



bulletin

of the international society of soil science

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de l'association internationale de la science du sol

mitteilungen

der internationalen bodenkundlichen gesellschaft

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

(Founded/fondée/gegründet 19-05-1924, 6600 members, residents of/membres, résidents de/Mitglieder, wohnhaft in 132 countries/pays/Ländern)

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Season's Greetings
Meilleurs Voeux
Beste Glückwünsche

The Officers of the International Society of Soil Science
Le Bureau de l'Association Internationale de la Science du Sol
Der Vorstand der Internationalen Bodenkundlichen Gesellschaft

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ISSS AISS IBG

PROGRAMME 13TH ISSS CONGRESS, AUGUST 13-20, 1986 HAMBURG

Motto: 'Demands on soils – increasing in variety and diversity'

The Organizing Committee informs on the state of preparations:

Routes and time tables of pre- and postcongress tours have been worked out by the Excursion Commission. They are shown in the schematic map and the diagram. Short descriptions of main topics are given also.

EXCURSIONS

In cooperation with colleagues from the Netherlands, Austria and Switzerland, a number of pre- and post-Congress excursions will be organized. These excursions aim to give an impression of typical soil landscapes in central Europe and their land use problems. Details on inscription and costs will be communicated later.

Pre-Congress excursions

Excursion A (10 days, August 3-12): Munich-Hamburg (see map)

Landscapes, soils and land use in the Federal Republic of Germany: Limestone Alps, younger moraines of the Alpine foreland, loess-covered terraces of Upper Bavaria, sandstone/claystone cuestas and backslopes of Franken and Württemberg, loess hills and bottomlands of the basin of Mainz, volcano landscape of the Vogelberg, limestone interfluvium of the forest of Göttingen, loess deposits of the Hildesheimer Plain, fluvio-glacial drifts and older moraines of the Lüneburger Heide, peatlands in Niedersachsen, marshlands of Ditmarschen, younger moraines in East Holstein.

Excursion B (8 days, August 4-11): Frankfurt-Amsterdam (see map)

Boat tour with soils and landscapes on both sides of the Rhine. Land consolidation in vineyards, improvement of heavy soils, land reclamation in brown coal mining area of Rheinland, International Soil Museum, Dutch marine polder district and Deltaproject.

Post-Congress excursions

Excursion C (8 days, August 22-29): Zurich-Munich (see map)

Influence of altitude and exposure on the soil formation from different parent rocks in the Central Alpine region: soils of the Jura, and of the Alpine Foreland, on dolomite, serpentine and crystalline of the subalpine and alpine levels of Switzerland; soils of the interior alpine dry valleys, in toposequences on both north and south facing slopes on the Grossglockner in Austria.

Excursion D (5 days, August 21-25): Hamburg-Munich (see map)

Influences of land management and the environment on soils: recent soils and paleosols on the crystalline of the Fichtel mountains and the Bavarian Forest with forestry problems. Soil erosion and soil conservation in the Hallertal, use of sludge on rendzinas of the Schotterplain of Munich.

Excursion E (5 days, August 21-25): Hamburg-Stuttgart (see map)

Dystrophic soils of the Mittelgebirge of the Northern Black Forest, sequences in soil formation in granite and gneiss of the Southern Black Forest, clay migration and impeded drainage in moraine landscape, structural and mineral transformation in soils developed from clayey parent rocks of the Alpine Foreland. Recent soils and paleosols in the limestone-karst area of the Alb plateau.

Excursion F (5 days, August 21-25): Hamburg-Hannover (see map)

Soil associations in agriculture and forest ecosystems on limestone, sandstone, claystone, loess, sand; history of soil and human occupation: Harz, Triassic hills, loess areas, Pleistocene sands; paleopedology, history of erosion.

Excursion G (4 days, August 21–24): Hamburg-Berlin (see map)

Soil problems in urban concentrations: pollution of heavy metals and by salt sprinkling, sewage treatments, recultivation of rubble in ruined areas and garbage dumps, green belts, nature conservation.

Excursion H (4 days, August 21–24): Hamburg-Amsterdam (see map)

Development of peatlands in Northern Germany and the Netherlands from their natural to reclaimed state; natural raised bog, excavation of peat, farming on non-excavated raised bogs and on mixtures of peat and sand; peatlands below sealevel, polders.

Excursion I (1 day, August 11 and 17): Hamburg (see map)

Soils and pressure on soils in the Elbe wetlands.

Excursion K (1 day, August 12 and 17): Hamburg (see map)

Recent soils and paleosols in pleistocene deposits near Hahnheide.

Excursion L (1 day, August 11 and 17) Hamburg-Husum (see map)

North Frysian marine clay district with soils of the salt marshes and embanked areas of different ages: soil ripening processes (redox processes, desalinization, development of structure) and soil alteration (decalcification, weathering of silicates, clay migration); land use problems.

Excursion M (1 day, August 12 and 17): Hamburg-Oldenburg (see map)

Genesis and dynamics of water, air and solids in loamy soils of the younger moraines and in sandy soils of the Geest under use for forestry and agriculture.

Details on the congress-sessions in Hamburg are being worked out by the programme commission. They will be printed in the next Bulletin.

PROGRAMME DU CONGRÈS DE L'AISS 13–20 AOÛT 1986 HAMBOURG

Thème: Les besoins en sols: exigences croissantes en surfaces et en quantités.

Le Comité organisateur informe sur l'état des préparations:

Pour les excursions avant et après le congrès ont été retenus les itinéraires, les dates et les sujets comme suit (voir aussi la carte schématique):

EXCURSIONS

En coopération avec les collègues des Pays-Bas, d'Autriche et de la Suisse seront organisées plusieurs excursions avant et après le congrès. Les excursions servent de prendre connaissance des paysages pédologiques typiques en Europe centrale avec les problèmes de leur utilisation. Des particularités sur la mode et les frais d'inscription seront communiquées ultérieurement.

Excursions avant-congrès

Excursion A (10 jours, 3–12 août): Munich-Hambourg (voir plan)

Paysages, sols et utilisation des sols en République Fédérale d'Allemagne: les Alpes calcaires, les moraines jeunes du pays avant-Alpes, les terrasses couvertes de loess en Haute-Bavière, les cuestas grès/argilite et les plaines de Franken et Württemberg, les collines de loess et les basses terres du Bassin de Mainz, le paysage volcanique du Vogelberg, l'interfluve de calcaire de la forêt de Göttingen, les collines de loess de la plaine de Hildesheim, les moraines fluvio-glaciaires et anciennes de la Lüneburger Heide, la tourbière de Niedersachsen, les marais de Ditmarschen, les moraines jeunes de Holstein oriental.

Excursion B (8 jours, 4–11 août): Francfort-Amsterdam (voir plan)

Tour de bateau avec sols et paysages à deux côtés du Rhin, réaménagement des vignobles, amélioration des sols lourds, la remise en valeur des terrains excavés pour l'exploitation de lignite en Rheinland, Muséum International des Sols, de basses terres et le projet Delta aux Pays-Bas.

Excursions après-congrès

Excursion C (8 jours, 22–29 août): Zurich-Munich (voir plan)

Influence de l'altitude et de l'exposition sur la formation des sols issus de roches-mère différentes dans la région centrale des Alpes: sols du Jura, des avant-Alpes ainsi que les sols sur dolomite, serpentine, et cristallin des niveaux alpins et sous-alpins en Suisse, sols des vallées sèches des Alpes intérieures, ainsi que les sols des toposéquences aux expositions au nord et au sud sur le Grossglockner en Autriche.



Excursion D (5 jours, 21–25 août): Hambourg-Munich (voir plan)

Influences de l'utilisation et de l'environnement sur des sols: sol récents et paléosols sur cristallin de Fichtelgebirge et la Forêt de Bavière avec problèmes forestiers; érosion et conservation des sols en Hallertau; épandage de vidange des eaux d'égout sur rendzines de la plaine munichoise de Schotter.

Excursion E (5 jours, 21–25 août): Hambourg-Stuttgart (voir plan)

Sols dystrophes des montagnes de moyenne altitude de la Forêt Noire du Nord, séquences en formation des sols sur granite et sur gneiss de la Forêt Noire du Sud, migration d'argile et stagnation de l'eau dans un paysage de moraines de Haute-Bavière, la transformation de la structure et des minéraux dans les sols issus de l'argilite du pays avant-Alpes, sols récents et paléosols dans la zone karst-calcaire du haut plateau de l'Alb.

Excursion F (5 jours, 21–25 août): Hambourg-Hannover (voir plan)

Associations des sols dans les écosystèmes agricoles et forestiers sur calcaire, grès, argilite, loess, sable; montagnes triassiques, des endroits loessiques, sable du Pléistocène; paléopédologie; histoire de l'érosion.

Excursion G (4 jours, 21–24 août): Hambourg-Berlin (voir plan)

Des problèmes pédologiques des zones de concentrations urbaines: contamination à métaux lourds et par l'épandage des sels, traitement des eaux d'égout, recultivation des zones ruinées et des dépôts d'ordures, des zones urbaines vertes, protection de la nature.

Excursion H (4 jours, 21–24 août): Hambourg-Amsterdam (voir plan)

Développement des tourbières en Allemagne septentrionale et aux Pays-Bas, de l'état naturel jusqu'à l'état cultivé: tourbière naturelle, excavation de tourbe, cultivation sur haute tourbe et sur des mélanges de sable et de tourbe, tourbières au dessous le niveau de la mer, polder.

Excursion I (1 jour, 11 et 17 août): Hambourg (voir plan)

Sols et des pressions sur les sols dans les basses terres du fleuve Elbe.

Excursion K (1 jour, 12 et 17 août): Hambourg (voir plan)

Sol récents et paléosols sur les dépôts du Pléistocène porés de Hahnheide.

Excursion L (1 jour, 11 et 17 août): Hambourg-Husum (voir plan)

De basses terres du pays frison du Nord avec les terrains inondables et endigués de différents âges: processus de maturation (processus rédox, désalinisation, développement de structure) et d'altération (décalcification, altération des silicates, lessivage d'argile), problèmes d'utilisation des sols.

Excursion M (1 jour, 12 et 17 août): Hamburg-Oldenburg (voir plan)

Génèse et dynamique de l'eau, de l'air et des corps solides dans les sols limoneux des moraines jeunes et dans les sols sableux de Geest sous utilisation forestière et agricole.

Les détails sur les séances de Congrès à Hambourg sont en voie d'élaboration par le Comité du Programme. Ils seront publiés dans le prochain Bulletin.

PROGRAMMGESTALTUNG IBG-TAGUNG 13.–20. AUGUST 1986 HAMBURG

Thema: 'Böden – unter steigender Vielfalt und Intensität ihrer Inanspruchnahme –'

Das Organisationskomitee informiert über den Stand der Vorbereitungen: Die Routen und die Zeitliche Verteilung der Vor- und Nachkongress-exkursionen wurden durch die Exkursions-Kommission festgelegt. Sie sind aus dem beigefügten Diagramm und der Karte zu ersehen. Der Exkursionsinhalt ist in Kurzform angegeben.

EXKURSIONEN

Gemeinsam mit Kollegen der Niederlande, Österreichs und der Schweiz werden mehrere Vor- und Nachkongress-Exkursionen durchgeführt. Die Exkursionen dienen dem Kennenlernen typischer Bodenlandschaften Mitteleuropas und deren Nutzungsprobleme. Einzelheiten der Anmeldung und der Kosten werden später mitgeteilt.

Vorkongreßexkursionen

Exkursion A (10-tägig, 3.–12.8.): München-Bayrischzell-Hallertau-Dinkelsbühl-Heilbronn-Mainz-Göttingen-Hannover-Glücksburg-Lübeck-Hamburg
Landschaften, Böden und Bodennutzung in der Bundesrepublik Deutschland: Kalkalpen, Jungmoränen des Alpenvorlandes, lößbedeckte Terrassen Oberbayerns, Sandstein/Tongestein-Schichtstufen und Flächen Frankens und Württembergs, Lößhügel und Auen des Mainzer Beckens, Vulkanlandschaft des Vogelberges, Kalksteinriedel des Göttinger Waldes, Lößhügel der Hildesheimer Börde, Sander und Altmoränen der Lüneburger Heide, Moore Niedersachsens, Marschen Ditmarschens, Jungmoränen Ostholsteins.

Exkursion B (8-tägig, 4.–11.8.): Frankfurt-Mainz-Bonn-Köln-Wageningen-Amsterdam
Schiffreise mit Böden und Landschaften beiderseits des Rheins, Flurbereinigung im Weinbau, Melioration schwerer Böden, Rekultivierung im Rheinischen Braunkohlengebiet, Internat. Bodenkundl. Museum, Niederländische Marschen und Deltaprojekt.

Nachkongreßexkursionen

Exkursion C (8-tägig, 22.–29.8.): Zürich-Gotthard-St. Moritz-Innsbruck-Großglockner-Salzburg-München
Einfluß von Höhenlage und Exposition auf die Bodenentwicklung aus verschiedenen Gesteinen im zentralalpinen Raum: Böden des Jura, des Alpenvorlandes sowie auf Dolomit, Serpentin und Kristallin der subalpinen und alpinen Stufe der Schweiz; Böden der Inneralpinen Trockentäler sowie Nord- und Süd-exponierte Toposequenzen am Großglockner in Österreich.

Exkursion D (5-tägig, 21.–25.8.): Hamburg-Bayreuth-Arzberg-Waldsassen-Regensburg-München
Bewirtschaftungs- und Umwelteinflüsse auf Böden: Rezente und Paläoböden auf Kristallin des Fichtelgebirges und des Bayrischen Waldes mit forstwirtschaftlichen Problemen; Bodenerosion und Bodenschutz in der Hallertau- Klärschlammverwertung auf Rendzinen der Münchner Schotterebene.

Exkursion E (5-tägig, 21.–25.8.): Hamburg-Stuttgart-Freiburg-Stockach-Heidenheim-Stuttgart
Dystrophe Mittelgebirgsböden des Nordschwarzwaldes, Höhenstufung der Bodenbildung in Granit und Gneis des Südschwarzwaldes, Tonverlagerung und Wasserstau in Moränenlandschaften Oberschwabens, Gefüge- und Mineraltransformation in Tongesteins-Böden des Alpenvorlandes, Rezente und Paläo-Böden im Kalk-Karstgebiet der Albhochfläche.

Exkursion F (5-tägig, 21.–25.8.): Hamburg-Braunschweig-Göttingen-Hannover
Bodengesellschaften in landwirtschaftl. und forstlichen Ökosystemprojekten auf Kalkstein, Sandstein, Tonstein, Löß, Sand; Boden- und Siedlungsgeschichte: Harz, Triasisches Bergland, Lößfluren, Pleistozäne Sande; Paläopedologie; Erosionsgeschichte.

Exkursion G (4-tägig, 21.–24.8.): Hamburg-Berlin-Hamburg
Bodenkundliche Probleme städtischer Verdichtungsräume: Schwermetall- und Streusalzbelastung, Abwasserverrieselung, Rekultivierung von Trümmerstandorten und Mülldeponien, Innerstädtisches Grün, Naturschutz.

Exkursion H (4-tägig, 21.–24.8.): Hamburg-Bremen-Oldenburg-Meppen-Groningen-Wageningen-Amsterdam
Entwicklung norddeutscher und niederländischer Moore von der Natur- zur Kulturlandschaft: Natürliches Hochmoor, Abtorfung, Deutsche Hochmoorkultur, Deutsche Sandmischkultur, Holländische Fehnkultur, Moore unter dem Meeresspiegel, Polder.

