Society of America (1936)**
 Dr. Parker F. Pratt
 Dr. Matthias Stelly, Executive Vice President
 677 South Segoe Road, Madison, Wisconsin 53711, USA (5000/1400)
- All-Union Society of Soil Scientists of the USSR (1939)**
 Prof.Dr. V.A. Kovda
 Mrs. G.S. Pogodina
 Pygevsky per.7, 109017 Moscow-17, USSR (6950/84)
- Sociedad Venezolana de la Ciencia del Suelo (1954)**
 Prof.Dr. I. Pla Sentis
 Ing.Agr. R. Paredes
 Apartado 1208 (Sta Rosa), Maracay, Venezuela (350/51)
- Yugoslav Society of Soil Science**
 Dr. D. Popovski
 Dr. G. Antonovic
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