Exkursion I (1-tägig, 11. u. 17.8.): Hamburg
Böden und Bodenbelastungen der Elbmarschen.

Exkursion K (1-tägig, 12. u. 17.8.): Hamburg
Rezente und Paläoböden einer pleistozäner Gesteine bei Hahnheide.

Exkursion L (1-tägig, 11. u. 17.8.): Hamburg-Husum-Hamburg
Nordfriesische Marschen mit Böden des Deichvorlandes und in Kögen unterschiedlichen Alters: Prozesse der Bodenreifung (Redoxprozesse, Entsalzung, Gefügebildung) und -alterung (Entkalkung, Silicatverwitterung, Tonverlagerung); Nutzungsprobleme der Böden.

Exkursion M (1-tägig, 12. u. 17.8.): Hamburg-Oldenburg-Plön-Segeberg-Hamburg
Genese sowie Wasser-, Luft- und Stoffdynamik von lehmigen Böden der Jungmoräne und sandigen Böden der Geest unter forstlicher und landwirtschaftlicher Nutzung.

Nähere Einzelheiten über die Vortragstagung werden von der Programm-Kommission zur Zeit ausgearbeitet. Sie werden im Bulletin 84/I abgedruckt werden.

**REPORTS OF MEETINGS
COMPTES-RENDUS DE RÉUNIONS
BERICHTE VON TAGUNGEN**

Compte-Rendu des
PREMIÈRES RENCONTRES MAGHRÉBINES EN SCIENCES DU SOL
Tunis-Tunisie, Mai 23-28, 1983

L'Association Tunisienne de Science du Sol a organisé les premières rencontres maghrébines en sciences du sol, avec la collaboration de la Faculté des sciences de Tunis, la Division des Ressources en sol et en eau du Ministère de l'Agriculture Tunisien.

Cette première rencontre a réuni des participants du Maroc (5), d'Algérie (4), de Lybie (1) et une trentaine de pédologues Tunisiens. L'Association Internationale de la Science du Sol était représenté par le Professeur Dr. H. Scharpenseel, son Vice-Président. L'objectif de cette première rencontre est la création d'une 'Association Maghrébine des Science du Sol', regroupant les associations nationales existantes (Tunisie, Maroc) et les pédologues d'Afrique du Nord (Maroc, Algérie, Tunisie et Lybie) et de traiter quelques uns des multiples aspects de la science du sol qui revêtent des similitudes quant aux conditions de formation et d'évolution des sols (climat, végétation, substratums, altitude, latitude, etc.) et de leurs utilisations (productions agricoles et pastorales, irrigation, conservation). De ce point de vue, cette rencontre fut un succès.

Plusieurs thèmes furent traités au cours de ce premier séminaire inauguré par le Ministre de l'Agriculture à la Faculté des sciences de Tunis; soit notamment: pédologie en Tunisie; morphologie et fonctionnement des sols; quelques réflexions sur l'avenir de la pédologie; pédologie du Massif de Thenia; datation des limons de Matmata; radiocarbon dating of Tunisian soils; investigation of calcareous crusts from Tunisia using stable isotope technique; géochimie du phosphore et des oxyhydrates ferriques dans quelques sols calcimagnésiques de Tunisie; statut géochimiques de métaux lourds dans les sols calcaires; détermination expérimentales des constantes de stabilité des complexes organo-métalliques en phases aqueuses; les grands traits de l'humification en milieux forestiers; quelques aspects de l'humification en milieux salés; évolution de la salinité dans un sol irrigué dans les périmètres du Haut Chelif; classements des bactéries de la Rhizosphère d'après leur aptitude à fixer l'Azote; rapporte sur l'état d'avancement des travaux de cartographie des sols en Lybie, Tunisie, Algérie et Maroc; traitements numériques sur images LANDSAT; aménagement et mise en valeur des terres; aptitude à la culture de la betterave à sucre à Mateur (Tunisie); évaluation de l'érosion hydriques en Tunisie; propriétés physiques des sols et pouvoir colmatant des eaux usées.

La séance de clôture fut présidée par M. Makhlof, Directeur de la Recherche Scientifiques et M. Hili, Doyen de la faculté des sciences de Tunis.

Deux journées furent consacrées à l'excursion pédologique au Nord de la Tunisie où des discussions eurent lieu sur les Xerosols (Petrocalcic Palixeroll; Sol calcimagnésique, Rendzine carbonatée), les Luvisols (Petrocalcic Palixeroll: sol fersiallitique lessivé, encroûté); les 'Podzols' et les sols brunifiés (Umbrepts? Spodosols?) et enfin sur les Pellic Vertisols (Pelloxerert, Vertisol vertique) et les latérites ferrugineuses (Paleosols ferrallitiques?) exploitées comme gisement miniers.

Des discussions controversées mais constructives ont été menées sur la classification des sols et leur aménagement et particulièrement sur le choix d'un système de classification propre aux zones méditerranéennes.

Diverses visites eurent lieu aux périmètres irrigués de la Medjerda et à l'Association d'Agriculteurs 'Al Izdihar' où furent discutés divers aspects de l'irrigation de la salinisation et de la gestion des exploitations agricoles.

Il fut recommandé:

d'organiser les secondes rencontres maghrébines au Maroc fin 84 en vue de mettre en place les premières structures d'une 'Association Maghrébine en Science du Sol' dont le Secrétariat, installé à Tunis, oeuvrera, en collaboration avec les associations nationales existantes et autres organismes (l'UNESCO, l'AISS, l'ACSAD) à l'organisation des secondes rencontres maghrébines en sciences du sol au Maroc fin 84.

H. Ghanem, Rabat, Maroc

Report on the
THIRD INTERNATIONAL CONGRESS ON PHOSPHORUS COMPOUNDS
Brussels, Belgium, October 1983

The 3rd International Congress on Phosphorus Compounds organised by the World Phosphate Institute, Morocco was held at the Brussels International Conference Centre from 4-6 October, 1983. The meeting was attended by 185 scientists from 42 countries, predominantly France and Belgium.

The subject of the conference was phosphorus: indispensable element for improved agricultural production and this was tackled from three angles:

- Physical and chemical mechanisms of phosphorus status of soils, including the role of mycorrhizal fungi;
- methods of evaluating the phosphorus status of soils, crops and livestock, with special attention to the use of P sorption curves; and
- techniques for improving the efficiency of phosphate fertilizers, including plant selection, the use of rock phosphates and the influence of organic matter.

Thirty-five papers were thus presented orally on the above themes, including six introductory and consensus papers and there were seven poster papers.

The meeting was followed by visits to the Soil and Plant Nutrition Laboratories of the State University of Ghent, the National Soil Testing Service at Heverlee and other places while accompanying persons had the pleasure of taking in architectural and art treasures of the cities of Brussels, Ghent and Bruges.

A commendable feature of the conference was the use of the FAO-Unesco classification system by most speakers which enabled soils to be visualised and research findings to be applied by other workers. As noted by Professor Cottenie, Rector of the University of Ghent in his closing address however, standardisation of terminology and methodology in soil chemistry is yet to be achieved. A novel feature was the award by the World Phosphate Institute of prizes to the authors of three contributions judged best which certainly provides an incentive for extra effort in the field of soil phosphorus.

Probably the main value of this conference was the opportunity afforded for Franco-phone and Anglophone scientists to get together and exchange ideas and in this connection special praise is due to the interpreters for the high standard of their simultaneous French-English and English-French translation. In future meetings however one would hope for more time and a less formal atmosphere for discussion.

The proceedings of the 3rd International Congress on Phosphorus Compounds will be published by the World Phosphate Institute, P.O. Box 5196 Casablanca, Morocco early in the New Year.

S. Mugambi, CRF Ruiru, Kenya

Report on the
INTERNATIONAL SYMPOSIUM ON ISOTOPE AND RADIATION
TECHNIQUES IN SOIL PHYSICS AND IRRIGATION STUDIES
Aix-en-Provence, France, 18-22 April 1983

The Symposium was sponsored by the International Atomic Energy Agency (IAEA) and the Food and Agriculture Organization of the United Nations (FAO). It was organized in cooperation with the Center of Nuclear Studies of Cadarache of the Atomic Energy Commission of France.

Under the supervision of Dr. Klaus Reichardt, the Scientific Secretary of the Symposium, and the Head of the Soil Fertility, Crop Production and Irrigation Section of the Joint FAO/IAEA Division of the IAEA, Vienna, approximately 120 soil physicists representing 40 different countries attended the Symposium in southern France. Eight sessions were convened to address the following topics - Characterization of Field Soils, Water Quality and Salt-Affected Soils, Soils Water and Management Considerations and Nuclear Methodology. The proceedings of the Symposium shall soon be published by the IAEA.

A major effort is being made to make soil physics applicable to the analysis of the physical behavior of field soils in relation to crop production and to the development of effective management practices that improve and conserve the quality and quantity of agricultural lands. Emphasis is being given to field-measured soil-water properties that characterize the water economy of a field as well to those that bear on the quality of the soil solution within the profile and that water which leaches below the recall of plant roots eventually into ground and surface waters. The fundamental principles and processes that govern the reactions of water and its solutes within soil profiles are generally well understood. On the other hand, the technology to monitor the behavior of field soils with isotopes and radiation techniques as well as with nonradiotracer methods remains poorly defined owing primarily to the heterogeneous nature of the landscape. Notice was made of the concept of representative elementary volume in defining soil properties in making soil physical measurements, and in using physical theory in soil-water management. Scaling factors and geostatistical analyses are being applied to field observations. We can expect greater applications of these methods in the future.

There is always a need to make soil physical measurements and their interpretation simpler, and in this symposium, soil physicists continued their search for new, simple methods that give results sufficiently reliable for predictive purposes. The empirical models for the soil water characteristic and the hydraulic conductivity examined in the previous Coordinated Research Program on Soil Moisture Regimes could lead to a more quantitative basis of soil physics being used in soil water monitoring and management practices.

Of prime importance to the management of many field soils is to understand the development and importance of cracks and fissures, particularly as they influence and provide short circuits for water during infiltration, redistribution and drainage. A dearth of information exists regarding a field technology for dealing with clay soils that shrink and swell with changes in soil water content. And even less is known about such soils when alkaline or saline conditions prevail. These are areas of soil physics that require additional fundamental research.

Soil physicists from many countries stressed the importance of an integrated approach for irrigation management that considers crop water requirements in relation to irrigation water quality, subsurface drainage, crop root distributions, the migration and retention of soil amendments within the profile and the optimum design of irrigation systems. Studies of soil water movement, irrigation scheduling, the leaching of

soluble salts, quantification of evapotranspiration, the benefits of soil conditioners and the potential prevention of soil erosion were all reported where the use of isotopes and radiation techniques greatly enhanced the effectiveness of the experimentation. We anticipate that the neutron moisture gauge will continue to be used increasingly for the monitoring of field soil moisture in both water management studies and research.

The development and refinement of nuclear methodology in soil physics was a popular topic. New uses of the beta gauge in agricultural research were reported while double- and triple-beam gamma radiation attenuation techniques were advocated for a variety of porous media. A comprehensive review of the theoretical and practical aspects of neutron moisture gauges including analyses of the different sources of errors with their use were thoroughly discussed. Although such nuclear methods are near commonplace in soil physics research, it is anticipated that progress will continue to be made in the future by improving the design, by utilizing a greater diversity of potentially available radiation sources, and by developing new schemes to interpret the interactions of radiation within agronomic regimes.

A field trip from Aix-en-Provence to the Center of Nuclear Studies at Cadarache was a highlight for the Symposium participants. It was suggested during the closing ceremonies of the Symposium that a similar symposium be planned four years hence.

Donald R. Nielsen, Davis CA, USA

Report on the
EIGHTH INTERNATIONAL SYMPOSIUM 'HUMUS ET PLANTA'
Prague, Czechoslovakia, August 24–September 2, 1983

The International Symposium 'Humus et Planta' is organized every fourth year by Czechoslovakian experts of scientific institutes and universities, who also publish the proceedings of the Symposia. These regular meetings allow an exchange of the most recent information, create the possibility of cooperation and therefore play a stimulating role in humus research.

The eighth Symposium was attended by 202 specialists from 24 countries from Europe, Asia, Africa and America. They work in different fields of soil science, agrochemistry and soil microbiology. It follows that the subjects of the Symposium were very complex and covered all the fields of science dealing with soil organic matter in one way or another. The major topics of the contributed papers were: the chemical structure of humus, its characteristics as well as its interactions with the mineral soil components; the biological and biochemical mechanisms of humus build-up and decomposition; the importance of humus substances in respect of soil genesis and evolution; interactions between the soil humus substances and the effectiveness of artificial fertilizers; interactions between humus and toxic compounds (heavy metals, pesticides etc.) getting into the soil.

The scientific value of the symposium was considerably increased by methodologic lectures because the working out and publishing of new analytical methods in this field is of great importance.

Special thanks are due to the organizing committee of the Symposium managed by D. Sc. Doc. B. Novak, director of Plant Cultivation Research Institute, Prague Ruzyně. It provided a smooth passing of this remarkable scientific event.

Dr. J. Szegi, Budapest, Hungary

Report on the
FIRST MEETING OF THE INTERNATIONAL
HUMIC SUBSTANCES SOCIETY (IHSS)
Estes Park, Colorado, USA, August 1983

It was hoped when the International Humic Substances Society (IHSS) was founded, on September 11th, 1981, that meetings would be convened which would bring together scientists with interests in humic substances in coals, soils, and waters in order to hasten a consensus about the states of knowledge of various aspects of the composition, structures and properties of these substances.

The first of these meetings, held in idyllic surroundings high in the Rockies in Estes Park, Colorado, convened nearly 200 scientists from these disciplines and from all of the continents. Invited papers dealt with aspects of the genesis and geochemistry of humic substances in mineral and organic soils, in ground and lake waters, and in the sediments of streams, rivers, lakes, and estuaries. The isolation and fractionation of humic materials from soils and aquatic environments was dealt with in depth, and considerable attention was given to the analytical methodology and procedures for functional group analysis, and in particular to determinations of functionality using spectroscopic procedures. Although detailed treatments of molecular weights, shapes, and sizes will be included in the programme for the second international meeting, one invited paper gave an excellent overview of procedures which have been used for studies in this area of aquatic humic substances.

Several of the voluntary papers stayed close to the agreed theme of genesis, geochemistry, analysis and functionality; some, however, were only vaguely connected with the theme, but instead these served to indicate the breadth of the interests and involvements of humic scientists. The meeting was enthralled by the information which is emerging from applications of the relatively recent 'magic' instrumentation which has much to contribute to humic studies. Because of the time lag between submission and publication of papers new data and interpretations showed how cross polarization magic angle spinning ^{13}C nuclear magnetic resonance spectroscopy (CPMAS ^{13}C NMR) can now provide reliable information about the ratios of aliphatic to aromatic structures in solid samples, and give positive identifications of carbonyl, carboxyl, and phenolic functional groups.

At a special symposium dealing with 'Interaction of Soil Minerals with Natural Organics and Microbes', held on August 15th during the course of The American Society of Agronomy 1983 meetings in Washington, Dr. Morris Schnitzer remarked on how soil scientists had failed to maintain their effort in studies of the chemistry of humic substances and had let the initiative pass to water scientists. The high proportion of chemists, engineers, and biologists at Estes Park from Water Research and the Environmental Sciences confirmed that there is indeed a very strong interest in humic studies in these areas, and it was clear that some centres of excellence are growing in humic research, and that these centres are not soils orientated. However, many of us with our feet and involvements in the soil had to suffer through 'cringing moments' as we listened to other who had 'rediscovered' concepts and information which were well established in the soils literature one half to a full generation ago.

Because of the need to confine interests to those of the peer groups which control purses in some countries it is inevitable sometimes that fine work done by others is either unread or ignored. It is clear though, that the international meetings of IHSS will remove information barriers between the different groups interested in humic studies. The publication by Wiley early in 1984 of the invited papers presented at Estes Park, and later of those of the second international meeting which will deal with humic structures and complexes (to be held in Birmingham in July 1984) will bring to the

attention of all who want to advance the science the excellent work which has been done in the past by soil and coal sciences.

The exciting era for humic studies which is now well underway dawned with the efforts of Dr. Patrick MacCarthy and Dr. Ronald Malcolm when their initiative started an ISSS Working Group in this area at the 11th Congress in Edmonton in 1978. Some of us are a little saddened to see that the initiative and the control has slipped from the Society, but it is comforting too to know that without the help and support of ISSS the IHSS might not exist, and that the exciting work with which it is involved might otherwise be only a dream for the future.

M. H. B. Hayes, Birmingham, U.K.

Report on the
FOURTH INTERNATIONAL CONFERENCE ON PERMAFROST
Fairbanks, Alaska, July 1983

The Fourth International Conference on Permafrost was held at the University of Alaska in Fairbanks between July 18 and 22, 1983. There were 950 participants representing 23 countries. Understandably, the largest group was from the U.S.A. although sizeable delegations came from Canada, the Peoples Republic of China, the Federal Republic of Germany, England, the U.S.S.R., Switzerland, Sweden, Finland, Japan and Denmark.

Approximately 165 papers and 123 posters, focussing on many aspects of permafrost, were presented. The panel sessions dealt with the following specific topics:

- (1) Pipelines in northern regions;
- (2) Environmental protection of permafrost terrain;
- (3) Deep foundations and embankments;
- (4) Climate change and geothermal regime;
- (5) Frost heave and ice penetration;
- (6) Subsea permafrost.

Some of the specific sessions within these panel sessions dealt with engineering designs in permafrost areas, ice and soil wedges, mechanics of frozen soils, Pleistocene permafrost and soil conditions, planetary permafrost, environmental protection of permafrost terrain, frost mounds and other periglacial phenomena, climatic change and the geothermal regime, ground ice, frost heave and ice segregation, watershed studies in permafrost regions, cold climate and rock weathering, ground water in permafrost, and the characteristics of subsea permafrost.

A number of field tours were held before, during and after this conference. Four of the major tours are described as follows:

The Fairbanks to Prudhoe Bay tour dealt with climate, vegetation, soils, hydrology, permafrost, and glacial and periglacial features along the route. At Prudhoe Bay the coastal tundra, oriented lakes, and oil installations were viewed.

The Northern Yukon Territory and Mackenzie Delta tour examined the periglacial and permafrost-related landforms and processes in the northern Yukon. In the Inuvik area the properties and characteristics of perennially frozen soils and the associated patterned ground and engineering problems were examined. In the Mackenzie Delta area the soil-vegetation-permafrost relationships, pingos, and massive ground ice were viewed and a permafrost field research site was visited.

The Richardson and Glenn Highways tour focussed on solifluction deposits, ice wedge casts, cryoplanation terraces, pipeline construction and facilities, and active glaciers.

The Colville River Delta tour examined some of the coastal features and processes, ice wedges and pingos in the area.

The papers and posters presented at the conference and the pre- and post-conference tours were very informative. The University of Alaska provided excellent facilities for the conference.

Ch. Tarnocai, Ottawa, Canada

Report on the
COLLOQUE INTERNATIONAL CNRS 'PETROLOGIE DES ALTERATIONS
ET DES SOLS'

Paris, France, 4-7 juillet, 1983

Le Colloque International 'Pétrologie des Altérations et des Sols' a réuni, à la Maison du CNRS à Paris, du 4 au 7 juillet 1983, une assistance à la fois nombreuse et éclectique: rendant justice aux efforts déployés par ses organisateurs pour que cette réunion soit un lieu où, comme le souligne le Professeur Millot dans son allocution d'ouverture, différents spécialistes viennent se rencontrer à la lisière de leurs disciplines respectives, plus de cent participants, pétrographes, géochimistes mais aussi minéralogistes, pédologues et cristallographes participèrent à cette manifestation.

A l'image de l'assistance, le programme fut copieux et diversifié: plus de cinquante communications orales et une dizaine de posters permirent à tous de repartir convaincus qu'en 1983 l'étude des altérations, des formations sédimentaires qui en dérivent et de leurs constituants minéraux est un domaine des Sciences de la Terre où l'interdisciplinarité est plus que jamais de mise. A ce titre, et grâce aussi à la qualité des travaux présentés, les comptes rendus de ce Colloque seront une publication attendue et qui pourra figurer en bonne place dans la bibliothèque de tout pédologue intéressé par la genèse des minéraux des sols.

Que Monsieur le Professeur D. Nahon ainsi que ses collaborateurs du Comité Organisateur qui ne ménagèrent pas leurs peines pour faire de ce Colloque un carrefour permettant de fructueux et amicaux échanges soient une fois encore félicités et remerciés.

A. J. Herbillon, Louvain-la-Neuve, Belgique

Report on the
E.C. SEMINAR ON SOIL SURVEY AND LAND EVALUATION
Wageningen, the Netherlands, 26-29 September 1983

This was the latest in a series of meetings arranged (and paid for) by the agricultural Research Directorate of the European Community (E.C.) to promote the exchange of research experience in land resources evaluation and greater standardization in methods. The aim is to facilitate the formulation of planned agricultural and land use policies at E.C. level and improved land use planning at national and regional levels.

About sixty participants, from the E.C. countries, the E.C. secretariat and FAO, attended the two days seminar and a smaller number the field trip. The meeting was held in the International Agricultural Centre at Wageningen and, as we have come to expect there, everything was very well organized and an informal and convivial atmosphere provided a favourable environment for frank discussions and exchange of ideas with old and new friends.

The Dutch Soil Survey, STIBOKA, was responsible for the excellent organization and its Director, Ir. R. P. H. P. van der Schans made the introductory remarks on the history of the EC Seminars on soil survey and land evaluation. The papers presented varied from an account of detailed suitability mapping for early potatoes in England to an updated account of land evaluation for the various kinds of grassland in the whole of Europe. They included accounts of the computerized soil survey data base in Denmark and its use in land use planning (a welcome reminder that systematic soil survey is at the basis of land evaluation and if well organized has high potential

for useful interpretations). The new 1:1 m scale soil map of Europe was described and its uses discussed. Accounts were given of land evaluation systems in Ireland, (examples of inputs and outputs to produce a suitability index), France (several parametric systems were compared and suggestions for a national system proposed), and Italy where good progress is being made with establishing a national land evaluation system, hampered by difficulties with the basic soil survey of the country.

A notable feature of these papers and discussions was that all were based on the FAO Framework for Land Evaluation principles and terminology. This common technical language greatly facilitated discussions and agreement and marks a valuable step forward in cooperation among the countries.

The second theme was the comparison of Dutch and German methods of soil survey and land evaluation for agriculture. A map sheet which comprises parts of both countries and several sample areas of about 10 km² were mapped independently by Dutch and German teams. The soil patterns were similar but small differences in the legends, such as depth to water table, cause some surprisingly large variations in the soil boundaries which are reflected on the land evaluation maps. Some methods for soil physical determinations used in land evaluation were also described and demonstrated during the field trip. A pleasant, well organized, visit to the mapped region provided opportunity to examine some of the soils and to discuss on the spot the water regimes and land classes, identification of a mollic horizon in sediments darkened by coal mine material, and other technical issues.

The third main subject was a draft call for proposals in land resource evaluation for financing by the E.C. The three main topics for which common funding is invited are:

- i. Production of maps with yield potentials of principal crops and suitability ratings for defined forms of land use. Projects are particularly requested on maps of yield potentials, computer simulation techniques and standardized procedures for evaluation of semi-detailed sample areas.
- ii. Computerization of land-use data, such as land qualities, crop requirements and limitations, and computer derived maps of yield potentials.
- iii. Application of remote sensing in land evaluation, particularly case studies of remote sensing techniques which can define specific land qualities related to land evaluation (such as erosion processes).

In his closing address Dr. K. J. Beek, Director of the ITC – Enschede, summed up the papers presented and their implications for future research and implementation. He indicated several research items which deserve priority attention, such as quantification of moisture regimes on a continental scale; maps of present land use prepared using remote sensing techniques for comparison with potential land use; maps of deficiencies, for example, a water deficiency map for use in formulating water policy.

This meeting was valuable in bringing together land resources specialists from all over the E.C. and the degree of agreement on the objectives and methods augurs well for future cooperation in research and the employment of soil surveys and other land resource data for planning optimal land use. Environmental protection aspects appeared to receive less attention than they merit, mainly because this subject comes under a separate E.C. Directorate.

The proceedings will be published, as for previous, by the Commission of the European Communities in Brussels-Luxembourg.

M. F. Purnell, FAO, Rome.

Bericht über das
ZWEITE SYMPOSIUM ÜBER 'PEAT AND ORGANIC MATTER'
Tel-Aviv, Israel, October 1983

Das Symposium fand unter den Auspizien der 'International Peat-Society' und in Abstimmung mit der 'International Society of Soil Science' in der Zeit vom 9.-14.10.1983 statt und wurde von Dr. K. M. Schallinger, dem Director der Internationalen Kurse des 'Volcani Centre, Bet Dagan, Israel' organisiert.

Am Symposium waren 63 Teilnehmer aus 15 Ländern beteiligt. Es wurden 34 Referate gehalten. Die zentrale Fragestellung der behandelten Themen war der *Einfluß der organischen Düngung auf die chemischen, biologischen und physikalischen Faktoren der Bodenfruchtbarkeit*.

Die vorgetragenen Versuchsergebnisse basierten auf vielseitigen Experimenten und Untersuchungen. So wurden Beiträge zur Wirkung von organischer Düngung auf die Dynamik von Stickstoff, Kalium und Phosphor im Boden, sowie auf die Bilanz von C-total und einzelne Humusfraktionen vorgetragen. Spezielle Themenkreise waren die Wirkung von Torf und Komposten verschiedener Zusammensetzung. In einigen Referaten wurde die für die Praxis entscheidende Wirkung der organischen Düngung auf die Ertragsbildung der in den verschiedenen Klimaten bzw. Ländern angebauten Kulturpflanzen behandelt. Diese Fragestellung stand auch bei den Besichtigungen im Rahmen einer 2-tägigen Exkursion im Vordergrund, so insbesondere auf dem Kibbuz - Regionalverband 'Granot', wo intensiv über die zweckmäßige Kompostbereitung diskutiert wurde.

Ergänzende Besichtigungen konnte eine Gruppe von Teilnehmern im 'Technion Haifa' bei Prof. Hagin und im Kibbuz 'Idel Eliyahy' durchführen, wo Herr M. Levi die 'organisch-biologische Bewirtschaftung' demonstrierte.

In einer zusammenfassenden Diskussion wurde festgestellt, daß die im ersten Symposium angeregten Themen in dem durchgeführten zweiten Symposium eine wesentliche Vertiefung mit entsprechenden Ergebnissen einschließlich vielseitiger Diskussionen erbracht hat.

So ergaben sich zugleich wichtige Anregungen für die Durchführung der organischen Düngung in der Praxis.

E. v. Boguslawski, Rauischholzhausen, BRD

THE ART OF NOT GIVING A PAPER...

'Not Presenting Talk' Technique

1. Have the paper presented by a foreign visitor to department who speaks English with a quaint, but unintelligible accent.
2. Fumble with the microphone.
3. Consume the first part of the talk with an amusing anecdote, a summary of other people's work and only when the signal to conclude is given do you race so rapidly through your own presentation that it becomes unintelligible.

'Not Presenting Slides' Technique

1. Use colour, e.g. yellow printing on an orange background.
2. Five pages of data and graphs reduced to one 35 mm slide.
3. Divert the audience attention from what is being said or presented on the slides, e.g. self-destructing slides.

Solon Finkelstein, quoted in New Zealand Soil News, vol. 30, no. 5.

**ACTIVITIES OF THE COMMISSIONS AND WORKINGS GROUPS
ACTIVITES DES COMMISSIONS ET GROUPES DE TRAVAIL
TÄTIGKEIT DER KOMMISSIONEN UND ARBEITSGRUPPEN**

JOINT MEETING ON 'BIOLOGICAL PROCESSES AND SOIL FERTILITY'

Reading, UK, 4-9 July, 1983

A meeting on 'Biological Processes and Soil Fertility' was held at the University of Reading, 4-8 July, organised jointly by the British Society of Soil Science and the International Society of Soil Science. One hundred and twenty-five papers were presented by soil biologists from 27 countries. The Proceedings, to be edited by Prof. J. Tinsley (Aberdeen), will be published in 1984 as two volumes of the 'Plant & Soil' Journal. There will also be a commercial book edition.

A third of the papers were concerned with the nitrogen cycle. These demonstrated that advances in methodology over the last decade are making it possible to follow the fate of soil and fertiliser nitrogen in the field. Correctly applied, fertiliser nitrogen can be used very efficiently; incorrectly used, much is lost to the atmosphere, or in ground and surface runoff.

Another major interest at the Meeting was the population of bacteria, fungi, and fauna that make up the soil biomass. New methods for investigating the soil biomass are being used to determine how carbon, nitrogen, phosphorus and sulphur move through the biomass into and out of the soil organic matter. Work reported at the Meeting showed that the nutrient content of the microorganisms in the soil can equal or exceed the total nutrient offtake in a crop. Soil management has a profound influence on the biomass and the size of the biomass can be a sensitive indicator of changes in the long-term fertility of the soil.

Organic matter and soil structure was one of the themes of the Meeting. Polysaccharides produced by bacteria make a particularly important contribution to the structural stability of the soil. The management of crop residues, whether burnt, incorporated into the soil, or allowed to decompose on the surface, influences soil structure and the stability of the soil to erosion. Incorrect management of residues can, however, depress crop growth.

Papers on the effects of pesticides and toxic metals reported that most of the newer pesticides were effectively detoxified by soil organisms and only affected the soil biomass for short periods. However, pollutant heavy metals, notably those in sewage



The organising committee and some of the foreign participants of the ISSS Reading meeting.

sludges contaminated by industrial wastes, were shown to have long-term detrimental effects on the soil biomass, indicating that their addition to soil needs careful control.

Microbial activity is intense at the root-soil interface, a zone colonised by both symbiotic and free-living organisms. There was discussion of how biological fixation could be enhanced by genetic manipulation of microorganisms, by modification of legume hosts and by better management. Almost all higher plants are now known to have symbiotic mycorrhizal fungi, whose major effect is to increase the uptake of phosphorus and trace metals. Improvements in cereal growth associated with mycorrhizal infection have recently been found in the field.

Long-term trends in world population, particularly in the tropics and sub-tropics, make it essential to increase food production. This Meeting showed that soil biology has an essential role to play, both in increasing the productivity of soil at a reasonable cost and in making sure that this increased soil productivity can be maintained without unacceptable environmental damage.

E. A. Paul, Berkeley CA, USA

The Reading meeting, an official inter-Congress Conference of ISSS, was well attended, with over 200 soil scientists participating. Although the event was announced as a joint meeting of Commissions III (Soil Biology) and IV (Soil Fertility and Plant Nutrition), there were in fact relatively few adherents of the latter present and none of its Officers. Other notable absentees were the UN agencies FAO, Unesco and UNEP.

The meeting took place at the new Whitenight campus of Reading University and was run very smoothly. The members of the organizing committee (Prof. A. Wild, Dr. D. S. Jenkinson, Dr. P. J. Harris and many others) are to be commended for their tireless efforts.

Introductory lectures in plenary sessions were given by Dr. G. W. Cooke (UK) on "The application of soil science to increasing soil productivity"; Prof. T. Rosswell (Sweden) on "Cycling of nitrogen in modern agricultural systems"; Dr. P. B. Tinker (UK) on "The role of microorganisms in mediating and facilitating the uptake of plant nutrients from soil"; Dr. J. M. Lynch (UK) on "Interactions between biological processes, cultivation and soil structure"; Prof. K. M. Domsch (FRG) on "Effects of pesticides and toxic materials on biological processes in soils", and Prof. J. M. Tiedje (USA) on "Anaerobic processes in soil". In-between these Plenary Sessions, the group of participants split up for three Simultaneous Sessions to hear and discuss the 85 paper presentations, whereas a special Poster Session accommodated 40 poster presentations. Dr. D. J. Greenland in his concluding lecture, stressed the need for interdisciplinary research in field situations, for adequate site characterization, and for more attention to soil biological processes in the tropics.

After the $3\frac{1}{2}$ days of lectures and presentations, many participants, especially the foreign delegates, took the opportunity to familiarize themselves with current English research and extension work on soil biology and fertility. This included full-day visits to the famous Rothamsted Experimental Station and to the Letcombe Laboratory at Wanton which specializes in soil management and plant physiology research. At special request, also an evening visit was arranged to the premises of the Soil Science Department on the old London Road campus of Reading University, where so many students from tropical countries have been trained.

There were receptions by the Vice-Chancellor of the University, and by Civil Authorities at the local county's Shire Hall. The latter was followed by a formal Conference Dinner, with Professor Sir Herman Bondi, KCB, FRS, UK Government Advisor on environmental research planning, as guest-of-honour and key speaker.

The Conference demonstrated once more that soil biological processes are receiving renewed attention of the international soil science community, with a host of new research and extension techniques becoming available. As pointed out during the meeting, by Prof. P. B. Tinker, Chairman of Commission III, and Dr. W. G. Sombroek, ISSS Secretary-general, more effective scientific contacts are needed between soil microbiologists (this Conference); the interdisciplinary group of soil (meso)zoologists as represented by the Pedofauna adherents (cf. Bulletin 63, pages 26–27); the group studying humus-plant interrelationships through the “Humus et Planta” Symposia (cf. page 11); the interdisciplinary group on humic substances (IHSS, cf. page 12), and the tropical soil biologists of the network or MIRCEN’s (cf. page 31). This is an urgent challenge for the Officers of Commission III, and they may want to address this problem of cooperation in first instance at the 13th International Congress of Soil Science to take place in Hamburg, FRG, in 1986. As Dr. Cooke mentioned in his introductory lecture: let us take an example from the lowest of soil animals, the termites, who are able to develop and maintain in their mounds an ingenious equilibrium of environmental conditions by perfect teamwork! □

Subcommission B, Soil Micromorphology

A questionnaire appeared in Bulletin 61 (1982) which was answered by some 150 persons. Some colleagues have not yet answered the questionnaire, so we would urge them to do so in the near future if they want to receive information on a regular basis.

A Newsletter has been issued in June 1983 and had been sent to all who have answered the questionnaire. Their names, addresses, affiliation and interests were listed. The Newsletter also contained information about the projects set in motion, interesting literature and news about micromorphology in general. The next issue is scheduled for spring 1984; information for publication is welcomed by the secretary. Some copies of the Newsletter are still available from the secretary or the chairman.

Projects are initiated with respect to:

- a) Standardized description according to the Handbook on description of thin sections (due to appear in the near future). This project involved the description of 7 thin sections by 7 colleagues independently. The results were discussed in a workshop at Harpenden – UK, and results will be published in the Journal of Soil Science. The descriptions will be given as detailed examples in the Handbook.
- b) The creation of an international reference collection of thin sections to be based at the International Soil Museum (Wageningen, The Netherlands; coordination by Dick Creutzberg) has been discussed and organised. Suggestions on the set-up and organisation of such a collection are invited from each interested individual. Detailed proposals will appear in the next Newsletter.
- c) The preparation of a Handbook on sampling and thin-section preparation has been organised and Chris Murphy of Rothamsted Experimental Station (Harpenden, UK) has agreed to coordinate this undertaking. Details are being worked out at present.
- d) The preparation of a bibliography of micromorphological literature (1974–1982) is being organised, and possibilities for publication are under investigation. Ahmed Mermut (Saskatoon, Canada) has agreed in principle to coordinate this undertaking, provided the outlook for publication is promising.
- e) Research on densipans in soils of semi-arid climates and traffic pans in paddy soils will be stimulated and we are trying to coordinate its organisation.

The next international working meeting, to be organised by the French colleagues, will take place in Paris, 1985 – see announcement in this Bulletin’s section on ‘Meetings, etc.’. A first circular has been sent around already.

R. Miedema, Wageningen, The Netherlands

THIRD MEETING ON AN 'INTERNATIONAL REFERENCE BASE
FOR SOIL CLASSIFICATION (IRB)'
Sofia, Bulgaria, October 13-14, 1983

Uncertainties continued about the funding for a full-scale project to elaborate the International Reference Base. As announced in Bulletin 61, page 42, an application was submitted to UNEP, but a decision awaits the approval and funding of its World Soils Policy Plan-of-Action, of which the project forms a part.

Nevertheless, a third preparatory meeting could be held, with ad-hoc financial support from FAO, UNEP and Unesco and some national soil survey organisations (for the first and second meeting see Bulletin 57, pages 19-20, and 59, page 16).

The meeting was again hosted by the N. Poushkarov Institute of Soil Science and Yield Projection in Sofia. Purposely, the composition of the group of participants was again somewhat modified, now including representatives from Australia, Kenya, Pakistan, Tunisia and England. The recent passing-away of Dr. V. M. Fridland of the USSR was deeply regretted.



The discussions focussed on two items. On the one hand there were basic scientific problems to be settled. This referred for instance to the vertical and lateral extensions of units to be classified; to the kind and quantification of diagnostic features to be employed, with special attention to the place of 'atmogenic' features like soil moisture and soil temperature regimes; and to the necessity of a set of overriding principles, technically leading to a 'key'. On the other hand it became necessary to redefine some of the major units tentatively agreed upon at the first two meetings. This concerned especially soils of the tropics and subtropics, but also certain soils of temperate regions.

Proposals were made for the composition of a Steering Committee for the Project. The Chairman of ISSS Commission V will contact the persons concerned for their agreement. Also, sixteen Working Committees were constituted. The persons tentatively identified as their convenors will be contacted by the Chairman of the IRB Working Group.

Finally, the necessary modifications of the project proposal to UNEP, and the possibilities of additional funding were discussed.

E. Schlichting, Stuttgart-Hohenheim, BRD

Groupe de Travail pour Sols Sulfatés Acides/Working Group on Acid Sulphate Soils

Announce

TROISIÈME SYMPOSIUM INTERNATIONAL SUR SOLS SULFATÉS ACIDES *(Dakar, Sénégal, 6-11 Janvier 1986; excursion 12-18 Janvier 1986)*

Le 3e Symposium International sur Sols Sulfatés Acides aura lieu à Dakar au Centre International d'Echange de la Foire Internationale du 6 au 11 Janvier 1986, avec excursions aux estuaires du fleuve Sénégal et Siné-Saloum (8 et 9 Janvier) et excursion post-symposium au Sud du Sénégal (13-15 Janvier) et en Guinée-Bissau (16-18 Janvier).

Il sera organisé par le Groupe de Travail pour SSA de l'AISS en collaboration avec la Direction des Recherches agricoles et agro-industrielles de la République du Sénégal, l'ORSTOM et le Département d'Hydraulique Agricole et Sols de la République de Guinée-Bissau.

La première Circulaire sera envoyée au début de l'année prochaine. Les langues officielles seront l'anglais et le français.

Le Groupe de Travail annonce la publication par l'ILRI, Wageningen, Pays-Bas d'une monographie sur sols sulfatés acides, à l'occasion du symposium. L'édition française sera publiée seulement si un nombre suffisant de demandes sera fait.

Informations: Prof. dr. L. J. Pons, Département de Science du Sol et Géologie, Université Agronomique, B.P. 37, 6700 AA Wageningen, Pays-Bas.

Announcement

THIRD INTERNATIONAL SYMPOSIUM ON ACID SULPHATE SOILS *(Dakar, Senegal, 6-11 January; excursion 12-18 January 1986)*

The third International Symposium on Acid Sulphate Soils will be held in Dakar in the 'Centre International d'Echange de la Foire Internationale' from 6th to 11th January 1986, with excursions in the estuaries of the Senegal river and Siné-Saloum (8th and 9th January) and in Guinea-Bissau (16, 17 and 18 January).

It will be organized by the Working Group on ASS of the ISSS in cooperation with the 'Direction des Recherches agricoles et agro-industrielles' of Senegal, ORSTOM and the 'Département d'Hydraulique Agricole et Sols' of Guinea-Bissau.

The first circular will be distributed in the beginning of next year. The official languages will be English and French.

The Working Group announces the publication of a monograph on acid sulphate soils by ILRI, Wageningen, the Netherlands, at the occasion of the symposium.

Informations: Prof. dr. L. J. Pons, Department of Soil Science and Geology, Agricultural University, P.O. Box 37, 6700 AA Wageningen, Netherlands.

Commissions IV, V and VI

Postponement

INTERNATIONAL SYMPOSIUM ON 'CERRADO SOILS; TECHNOLOGY FOR THEIR USE AND MANAGEMENT'

For a number of reasons this Symposium, to be held in Brasilia, Brazil, has been postponed until the second fortnight of March 1986. Those who already filled out the form published in Bulletin 63 (1983/1) will receive answer from the organizing committee, in which a confirmation of interest in participation in 1986 will be requested.

Commissions I and V

Reminder

INTERNATIONAL SYMPOSIUM ON: 'WATER AND SOLUTE MOVEMENT IN HEAVY CLAY SOILS'

This Symposium, to be held in Wageningen 27–31 August 1984, is being sponsored by Commissions I and V of the ISSS and by the European Geophysical Society. A formal announcement is printed in the first ISSS Bulletin of 1983 (no. 63).

To provide additional information, a listing of invited speakers and titles of their papers is given:

Prof. Dr. L. P. Wilding (USA): 'Development of Structural and microfabric properties in shrinking and swelling clays'; Dr. P. A. C. Raats (Netherlands): 'The mechanics of cracks'; Dr. K. Beven (UK) and Dr. P. Germann (USA): 'A distribution function model of channelling flow in soils based on kinematic wave theory'; Prof. Dr. M. Kutilek (Czechoslov.): 'Some theoretical and practical aspects of infiltration in clays'; Drs. D. E. Smiles and W. J. Bond (Australia): 'Water and solute movement in a heavy clay soil'; Dr. Ya. A. Pachepsky (USSR): 'Mathematical models of water movement in heavy clay soils'; Dr. T. M. Addiscott (UK): 'Modelling the interaction between solute leaching and intra-ped diffusion in clay soils'; Dr. J. W. van Hoorn (Netherlands): 'Case studies on salt leaching in fractured soils'; Prof. Dr. J. Skopp (USA): 'Analysis of solute movement in structured soils' and Dr. J. Bouma (Netherlands): 'Using soil morphology to develop measurement methods and simulation techniques for water movement in heavy clay soils'.

Aspects of soil formation and land evaluation, using simulation techniques, will be covered in two field trips. Extended abstracts are still invited up to March 1, 1984.

Additional information can be obtained with the Symposium secretary: Dr. J. Bouma, Stiboka, Box 98, 6700 AB Wageningen, The Netherlands.

Commissions V and VI

INTERNATIONAL WORKING MEETING ON CLASSIFICATION AND MANAGEMENT OF SOILS IN MOUNTAINOUS REGIONS

Sofia, Bulgaria, 25 September–3 October 1984

Applications to participate in the above meeting can now be accepted till 31st March 1984. See Bulletin no 63, page 8, for details.

**NEWS FROM THE NATIONAL AND REGIONAL SOCIETIES
NOUVELLES DES ASSOCIATIONS NATIONALES ET REGIONALES
BERICHTE DER NATIONALEN UND REGIONALEN GESELLSCHAFTEN**

Association française pour l'étude du sol (AFES)

L'association a commencé de publier un Bulletin de Liaison régulier, à la veille de la cinquantenaire de sa fondation en 1984.

La 3e réunion générale de l'Association s'est tenue le 22 Novembre 1983. Elle fut consacrée à la commémoration de la sortie du livre de V. V. DOKOUTCHAEV 'Le Tchernozem russe' (1883), qui a marqué la naissance de la science pédologique. Le thème choisi fut le suivant: 'la pédologie, cent ans après: 1883-1983'.

Monsieur René BETREMIEUX, Directeur de Recherches à l'INRA-CNRA Versailles et autrement bien connu pour son travail scientifique fondamental que marque le début de la Pédologie Expérimentale, a pris sa retraite le 1er avril 1983.

Aussi Monsieur Bernard GEZE, professeur de Géologie, et Monsieur Robert MOREL, professeur de Physicochimie et Science du Sol à l'Institut National Agronomique Paris-Grignon, ont pris leur retraite, en octobre 1982.

Monsieur Roger MAIGNIEN, Inspecteur Général de l'ORSTOM, a pris sa retraite début décembre 1982, un an après son collègue de la même organisation, Monsieur Pierre SEGALIN. Il s'agit là de deux grands pionniers de la Pédologie en Afrique et à Madagascar, qui ont fait leurs armes juste après la dernière guerre, en temps où les prospections étaient de véritables expéditions.

Adresse du Secrétariat: C.N.R.A., route de Saint-Cyr, 78.000 Versailles, France.

Sociedad Española de la Ciencia del Suelo

The Spanish Society of Soil Science aims to hold in Madrid the 1st National Congress of Soil Science (I Congreso Nacional de la Ciencia del Suelo) from the 4th through the 12th June 1984.

The first four days will be devoted to technical sessions and the last ones to Study Tours and Technical visits.

Address of the Secretary-General: Dr. Eloy Dorado, Serrado, 115 Dpdo. Madrid-6, Spain.

New Zealand Society of Soil Science

Officers and Council 1983/84:

President:	Dr. C. W. Childs, Soil Bureau, Lower Hutt
Vice-President:	Mr. P. J. Tonkin, Lincoln College, Canterbury
Past-President:	Prof. J. K. Syers, Massey University, Palmerston North
Secretary:	Dr. R. Lee, Soil Bureau, Lower Hutt
Treasurer:	Dr. R. J. Furkert, Soil Bureau, Lower Hutt
Council:	Mr. I. B. Campbell, Nelson; Mr. J. G. Bruce, Gore; Dr. J. A. Hawley, Palmerston North; Dr. J. A. Pollok, Palmerston North; Dr. I. S. Cornforth, Hamilton; Mr. J. P. C. Watt, Havelock North.

Address of the Secretariat: C/-Soil Bureau, Private Bag, Lower Hutt, New Zealand.

Indian Society of Soil Science

The Proceedings of the 12th International Congress of Soil Science, New Delhi, February 1982, have now become available for general sale. Please see the section 'New Publications' for details.

CENTENNIAL OF DOKUCHAEV'S 'RUSSIAN CHERNOZEM'

On the 10th of December 1883 V. V. Dokuchaev defended successfully in public his doctorate thesis 'Russian Chernozem' at the Scientific Council of Peterburg (presently Leningrad) University. The defence was hard, but the victory was brilliant. The same year the book was published in Russian and French, and later translated into English.

The significance of this Dokuchaev's work is well known. In this very book the main theoretical principles of modern soil science were formulated for the first time in their full conceptual form: the concept of soil as a natural-historical body, the concept of factors of soil formation, the concept of soil genesis and evolution from the parent rock under the complex influence of factors of soil formation, the methods of morphological and profile soil studies in the field, the main principles of soil geography and cartography. Dokuchaev's contribution to the development of modern soil science has been recognized throughout the world from the beginning of our century.

The occasion of 'Russian Chernozem' publication 100 years ago was celebrated during 1983 by the All-Union Society of Soil Scientists of the USSR as a special benchmark in the history of soil science. Several regional scientific conferences were organized in connexion with the event: in Leningrad, Poltava, Kishinev, Stavropol, Kherson, Kazan, and Voronezh (at the Kamennaja Steppe experimental station created by Dokuchaev himself). The main all-union conference took place in Moscow. A special monograph 'Russian Chernozem - 100 years after Dokuchaev' was published for the occasion. A commemorative big-size bronze medal was issued to be awarded to those who contributed markedly to the development of soil science. The proceedings of the Moscow conference will be published soon.

V. A. Kovda, Moscow, USSR

Bodenkundliche Gesellschaft der Schweiz – Société Suisse de Pédologie

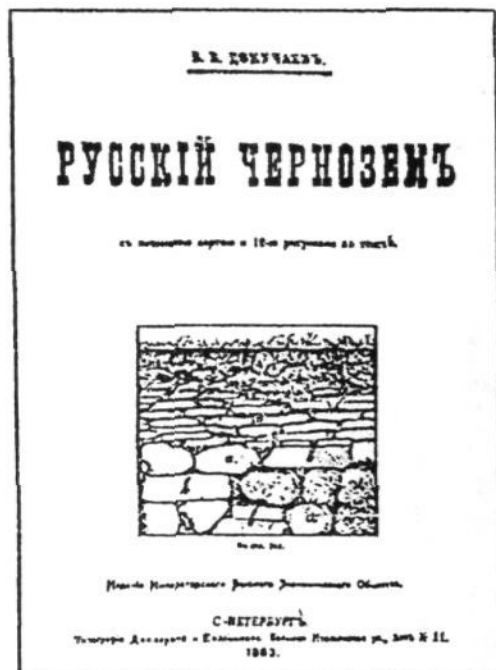
Vorstand/Comité 1983–84:

Präsident:	Jean-Auguste Neyroud, Station fédérale de recherches agronomiques de Changins, Nyon
Vize-Präsident:	Thomas Mosimann, Geographisches Institut der Universität, Basel
Beisitzer:	Hannes Flühler, Institut für Wald- und Holzforschung, Zürich
Sekretär:	Luc-François Bonnard, Eidg. forschungsanst. f. landw. Pflanzenbau, Zürich-Reckenholz
Kassier:	Alfred Kaufmann, Schweiz. Landw. Technikum, Zollikofen

Adresse des Secretariats: Eidg. Forschungsanstalt für landwirtschaftlichen Pflanzenbau, Zürich-Reckenholz 8046 Zürich, Schweiz.

**APPOINTMENTS, HONOURS/NOMINATIONS, DISTINCTIONS
ERNENNUNGEN, AUSZEICHNUNGEN**

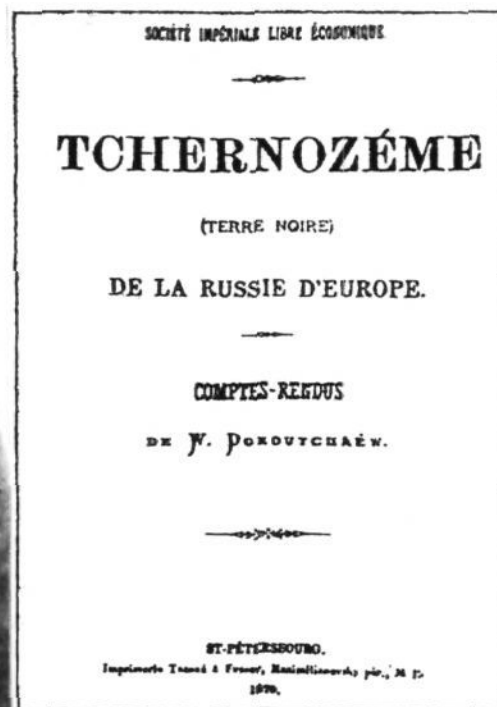
Ing. **Henk de Bakker** of the Dutch Soil Survey Institute was awarded a honorary doctorate on the occasion of the 65th anniversary of the Agricultural University of Wageningen, on 9th March 1983, in recognition of his outstanding contribution to soil classification.



Почва есть такое же самостоятельное естественноисторическое тело, как любое растение, любое животное, как любой минерал...



V. Dokuchaev



Le sol est un corps d'origine naturelle aussi individuel que n'importe quelle plante vivante, ou animal, ou minéral.

One-hundred years ago...

Hungarian Society of Soil Science

IXTH INTERNATIONAL SYMPOSIUM ON SOIL BIOLOGY

Sopron, Hungary, 27–30 August 1985

Organised by the Section of Soil Biology of the Hungarian Society of Soil Science, in cooperation with the International Authority for Natural Conservation and Environmental Protection; the University of Forestry and Timber Industry, Sopron; and the Institute of Soil Sciences and Agricultural Chemistry of the Hungarian Academy of Sciences.

The meeting will be devoted to the problems of research in the general field of *Soil Biology and Conservation of the Biosphere*.

The meeting will be held at the University of Forestry and Timber Industry, Sopron. The main topics will be:

1. The effect of mineral fertilization on soil biological processes
 2. Interaction between pesticides and soil organisms
 3. The role of soil organisms in the decomposition and synthesis of soil organic matter
 4. Soil organisms as components of the soil ecosystem
 5. The role of soil organisms in the soil forming processes
 6. Importance of biological nitrogen fixation in the nature
- Official languages: Russian and English.
 - Submission of papers: manuscript not more than 7 typewritten pages, including documentation (such as figures, graphs, etc.) and list of bibliography; reading the paper should not take more than 15 minutes, or a poster presentation can be made.
 - Material of the meeting: will be printed in English only.
 - Accommodation: students' college of the University of Forestry and Timber Industry, Sopron.

The participation fee is 50 US Dollar.

Please contact the Secretary of the Organizing Committee before 30. June 1984.

Address: Dr. Eva Bakondi-Zámory, Centre of Plant Protection and Agrochemistry, Budapest P.O.B. 127, 1502 Hungary.

Soil Science Society of America

The SSSA Officers for the 1983–1984 period are:

- | | |
|------------------|---|
| President: | Donald R. Nielsen, University of California, Davis Ca. |
| President-elect: | Edward C. A. Runge, Texas A&M University, College State TX. |
| Past President: | Walter H. Gardner, Washington State University, Pullman WA. |
| Executive | |
| Vice-President: | Rodney A. Briggs, Madison, Wis. |

The 1983 Emil Truog Award was accorded to Martin C. Rabenhorst, assistant professor of pedology at the University of Maryland; the Soil Science Award to Frank J. Stevenson, professor of soil chemistry at the University of Illinois; and the Boyoucos Soil Science Award to Robert A. Olsen, Professor of agronomy at the University of Nebraska.

Marion L. Jackson of the University of Wisconsin, L. Touby Kurtz of the University of Illinois, and Waynes H. Scholtes of Iowa State University were each named Honorary Members of the Soil Science Society of America.

Address of the Secretariat of SSSA: 677 South Segoe Road, Madison, WI 53711, USA.

IN MEMORIAM



Professor Dr. V. M. Fridland (1919–1983)

The international community of soil scientists suffered a heavy loss. In the prime of his life and creative work Prof. Dr. V. M. Fridland, one of the outstanding scientists, died on October 3 1983 at the age of 63 years.

Prof. Fridland's life has been devoted to the science of soil. After having finished the Moscow University in 1941 and having received a doctorate in 1949, he connected his scientific activity with the V.V. Dokuchaev Soil Institute and there became the Head of the Department of soil genesis, geography and classification, coordinating major soil-geographical researches in the country.

The best traditions of the Dokuchaev pedology, and taking in all the advanced progressive views in studies of soils, V. M. Fridland was a true disciple of leading Soviet pedologists such as I. P. Gerasimov, E. N. Ivanova, and A. A. Rode. Due to his vast knowledge, broad

professional interests, and great capacity for work Prof. Fridland made a profound contribution to the Soviet soil science. He was extremely productive as a scientist and published more than 300 scientific papers covering a wide range of topics; his papers on soil genesis, soil geography, soil mapping, soil classification and development and use of soil resources, made him internationally known. His own field investigations, carried out in different regions of the Soviet Union and abroad, laid the foundation of modern soil science and geography development in the USSR. Prof. Fridland was very active in the compilation of the State Soil Map of the USSR, and he was also an author of soil maps for some continents and great regions of the world. Based upon his own investigations in Viet-Nam he first compiled the soil map of this country, and was honoured for this work with the Order of Labour of the DRV.

V. M. Fridland took part in an international project 'The World Soil Classification'. A major contribution was made by him to the study of genesis of soils from steppe, forest-steppe and forest, to tropical and subtropical areas. He is one of the founders of studies about the structure of the soil mantle, the main principles of which have been published in fundamental monographs 'The Structure of the Soil Mantle' (1972) and 'The Structure of the World Soil Mantle' (1983).

As a scientist and a fine personality Prof. Fridland was esteemed and widely recognized not only in the USSR but also abroad. Twenty-five of his scientific papers were translated in foreign languages and published in many countries.

Prof. Dr. Fridland had a great ability to communicate ideas, theories and research results. He was Vice-President of the All-Union Society of Soil Scientists. For many years, also he coordinated the soil investigations according to the plan of CMEA-countries. His wide erudition, his sincerity and modesty earned the respect of all who knew him.

The life of an outstanding man in many respects has come to an end. His never failing readiness to help all who approached him will always be remembered with deep gratitude and affection.

All-Union Society of Soil
Scientists of the USSR

**INTERNATIONAL RELATIONS
RELATIONS INTERNATIONALES
INTERNATIONALE VERBINDUNGEN**

NEW INTERNATIONAL SOILS AGENCY: IBSRAM¹

Following a decade of discussion, and four years of work by an interim committee, IBSRAM – the International Board for Soil Research and Management – was formally established at an international meeting held at Townsville, Australia, 13 September 1983.

IBSRAM¹ is an autonomous, charitable, non-profit, educational, research and philanthropic international agency. It will be primarily concerned with assistance to national agricultural development and soil research programs through promotion of adaptive soil research and improved management methods to serve needs of farmers in developing countries. The goal is to increase food production by tackling primarily at the farm level some of the soil constraints which now prevent improved crop varieties from attaining their yield potentials in much of the tropics.

The establishment of IBSRAM was funded by the Australian Centre of International Agricultural Research, the Australian Development Assistance Bureau, the German Ministry for International Cooperation and the International Development Research Centre of Canada. A group of interested potential donors will meet in early November 1983 to arrange continuing funding for the establishment and operation of IBSRAM as well as for some of the agency's initial collaborative activities with the soil research and agricultural development organizations of developing countries.

The Townsville meeting elected seven individuals to what is expected to become an eleven-member Board of Trustees. Those elected were:

Dr. C. F. Bentley, Professor Emeritus of Soil Science, Edmonton, Canada.

Dr. Roger Fauck, ORSTOM, Paris, France.

Dr. W. J. Goedert, EMBRAPA, Brasilia, Brazil

Dr. D. J. Greenland, International Rice Research Institute, Manila, Philippines

Dr. R. J. McCracken, Soil Conservation Service, Washington, USA

Dr. R. J. Millington, CSIRO, Canberra City, Australia

Dr. C. R. Panabokke, Ministry of Agriculture, Colombo, Sri Lanka.

The Board of Trustees will establish the policies and supervise the activities of the new organization which will have a small staff and a modest headquarters in a developing country.

IBSRAM has been organized for research and development purposes primarily and broadly related to the identification, development, use, management and protection of land for food production and other agricultural or agroforestry purposes, with the objective of developing and promoting economically sustainable production and its enhancement.

IBSRAM will endeavor to strengthen national soil research organizations by seeking funding for and providing technical advice and guidance to Soil Management Networks (SMNs) whose specific proposals to conduct adaptive research and practical training programs have obtained IBSRAM endorsement. Thus, IBSRAM will encourage and assist co-ordinated inter-disciplinary activities to develop, test under practical conditions, and promote on-farm applications of improved technologies for agricultural land identification, land use, crop production, soil management and soil conservation. To achieve such goals, IBSRAM will support practical training for the profes-

¹ not to be confounded with IBSNAT, see Bulletin 63, p. 17.

sional and technical personnel needed to execute such activities, as well as the compilation and dissemination of data from IBSRAM supported and related investigations.

IBSRAM activities are intended to find practical ways and means to reduce some of the soils and soil management constraints which so extensively limit attainment of food production potentials of improved crop varieties developed by plant scientists.

Soil Management Networks (SMNs) will be organized to tackle soil constraints such as extreme soil acidity, salinity and adverse soil structure which are common problems in many developing countries. The Working Group established for each SMN will plan the program of adaptive research and testing to be carried out by the national cells of the network. There will usually be several National Cells in a particular SMN and the cells will be supported by scientists from national and international research organizations.

Once or twice a year the Working Group of a SMN will meet to review the results obtained by National Cells and to plan the continuing activities of the network. New National Cells may be added at such review meetings.

The adaptive research and testing of soil management methods is expensive and time consuming. Review meetings will minimize duplication, speed the dissemination of results and make important contributions to the extrapolation and evaluation of new soil management methods.

IBSRAM will support the Networks by providing coordinators and expertise on their organization and management as well as through IBSRAM's training and information services. Over time data accumulated by IBSRAM about soil performance under different management systems will be related to soil characteristics and classification.

Thus IBSRAM activities will include:

- Formation of Working Groups and the establishment by them of Soil Management Networks (SMNs) to tackle specific soil related food production problems.
- Assistance to Working Groups and their SMNs in preparation of requests and proposals seeking funding from donors to assist the adaptive research and testing programs planned at workshops, and for the related training and information service programs.
- Assistance to and coordination of SMNs and their individual National Cells in the execution of their network activities.

The IBSRAM Board of Trustees is actively seeking a headquarters location for IBSRAM in a developing country. A search is also proceeding for a Director and it is hoped that the appointee will be able to take up duties during 1984. Appointments of other officers will probably be made in 1985.

Pending those developments, the Australian Centre of International Agricultural Research (ACIAR) is acting as implementing agency for IBSRAM.

However, IBSRAM already has an action program. Requests have been received for assistance for the formation and development of operational programs of several Soil Management Networks (SMNs) related to existing needs and opportunities to test, validate and apply new soil management methods on additional soils and in new areas.

Individuals or agencies seeking information about IBSRAM may contact either:

Dr. C. F. Bentley, Chairman
IBSRAM Board of Trustees
13103 - 66 Avenue
Edmonton, Canada T6H 1Y6

or: IBSRAM, Care of:
ACIAR
P.O. Box 1571
Canberra City 2601, Australia

PROGRAMME OF WORK OF ISM/ISRIC REVIEWED

From 13–17 June 1983 the Fourth Meeting of the International Advisory Panel of the International Soil Museum (ISM) was held at its premises in Wageningen, The Netherlands. The Panel was established by Unesco, and has ad-hoc members, invited in cooperation with FAO.

In the present meeting were participating the ex-officio members Dr. F. Fournier of Unesco and Mr. G. M. Higgins of FAO, and the ad-hoc members Dr. H. Ghanem, Morocco (for Northern Africa); Prof. E. G. Hallsworth, U.K. (for Australasia and ISSS); Dr. C. S. Holzhey, U.S.A. (for North America); Dr. M. Jamagne, France (for W. Europe); Mr. F. N. Muchena, Kenya (for Africa South of the Sahara); Dr. A. Osman, Syria (for the Middle East); Dr. C. Valverde, Peru (for Latin America and CGIAR institutes); and Dr. G. Varallyay, Budapest (for E. Europe). The representative for Asia, Dr. Chr. Panabokke, Sri Lanka, was unable to attend.

After introductions by Dr. W. G. Sombroek, Director of ISM, and other staff members, lively discussions were held on the work carried out since 1979, when the third meeting took place and, especially, on the scope of activities in the years ahead. Mainly in view of international developments in soil science and related ecological fields a re-direction in parts of the programme of work was formulated. It was realized that further development of ISM is seriously hampered by the present world economic outlook and by the hesitation of international organizations to fund new activities.

The main conclusions and recommendations are:

- the collection of knowledge on the world's main soils, in the form of monoliths, analytical data, soil maps at different scales and survey reports, soil survey procedures and land evaluation should keep a high priority. More attention should be given to publishing on these data, especially directed towards the needs of developing countries. ISM should help these countries create their own national soil reference collection.
- The yearly Unesco-ISM training course to intending curators on the preparation of soil monoliths and the establishment of national collections should continue;
- the LABEX programme, aiming at standardization of laboratory methods of soil analysis should be expanded. Emphasis should be placed on a better definition of the methods employed and identification of major sources of errors in the particular methods. At present 20 laboratories, of which 12 are located in developing countries participate (cf. ISSS Bulletin 63);
- more time should be allocated to micromorphological analysis and interpretation of the soil monoliths. ISM will be involved in the preparation of a reference collection of thin sections of soils for the ISSS Subcommission on Soil Micromorphology;
- the map and soil survey report collection will provide the basis for an updating of the FAO/Unesco Soil Map of the World and for any international efforts to compile a 1:1 million world-soil map, and its expansion should therefore be actively pursued;
- the involvement of ISM in soil studies conducted within Unesco's MAB programme should be continued. More attention must be given to the collection of soil monoliths from Biosphere Reserves and other MAB sites, in view of monitoring and investigation of changes and possible soil degradation;
- attention should also be given to the establishment of soil-related land qualities and particularly to the constraints for plant growth indicated by soil profile characteristics;
- a computerized data base should be installed for the storage and analysis of pedologic, climatic, cartographic, and agronomic information;

- soil classification and correlation activities in support of the establishment of an International Reference Base for soil classification should continue;
 - an international reference collection of deep weathering profiles should be established at ISM, following the suggestion of the IGCP-Unesco Project 129 for the establishment of an International Interdisciplinary Reference Collection on Laterite Profiles at ISM;
 - international contacts should be enlarged and strengthened, partly for cooperative efforts and the exchange of information and also for seeking additional funding.
- Mentioned were UNEP, IBSRAM, UNDP, UNOTC, UNCSTD and others.

The Panel agreed that ISM should become a separate Foundation and that the name should be changed to International Soil Reference and Information Centre (ISRIC), with as subtitle: 'a centre for collection and study of soil reference materials (formerly known as the International Soil Museum)'. This change of name will be effective as of 1st January 1984. □

MICROBIOLOGICAL RESOURCES CENTRES

The concept of Microbiological Resources Centres (MIRCENs) was established in 1974 by UNEP and Unesco through the UNEP/Unesco/ICRO* Microbiology Panel. Today there are more than 10 MIRCENs throughout the world. Among the currently established MIRCENs five concentrate on the problem of biological nitrogen fixation (BNF), while the others handle areas of applied microbiology and biotechnology. This brief will focus on the four *Rhizobium* MIRCENs at Porto Alegre, Brazil; Nairobi, Kenya; Hawaii and Beltsville, USA.

The objectives of these MIRCENs are:

- a. to provide infrastructure for a world network, incorporating regional and interregional cooperating laboratories geared to the management, distribution and utilization of microbial gene pools;
- b. to reinforce efforts of conserving micro-organisms with emphasis on *Rhizobium* for the benefit of the developing countries;
- c. to foster the application of microbiology in order to strengthen rural economics;
- d. to promote the development of new inexpensive technologies native to the region;
- e. to serve as focal centres for the training of manpower and the diffusion of microbiological knowledge.

In meeting the above aims short term courses have been organized at Porto Alegre, Nairobi, Hawaii and Beltsville and their respective associated laboratories. Through these training courses more than 300 persons from approximately 80 countries have learned specialized techniques in handling nitrogen fixing plants and micro-organisms. Many such courses are in the pipeline and the trend is towards addressing regional problems of soil microbiology.

With regard to conservation and utilization of *Rhizobium* germplasm, more than 4,000 strains are presently held within the four MIRCENs. All these institutions have prepared catalogues of their cultures which makes the exchange of strains possible. Some of these cultures are invariably used in the production of inoculants, a deployment essential for certain pasture and grain legumes. For example in 1982, the Nairobi MIRCEN supplied 400 packets of inoculants to Kenyan small-scale farmers. The MIRCENs carry out research not only involving *Rhizobium*-legume, *Azolla*-*Anabaena* and *Frankia*-non legume symbioses, but also on associative nitrogen fixation. The Porto Alegre MIRCEN monitors quality of inoculants produced and used in Brazil and is continually selecting strains capable of fixing nitrogen in impoverished

* International Cell Research Organisation

soils. The NifTAL MIRCEN in Hawaii has recently developed a technique for the dilution of broth which permits inoculant production without using large sophisticated fermentors.

Research, training and exchange of information is facilitated through the infrastructure of networking arrangements. Within the MIRCEN network cooperation exists within regional and interregional laboratories. Such networks are fully developed for Latin America and Eastern Africa. For instance the NifTAL MIRCEN coordinates a network of inoculation trials (INLIT) which involves more than seventy collaborators around the world. Through INLIT trials, it is possible to compare inoculation results over various kinds of soils. The collaborating scientists scattered throughout the developed and developing countries are interlinked via newsletter systems. Each MIRCEN produces a newsletter periodically for distribution within its area of mandate. In addition, the MIRCEN news (from Unesco) and BNF Bulletins from NifTAL have a worldwide distribution. The Global Impact of Applied Microbiology (GIAM) series of conferences held every three years in and for the developing countries ensures exchange of scientific results and experiences.

The success of the pilot MIRCENs has led to the growth of new ones. The interest as well as support shown for the MIRCENs clearly indicate that the concept provides a functional framework. The MIRCENs are bound to make a significant contribution in biological nitrogen fixation in agroforestry systems.

S. A. Keya, P.O. Box 30197, Nairobi, Kenya.

CASAFa

The Secretary-General ISSS was invited to participate in the annual meetings of the inter-Union Commission on the Application of Science to Agriculture, Forestry and Agriculture (CASAFa) of the International Council of Scientific Unions (ICSU) of which ISSS is an associate member. Fifteen Unions, Societies or Research Groups are represented in this Commission, as well as a number of national Committees or representatives of national directorates of agricultural research. Chairman is Dr. Joseph H. Hulse of Canada. The purpose of the Commission is one of research coordination directed at the needs of developing countries; it hopes to act as a brokerage house between centres of applied research located in these countries, and academic centres of excellence in industrialised countries.

The 1983 meeting took place in July at the Headquarters of the Royal Society in London. In addition to the regular agenda and some presentations on special subjects, discussion took place on a set of proposals for basic research. These had been received from a number of International Agricultural Research Centres and the Indian National Committee, as potentially of interest to centres of basic/specialist research. At the meeting, several subcommittees were formed to rate the various proposals – and others still to be submitted – as meriting immediate action. Proposals considered ready for implementation will be drawn to the attention of the appropriate international Scientific Unions/Societies, which will be asked to identify the institutions that would undertake the projects. At the same time, CASAFa members will have the responsibility of identifying directly those institutions that have the interests and resources to pursue some of the priority projects.

The Secretary-General was appointed in the Subcommittee on Environment and Physiology (Chairman: Sir Charles Pereira), and he intends to channel research proposals with an obvious soil science component to the Chairmen of the appropriate ISSS Commissions and Subcommissions for their attention and suggestions. ☐

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

Meetings etc., marked with*, are organized or sponsored by the ISSS
Réunions etc., indiquées avec*, sont organisées ou favorisées par l'AISS
Tagungen usw., angezeigt mit*, werden organisiert oder unterstützt von der IBG

1984

***International Symposium on Soil Test and Crop Response Correlation Studies**, Dacca, Bangladesh, February 7-10, 1984 (ISSS Commission IV).

Information: Prof. I. U. Ahmed, c/o Dr. M. A. Mannan, Bangladesh Agric. Res. Council, Farm Gate, New Airport Road, Dacca-15, Bangladesh.

Conference on Advancing Agricultural Production in Africa, including a Symposium on Natural Resources, Arusha, Tanzania, February 13-18, 1984.

Information: Prof. H. Y. Kagumbo, Nat. Res. Council of Tanzania, or Dr. D. L. Hawksworth, Commonwealth Agricultural Bureaux, Farnham House, Farnham Royal, Slough SL2 3BN, UK.

2nd International Working Conference on Computer Applications in Food Production and Agricultural Engineering, New Delhi, India, March 19-22, 1984 (Int. Fed. Information Processing, IFIP).

Information: R. C. Malhotra, Computer Maintenance Corpn, Ltd., 8-F, Hansalya, 15 Barakhamba Road, New-Delhi-110001, India.

1st International Symposium on Land Subsidence of the International Association of Hydrological Sciences, Venice, Italy, March 19-24, 1984.

Information: Dr. A. Ivan Johnson, c/o Woodward-Clyde Consultants, 7600 East Orchard Road, Englewood, CO 80111, USA.

***International Conference on Soil Salinity under Irrigation - Processes and Management**, Bet-Dagan/Tel Aviv, Israel, March 25-29, 1984 (ISSS Subcommission A).

Information: Dr. B. Yaron, Chairman Organizing Committee, P.O. Box 3054, Tel Aviv 61030, Israel (see also ISSS Bulletin 62).

Conference on Agricultural Engineering AG ENG 84, Cambridge UK, April 1-5, 1984.

Information: Dr. G. F. Forster, NIAE, Wrest Park, Silsoe, Bedford, MK45 4HS, UK.

Symposium on Site and Productivity of Fast Growing Plantations, Pretoria and Pietermaritzburg, South Africa, 23 April-6 May 1984 (IUFRO).

Information: Symposium Secretary S.314, CSIR, P.O. Box 395, Pretoria 0001, Republic of South Africa.

2nd International Rangeland Congress, Adelaide, Australia, May 13-18, 1984.

Information: Mr. P. J. Joss, CSIRO, Denilquin, NSW 2710, Australia.

Meeting on 'Fonctionnement hydrique et comportement des sols', Dijon, France, May 22-25, 1984.

Information: Secrétariat AFES Bourgogne, Station de Science du Sol INRA, 17 Rue Sully, 21034 Dijon Cedex, France.

Symposium on the history of Soil and Water Conservation, Columbia, Missouri, USA, May 24-26, 1984.

Information: D. Helms, Historian, SCS-USDA, P.O. Box 2890, Washington DC 20013, U.S.A.

International Savanna Symposium, Brisbane, Australia, May 28–31, 1984

Information: Symposium Secretary, I.S.S., Div. Tropical Crops and Pastures, CSIRO, Cunningham Lab., St. Lucia, Brisbane, Australia 4067.

9th World Fertilizer Congress of C.I.E.C. 'Fight against Hunger through Improved Plant Nutrition', Budapest, Hungary, June 11–16, 1984.

Information: Hungarian Society of Agricultural Sciences, Korsuth tér 6–8, 1055 Budapest, Hungary.

10th International Symposium of Remotely Sensed Data, West Lafayette, Indiana, USA, June 12–14, 1984.

Information: D. B. Morrison, Purdue University/LARS, 1291 Cumberland Avenue, West Lafayette, IN 47906-1399, USA.

World Conference on Resource Material Conversion (Chemrawn III), The Hague, Netherlands, June 25–29, 1984.

Information: Chemrawn III Congress Bureau, Keizersgracht 792, 1017 EC Amsterdam, Netherlands.

International Meeting on Red Soils, Harare, Zimbabwe, June/July 1984.

Information: Dr. Kingston W. Nyamapfene, Dept. of Land Management, Univ. of Zimbabwe, Box MP 167, Mt. Pleasant, Harare, Zimbabwe.

***International Panel on Volcanic Soils**, Tenerife, Canary Islands, Spain, July 1984.

Information: M. E. Fernandez Caldas, Dpto. de Edafología, Univ. de la Laguna, Tenerife, Islas Canarias, Spain.

International Conference on Structures and Complexes of Humic Materials, Birmingham, England, July 22–28, 1984 (Int. Humic Substances Soc., IHSS).

Information: Dr. M. H. B. Hayes, Dept. of Chemistry, Univ. of Birmingham, Edybashton, Birmingham, B15 2TT England.

International Symposium on Challenges in African Hydrology and Water Resources, Harare, Zimbabwe, July 23–27, 1984 (cooperation of Unesco, WMO and IAMS).

Information: Zimbabwe Conference Board, P.O. Box 1898, Harare, Zimbabwe.

27th International Geological Congress, Moscow, USSR, August 4–14, 1984 (Int. Union of Geological Sciences).

3rd World Soybean Conference, Ames, Iowa, USA, August 12–17, 1984.

Information: Dr. W. Fehr, Dept. of Agronomy, Iowa, State Univ., Iowa 50011, USA.

25th International Geographical Congress, Paris, France, August 27–31, 1984.

Information: Secretary-general I.G.U., c/o Geographisches Inst. Univ. Freiburg, D-78 Freiburg i. Br., Werderring 4, BRD.

International Conference on Population, Mexico City, August 1984.

Information: R. M. Salas, Int. Conf. on Population, c/o UNFPA, 220 E. 42nd Street, 17th Floor, New York, N.Y. 10017, U.S.A.

***International Symposium on Water and Solute Movement in Heavy-clay Soils**, Wageningen, the Netherlands, August 27–31, 1984 (ISSS Commissions I and V and Working Group MV).

Information: Dr. J. Bouma, c/o Dutch Soil Survey Institute STIBOKA, P.O. Box 98, 6700 AB Wageningen, the Netherlands.

3rd International Symposium on Nitrogen Fixation with Non-Legumes, Helsinki, Finland, September 2–8, 1984.

Information: P. Uomala, SITRA FIN-NIF, PO Box 329, SF-00121, Helsinki, Finland.

10th International Congress of Agricultural Engineering, Budapest, Hungary, September 3–11, 1984.

Information: Gy. Szalai, CIGR Congress Coordinator, Comité National Hongrois de la CIGR, Kossuth Lajos tér 6–8. IV. 425, H-1372 Budapest, V., Hungary.

International Conference on Microorganisms in Agriculture, Wye, UK, Sept. 3–7, 1984.

Information: Dr. J. M. Lopez-Real, Wye College (Univ. of London), Wye, Ashford, Kent, TN25 5AH, England, UK.

Seminar on Degradation, Retention and Dispersion of Pollutants in Groundwater, Copenhagen, Denmark, September 12–14, 1984 (IAWPRC).

Information: E. Arvin, Dept. of Environmental Engineering, Building 15 C, Techn. Univ., DK-2800 Lyngby, Denmark.

International Symposium on the Assessment of Soil Surface Sealing and Crusting, Ghent, Belgium, September 24–28, 1984.

Information: Dr. Ir. F. Callebaut, Department of Soil Physics, Faculty of Agricultural Sciences, University of Ghent, Coupure Links 653, 9000 Gent, Belgium.

***International Meeting on Classification and Management of Soils in Mountainous Regions**, Sofia, Bulgaria, September 25–October 3, 1984 (ISSS Commissions V and VI).

Information: Organizing Committee, International Meeting Mountainous Soils, 5 Shosse Bankya, P.O. Box 1369, 1080 Sofia Bulgaria.

12th International Congress on Irrigation and Drainage, Fort Collins, Denver, Colorado, USA, October 3–10, 1984.

Information: Secr. ICID, 48 Nyayga Marg. Chanakyapuri, New Delhi 110012, India.

8th International Symposium of Agrochimica: 'Lipids in Plants and Soils', Pisa, Italy, October 8–11, 1984.

Information: Prof. G. Lotti, c/o Inst. Of Agric. Chemistry, Univ. of Pisa, Via S. Michele d. Scalzi 2, 56100, Pisa, Italy.

1st Regional Pan-American Conference on Irrigation and Drainage, Salvador, Bahia, Brazil, October 15–18, 1984.

Information: Comitê Nacional Brasileiro da ICID, Qudra 1, Bloco A, Ed. Minter, 4° ANDAR, 70070 Brasília, DF Brazil.

***International Workshop on Land Evaluation for Soil Erosion Hazard Assessment**, Enschede, the Netherlands, October 18–22, 1984 (ISSS Working Group LE and Subcommission C).

Information: Prof. Dr. K. J. Beek, ITC, P.O. Box 6, 7500 AA Enschede, Netherlands.

International Symposium on Nitrogen Management in Farming Systems in the Tropics, Ibadan, Nigeria, October 23–26, 1984.

Information: Organizing Committee, c/o B. T. Kang/A. S. R. Juo, IITA, PMB 5320, Oyo Road, Ibadan, Nigeria.

***4th Symposium on Remote Sensing for Soil Survey**, Dakar, Senegal, end 1984, or January 1985 (ISSS Working Group RS).

Information: F. Hilwig, Projet USAID/RSI, BP 6267, Dakar-Etoile, Senegal.

1985

7th International Meeting on Soil Micromorphology, Paris, France, July 8–12, 1985 (ISSS Subcommission B).

Information: N. Fedoroff, c/o INA P-G Dépt. des Sols, 78850 Thiverval-Grignon, France.

Symposium on Potassium in Agriculture, Atlanta, Georgia, USA, July 8–10, 1985.
Information: D. Armstrong, Potash & Phosphate Inst., 2801 Buford Highway, N.E., Suite 401, Atlanta, GA 30329, USA.

10th Conference of the International Soil Tillage Research Organization (ISTRO), Guelph, Canada, July 8–12, 1985.

Information: Prof. Dr. J. W. Ketcheson, University of Guelph, Ontario Agric. College, Dept. of Land Resource Science, Guelph, Ont. N1G 2W1, Canada.

***International Conference on Land Clearing and Post Clearing Management for Soils of the Humid Tropics**, Ibadan, Nigeria, July, 1985.

Information: Organizing Committee, Soil Science Society of Nigeria, Dept. of Agronomy, Univ. of Ibadan, Nigeria.

8th International Clay Conference, Denver, USA, July 28–August 2, 1985.

Information: Organizing Committee, P.O. Box 25046, Mail Stop 917, Denver, Colorado 80225, USA.

9th International Symposium on Soil Biology, Sopron, Hungary, August 27–30, 1985.

Information: Dr. Eva Bakondi-Zámory, Centre of Plant Protection and Agrochemistry, Budapest, P.O. Box 127, 1502 Hungary.

***International Symposium on the Mapping of the Soil-Water Balance**, Budapest, Hungary, August 1985 (ISSS Commission I, V and VI, and Working Group MV).

Information: Dr. G. Várallyay, Research Inst. of Soil Science & Agric. Chemistry, Herman Otto út 15, Budapest 11, Hungary.

***9th International Colloquium on Soil Zoology**, Moscow, USSR, August 1985.

Information: Prof. M. Ghilarow, Morph. Evolution and Animal Ecology, Lenin Avenue 33, 117071 Moscow W-71, USSR.

1st International Conference on Geomorphology, Manchester, UK, September 15–21, 1985.

Information: Prof. I. Douglas, School of Geography, Univ. of Manchester, M13 9PL, England, UK.

1986

***3rd International Symposium on Acid Sulphate Soils**, Dakar, Senegal, January 6–10, 1986 and excursion from 13–17 January, 1986 (ISSS Working Group AS).

Information: Prof. Dr. L. Pons, Dept. of Soil Sci. and Geology, Agric. Univ., P.O. Box 37, 6700 AA Wageningen, the Netherlands.

***International Symposium on Cerrado: Technology for Use and Management**, Brasilia, Brazil, second half of March, 1986 (ISSS Commissions IV, V and VI) (earlier announced for 1985).

Information: Dr. W. L. Goedert, EMBRAPA-CPAC, Caixa Postal 70/0023, CEP 73300 Planaltina, DF, Brazil.

***13th International Congress of Soil Science**, Hamburg, Fed. Rep. of Germany, August 13–20, 1986.

Information: Prof. Dr. K. H. Hartge, Inst. f. Bodenkunde, Univ. Hannover, Herrenhäuserstrasse 2, D-3000 Hannover 21, F.R. Germany, or M. Rieger, Hamburg Messe u. Kongress GmbH, Jungiusstrasse 13, 2000 Hamburg 36, F.R. Germany.

THE PREPARATION OF POSTER PRESENTATIONS - Some Suggestions

Many organizers of conferences, symposia and meetings consider the presentation of information by the display of posters an appropriate means of communication. During the past few years poster sessions have become increasingly more popular, also at ISSS gatherings. Although conference organizers usually send more or less detailed instructions for poster displays, it is found useful to give some general suggestions for the preparation of posters and related information.

A poster presentation provides an ideal medium for informal exchange of ideas and discussion between speaker and audience. They provide time for more satisfying, detailed discussions than formal paper session. The audience can choose the posters they wish to study and are not held 'captive' as in a formal paper session.

A poster presentation, although similar in many respects to an oral presentation, requires some modifications in preparation. The following suggestions are intended to help in the preparation of an effective poster display which will mutually benefit the author and the audience.

Three basic criteria for an effective display, aside from scientific content, are that it be **ATTRACTIVE**, well **ORGANIZED**, and largely **SELF-EXPLANATORY**. The appearance, both the display as a whole and of individual illustrations is obviously important. A cluttered and disorganized display will detract from the scientific content and will not attract much interest. The display should be largely self-explanatory. An observer can view the data and follow through to the interpretations and conclusions with minimal input on the author's part.

The author should preferably be present during the poster session. This serves two purposes: first to coordinate the illustrative materials into a complete, well documented presentation; secondly and most importantly, to promote communication between the author and the audience. A well-organized and self-explanatory display would permit to avoid unnecessary repetitious descriptions of each illustration, and allow a discussion.

The following suggestions may aid in preparing and presenting an effective and successful poster display:

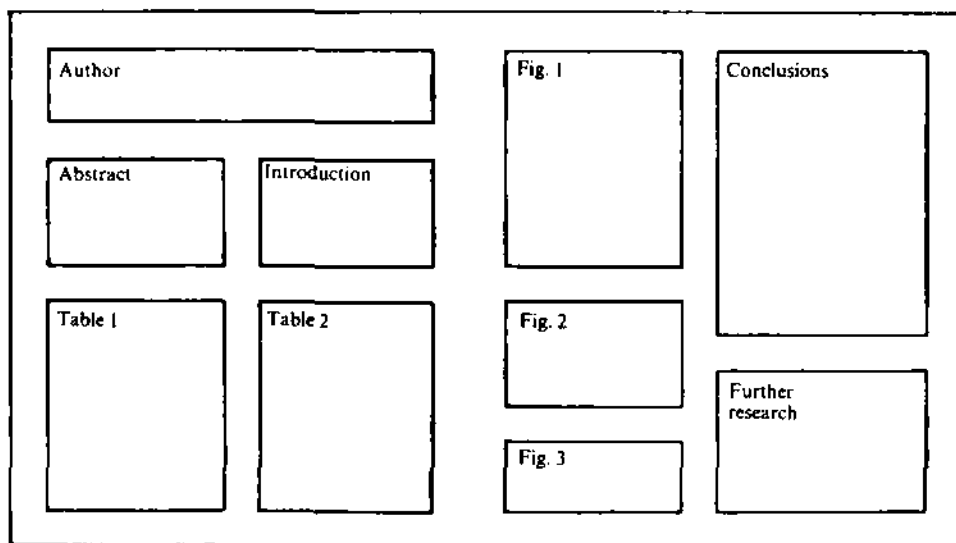
1. Select a few major ideas, do not attempt to overwhelm the audience with data. Use summary-type diagrams and emphasize interpretations and applications and/or conclusions. Ideas peripheral to the main theme can be brought out in discussion.
2. The contents of a poster may divided into individual boards containing an abstract, an introduction, the results and a discussion. The abstract should list the pertinent results and conclusions. The introduction should include a background summary and state the purpose of the study in relation with previous work in the field. The results should be divided, using sub-headings which indicate the most important finding to be illustrated in the respective section. In general, as few results as possible, i.e. loaded with findings will rarely attract attention. There is no obligation to fill the entire space available with information! The discussion should give the interpretation and the significance of the results, and an easily remembered 'take home' scheme, even if speculative, summarizing the conclusions.
3. The individual boards with text, tables and illustrations should be arranged in a sequential order (by numbers, letters, or arrows) with data leading progressively from the introduction, through the results to the conclusions. Arrangement of material can be used effectively to provoke thoughtful questions from the audience.
4. The title of the presentation, which usually appears in the programme, should be included in the display. Individual illustrations or displayed articles should have a

brief explanatory caption. Caption and lettering on illustrations should be sufficiently large to be read at a distance of 2 meters. All lettering should be at least 15 mm (5/8 inch) high, preferably in a bold face type. The use of only capitals is discouraged, since lower case letters can be better read. Typescript should be photo-enlarged with a minimum magnification of 3.

5. Unnecessary details in preparing charts, drawings and illustrations should be avoided. Try to keep everything as simple as possible. Avoid 'arty' or overly ornate presentations. Block colouring can be useful to add emphasis and clarity. All lines should be heavily drawn and at least 2 mm thick. Handlettered material should be at least 25 mm high. Use more than one colour in preparing graphs and lettering of the poster, but red and green in one picture should not be used.

6. Ideally, a poster should be self-explanatory. The poster session potentially provides and intimate forum for informal discussion. However, this becomes difficult if much time has to be spent on merely explaining the poster to a succession of visitors. A brief 3-5 minute oral presentation should be prepared and can be made periodically to small groups. This can be used to present the objective of the study, provide background material, lend additional continuity to the poster sequence, and reiterate conclusions.

7. To assist with any detailed explanations to interested viewers it is suggested to have one or two felt marking pens, pencils or ballpoints and a tablet of suitable sketch paper (A4 or 9 × 12 inch) available. Also, copies of the expanded text, tables of data, figures, etc. should be available for people requesting detailed information on the topic of the display. This text should include the author's full address.



8. Transporting a poster display to a conference can be a problem and depend largely on the means of transport, and size of the individual panels of the presentation. The display should in any case not be mounted on heavy board, triplex, fibreboard, or other heavy materials, because these may be too heavy to transport economically and too heavy to affix on the poster boards. It is handsome to prepare a display on light-weight cardboard which can be rolled and placed in a heavy-duty cardboard tube.

Alternatively, the individual panels could be made to fit a suitcase for flat transport. At the conference posters will usually be mounted on fibreboard by means of adhesive tape (of a removable type!) or drawing pins. These items are usually provided by the organizers. Writing and painting on the poster boards should be strongly discouraged.

9. A suggested display is as follows. The posters should not be closer than 75 cm to the floor, while the height should not be greater than 250 cm and preferably less than 225 cm from the floor.

10. Before preparing the final presentation, it is useful to make a small-scale model, taking into consideration the size of the poster boards and supplementary wishes of the organizers.

These notes have been assembled by J. van Baren, International Soil Museum and are based upon information supplied by the American Association for the Advancement of Science, the American Association of Petroleum Geologists, the American Institute of Biological Sciences, the American Society for Neurosciences, the Federation of American Societies for Experimental Biology, the Education Media Institute of the State University Utrecht, the Audiovisual Centre of the Agricultural University Wageningen, and the organizers of the 11th International Congress of Soil Science in 1978, the Second International Congress of Ecology in 1978, and the International Conference on Soils with Variable Charge in 1981. This help is gratefully acknowledged.

The discussions with Mr. W. C. W. A. Bomer, technician-photographer of the International Soil Museum and the joint production of a number of posters since 1977 have been very helpful in preparing these notes.

Request for cooperation

REGISTER OF VISUAL TRAINING AIDS ON SOIL SCIENCE

During the last decade a large increase in the use of films, slides and video tapes and other training aids can be noticed at universities, agricultural high schools, training institutes, etc.

Unfortunately, there is no central listing of the available material.

The Secretariat is now compiling a register which will be published in the Bulletin in due course. We would be grateful if societies, institutes and individual soil scientists could send to the Secretary-General of the ISSS a listing of available films, slides or slide sets, and videotapes. Please supply all relevant information such as: title, main contents, size, length, type of film sound track, video system type, year of preparation, availability, price and ordering address.

Appel de coopération

RÉPERTOIRE DE MOYENS VISUELS POUR LA FORMATION EN SCIENCE DU SOL

Pendant le dernier décennie une grande augmentation peut être observée dans l'emploi des films, vidéo, diapositives et d'autres expédients de formation aux universités, écoles agricoles, centres de formation etc.

Malheureusement, il n'existe pas de liste du matériel disponible.

Le secrétariat de l'AISS est en train de compiler un répertoire qui sera publié dans un des prochains bulletins, et on fait appel aux membres de l'AISS de lui fournir des renseignements sur des films, vidéocassettes et diapositives destinés pour la formation en science du sol. Veuillez bien indiquer le titre, avec un sommaire et année de parution, les spécifications techniques (durée, métrage, type, système, etc.) et la mode de distribution (adresse, prix). □

INTERNATIONAL TRAINING COURSES/COURS INTERNATIONAUX DE FORMATION/INTERNATIONALE FORTBILDUNGSKURSE



Participants, lecturers and directors at the College on Soil Physics in Trieste

Short international course on soil physics

Fifty-two participants from more than thirty countries (a majority from the developing world) attended the First College on Soil Physics, held at the International Centre of Theoretical Physics, Trieste, Italy, from 19 September to 7 October 1983. The course covered the following topics: general properties of soil, soil-water, soil temperature, flow of heat and gas in the soil, soil-water-plant-atmosphere continuum, drainage, irrigation, soil erosion. A second College on Soil Physics is tentatively programmed in May-June 1985 at the ICTP, Trieste with possible cooperation of Commission I of the ISSS. In such a case, the course may be rounded-off by an international scientific colloquium.

D. Gabriels, Ghent, Belgium

Gesuch zum Zusammenarbeit

REGISTER VON VISUELLE AUSBILDUNGSHILFSMITTEL IN DER BO- DENKUNDE

In den letzten 10 Jahre konnte eine beachtliche Zunahme festgestellt werden in der Anwendung von Filme, Diapositive, Videobänder und andere Ausbildungshilfsmittel an Universitäten, Agrar-ingenieurschulen, Ausbildungsstätte, etc.

Leider gibt es keine zentrale Liste des verfügbaren Materials.

Das Sekretariat stellt zur Zeit ein Register zusammen dass im Kurzen publiziert werden soll. Wir würden sehr dankbar sein wenn Gesellschaften, Institute und individuelle Bodenkundler der Generalsekretär der IBG ihre (privat)Liste zur Verfügung stellen könnten betreffend vorhandene Filme, einzelne Dias oder Sätze, und Videobänder. Bitte schicken Sie alle zutreffenden Auskünften wie: Titel, wichtigste Inhalt, Grösse, Dauer, Tonspurtype, Videosystemtype, Anfertigungsjahr, Zugänglichkeit, Preis und Anforderungsadresse. ☐

NEW PUBLICATIONS NOUVELLES PUBLICATIONS NEUE VERÖFFENTLICHUNGEN

Titles of new publications are listed here for information. Orders can not be handled by the ISSS Secretariat but should be placed through a bookstore or directly with the publishers. Nearly all publications mentioned can however be viewed at the seat of the Society, c/o the International Soil Museum (ISM) in Wageningen, the Netherlands.

Les titres de nouvelles publications sont mentionnés à titre d'information. Le Secrétariat de l'AISS ne peut pas se charger de commandes, celles-ci devant être adressées à une librairie ou directement aux éditeurs. Presque toutes les publications mentionnées peuvent toutefois être inspectées au siège de l'AISS, p/a Muséum International des Sols (ISM) à Wageningen, Pays-Bas.

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. Fast all Veröffentlichungen sind jedoch zu besichtigen an der Stelle der IBG, p/A International Soil Museum (ISM) im Wageningen, Holland.

Special Offer for ISSS Members!

The publication **'Tropical Soils, a comprehensive study of their genesis'** by E. C. J. Mohr, F. A. van Baren and J. van Schuylenborgh (Mouton, Ichtar Baru, Van Hove, The Hague, Paris, Djakarta, 1972, 481 p., ISBN 90-222-0229-1) can now be obtained at a very reduced price. Although this textbook is now a decade old, much of its contents is still valid and remains of interest for soil scientists and students in tropical soil science. All chapters carry many references.

With the cooperation of the publishers, this book can now be made available for about 25% of the original price.

Price: Dfl. 30.00, US \$ 10.00, DM 30.00, £ 7.00 or FF 100.00 including surface mail. Prepayment required.

Orders to: International Soil Museum, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

Transactions 12th International Congress of Soil Science, New Delhi, February 1982. Indian Society of Soil Science, 1982.

The Transactions of the last Congress are now available as follows:

Vol. 1. Plenary Session Papers – Managing Soil Resources, 113 p., US\$ 40.00

Vol. 2. Symposia Papers I, Non-Symbiotic Nitrogen Fixation and Organic Matter in the Tropics, 266 p., US\$ 50.00.

Vol. 3. Symposia Papers II, Vertisols and Rice Soils of the Tropics, 274 p., US\$ 50.00.

Vol. 4. Symposia Papers III, Desertification and Soils Policy, 169 p. US\$ 50.00.

Vol. 5. Panel Discussion Papers, Whither Soil Research, 494 p., US\$ 75.00.

Vol. 6. Abstracts Voluntary Papers (English, French or German), 221 p. English ed. US\$ 40.00.

Price for complete set, incl. Congress Souvenir US\$ 250.00.

Special publication of the Indian Society of Soil Science:

Review of Soil Research in India, Part I, papers dealing with subjects of ISSS Commissions I, II, III and IV, 464 p., US\$ 35.00.

Review of Soil Research in India, Part II, papers dealing with subjects of ISSS Commissions V, VI and VII, 287 p., US\$ 35.00.

Price for set of both parts US\$ 50.00.

The prices include packing and postage by registered surface mail to all countries outside India. A discount of 10 percent to libraries and institutions on prepaid orders placed directly with the Society. Advance payment by money order or bank draft in favour of Indian Society of Soil Science, New Delhi, is required. Unfortunately, the high price will discourage many prospective buyers.

Orders to: The Honorary Secretary, Indian Society of Soil Science, Div. of Soil Science and Agricultural Chemistry, IARI, New Delhi 110012, India.

La Utilización de los Estiercoles en la Agricultura (Land Application of Animal Manures). J.Z. Castellanos and J. L. Reyes, editors, Society of Ingenieros Agrónomos del Tecnológico de Monterrey, Torreón, 1983, 154 p.

This publication contains the papers presented at a conference held in Torreón, Mexico, in 1982. It includes the following sessions: characteristics of manures, effects of manures on water quality and ecology, manure handling systems and equipment for cattle, effects on soil quality and crop yields, effects on microbiology, and fertilizer value of manures.

Price: US\$ 9.00.

Orders to: IATEM, A. C., Aportado Postal 973, Torreón, Coah., C.P. 27,000, Mexico.

Crop response to the supply of macronutrients. Agr. Res. Report 916. H. van Keulen and H. D. J. van Heemst. Pudoc, Wageningen, 1982, 46 p. ISBN 90-220-0807-X.

The response of a number of field crops (small grains, potatoes and sugarbeet) to the availability of nitrogen, phosphorus and potassium is described. For each combination of crop and nutrient element a generally applicable relation between economic yield and nutrient uptake can be described based on the minimum contents of the element in the principal crop organs. The wide variability in crop response to fertilizer application resulted mainly from widely varying relations between fertilizer application and nutrient uptake by the canopy. The application of this concept for the prediction of crop yield under nutrient-limiting conditions is discussed.

Price: Dfl. 12.50.

Orders to: Pudoc, P.O. Box 4, 6700 AA Wageningen, The Netherlands.

Ecology of Tropical Savannas. Ecological Studies Volume 42. B. J. Huntley and B. H. Walker, editors. Springer Verlag, New York, Heidelberg, 1982, 700 p. ISBN 3-540-11885-3.

This book provides a comprehensive synthesis of our knowledge of the structure and functioning of tropical savannas based on the work of international savanna specialists. Tropical savannas are recognized as a distinctive, major biome type embracing a wide range of biotic, climatic and edaphic components.

Two main savanna types – arid/eutrophic and moist/dystrophic are characterized for the first time and the structure, determinants and functioning of examples from South America, Africa and Australia are described. The roles of water, nutrients and fire are examined in detail. The interactions between animals and plants in African savannas are exhaustively reviewed. The dynamics of savanna ecosystems is considered in the light of their stability and resilience characteristics, and the influence man exercises on these features. The volume includes six brief syntheses previewing each section and concludes with a concise review of the characteristic features of tropical savannas – providing a new interpretation of previously confused aspects of these vast inter-tropical ecosystems.

Price: DM 118.00.

Orders to: Springer-Verlag, Heidelberger Platz 3, D-1000 Berlin 33, Fed. Rep. of Germany; or: 175 Fifth Avenue, New York NY 10010, U.S.A.

Soils. Their formation, classification and distribution. A. E. FitzPatrick. Longman, London and New York, 1983, 353 p. ISBN 0-582-30116-6. Paperback edition.

First published in 1980 as a hardback edition (see Bulletin 58, p. 64), this textbook is now issued as a paperback, bringing it within reach of a wider public. A few errors in the 1980 text have been corrected, some new material has been added. This book begins with the fundamental properties of soils, followed by the factors and processes of soil formation and a discussion of soil properties observable in the field and laboratory, due attention being given to micromorphological features. Nearly half of the book is devoted to soil nomenclature and classification. The chapters contain information of the American, Australian, Canadian, French, Russian and South African classification systems, as well as on those developed by Avery, Leeper, Northcote and the author himself. The units of the FAO-Unesco Soil Map of the World are used to discuss the soil classes of the world. For all classes the approximate equivalents in the USDA and FitzPatrick systems are given, while the soils are correlated with names in some other classification systems.

Attention is given to the general characteristics, morphology, some chemical and physical properties, genesis, distribution and utilization of the soils. The final chapter provides an interesting summary of the relationships between soils and their parent material, climate, organisms, topography, time, horizons and soil properties.

The publication is well-illustrated with diagrams, tables, photographs and some colour plates. No doubt, this book will now find its way also to many individuals.

Price: £ 11.50 in U.K.

Orders: Longman Group, Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England. In the U.S.A.: Longman Inc., 19 West 44th Street, New York, NY 10036, U.S.A.

Iron in Soils (in Russian). S. V. Zonn. Izd. Nauka, Moscow, 1982, 108 p.

This is the first comprehensive book devoted to the dynamics, geochemical and pedological behavior of iron compounds in soils. The author describes the importance of iron compounds in the lithosphere and in soil formation processes. Different forms of iron compounds are characterised, mainly based on their solubility. The methods for their determination are also given. In the second part, covering half of the book, diagnostic characteristics of different soil types are given according to the form of iron compounds they contain. It describes in detail the role of iron in the formation of soils in different climatic conditions. The third part deals with general rules of migration of iron in soils with particular regard to the biogeochemical processes. In the last part the influence of human activity on iron dynamics in soils is described as this is affected by modern production systems, mining, irrigation, chemicals, etc.

The book contains 65 tables, 3 figures and nearly 250 well-selected references, as well as a contents in English.

Price: 1.70 Rubel

I. Szabolcs, Budapest

Soil Micromorphology. P. Bullock and C. P. Murphy. AB Academic Publishers, Berkhamsted, 1983, 706 p. Volume 1: Techniques and Applications, 366 p., ISBN 0-907360-06-8. Volume 2: Soil Genesis, 340 p., ISBN 0-907360-07-6.

Since the publication of W. L. Kubiena's *Micropedology* in 1938, there has been a major expansion of soil micromorphology both in the number of scientists using it and in the number of disciplines in which it is being applied. This increasing interest is reflected in the decision of the ISSS to establish a Sub-Commission of Soil Micromorphology in 1978.

International Working Meetings on Soil Micromorphology have been held at regular 4-5 years intervals since 1958. The papers contained in these two volumes were delivered at the sixth Working-Meeting held in London in August, 1981. This meeting was the first one of the newly-formed Sub-Commission.

The papers presented at the Working Meeting were of two types: (1) keynote papers providing a state-of-the-art view of some of the more important areas of soil micromorphology, and (2) poster papers presenting new research material. A selection of the papers presented are included in these volumes. Volume 1 is devoted to 'Techniques and Applications'. In both of these areas there has been considerable development. Image analysis, microchemical measurements, scanning electron microscopy and related techniques have made micromorphology increasingly useful and viable for other scientific disciplines, especially in agriculture, archaeology, Quaternary geology and soil mechanics. Volume 1 provides an excellent insight into the revolutionary expansion taking place and into the wider applications of the new techniques. Volume 2 devoted to 'Soil Genesis', the area with which, historically, soil micromorphology has been most associated. Micromorphological data are increasingly being used in national and international systems of soil classification. Four main soil forming processes are emphasised: clay translocation, podsolisation, weathering and turbation. A review of micromorphological advances in the recognition and description of each is given as well as the main micromorphological properties of the diagnostic horizons associated with such processes. This second volume thus covers the important developments in soil genesis; the fate of plant material in the soil is recorded micromorphologically and there is particular attention paid to the micromorphological properties of peat.

The Proceedings of the previous meetings have served as a useful summary of the progress and the direction of soil micromorphology. It is intended that these two Volumes should serve likewise and to some extent compensate for the few textbooks available in this particular area. Both volumes should be of interest not only to professional micromorphologists but also to those who occasionally make use of micromorphology, in a widening range of scientific disciplines.

Price: £ 29.50 each volume

Orders to: AB Academic Publishers, P.O. Box 97, Berkhamsted, Herts. HP4 2PX, England.

Bodenerosion-Bodenerhaltung. J. Bredurda, DLG Verlag, Frankfurt am Main, 1983, 128 S., 42 Abb. ISBN 3-7690-0387-X.

Vom Standpunkt des Bodenkundlers werden die hockaktuellen Fragen der Bodenerosion und Bodenerhaltung behandelt. Die neuesten Erkenntnisse haben ergeben, dass die Erscheinungen des Bodenabtrags keineswegs auf Gebiete mit extremen klimatischen Verhältnissen beschränkt sind, sondern dass die Voraussetzungen auch in dem gemässigten mitteleuropäischen Klima gegeben sind. Gerade auf den ackerbaulich intensiv bewirtschafteten und damit wertvollen Böden entstehen hier durch Bodenerosion empfindliche Schäden.

Aufgrund eigener Untersuchungen und Beobachtungen in Mitteleuropa, im Mittelerrangebiet, in der Sowjet-Union, in China, in Indien und in Kanada wird ein dem heutigen Stand der Forschung entsprechender, allgemeinverständlicher Überblick gegeben über die Verbreitung der Bodenerosion, die Faktoren, die ihr Auftreten, den Ablauf und die Folgen bestimmen, den Mechanismus der Erosionsprozesse, die Methoden der Bodenerosionsforschung sowie die Methoden der Erosionsbekämpfung.

Das Buch wendet sich in der Hauptsache an die Studenten der Agrar- und Geowissenschaften.

Preis: DM 23,00, broschiert

Bestellungen an: DLG Verlag, Rüsterstrasse 13, D-6000 Frankfurt am Main, Bundesrepublik Deutschland.

Recent problems of soil genetics & geography (in Russian). S.V. Zonn, 1zd. Nauka, Moscow, 1983, 168 p.

The author, as he writes in the preface, compiled into this book the results of his 30 year's investigations on the subject, both in USSR and in a number of developing countries in the tropics and subtropics.

The book consists of 15 chapters. Each of them is devoted to one major problem of modern soil science. Chapters are: the importance of soils in the national economy; development of ideas on formation and genesis of podzol and pseudo-podzol soils; lessivage and formation of pseudo-podzol process in different soils; podzol formation in some soils of moderate climate; problems of genesis and classification of tropical and subtropical soils; soil formation in the desert soils; desertification in different continents; role of iron and aluminium in soil formation; lessivage and formation of pseudo-podzols in the subtropics of West-Georgia; characteristics of lessivage and pseudo-podzol formation in some Syrian soils; lessivage and formation of soils in the monsoon-continental climate of the Far East; soil problems in forestry; some pedoclimatical aspects in the use of soil resources; cosmic influences in the study of geography of soil resources.

The book is illustrated with tables, figures and maps. Its originality and up-to-date content certainly will evoke due interest.

Price: 2 Rubel.

I. Szabolcs, Budapest

Rice. Fifth edition. D. H. Grist. Longman, London and New York, 1983, 601 p. ISBN 0-582-46033-6.

This is the fifth edition of one of the textbooks in the well-known Tropical Agricultural Series. It now appears in paperback, retaining the original text and the many black and white photographs.

The author outlines the history and origin of rice and discusses climate, soil and the water regimes suited to the crop. The characteristics of the plant rice varieties and their improvement are described in detail. Thereafter chapters are devoted to cultivation methods, fertilisation, weeds, pests, diseases, storage, milling, nutritional value and economics.

Price: £ 14.95 in U.K.

Orders to: Longman Group Ltd., Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England, In the U.S.A.: Longman Inc., 19 West 44th Street, New York, NY 10036, U.S.A.

Laboratory Manual for Introductory Soil Science, Sixth Edition. H. D. Foth, L. V. Withee, H. S. Jacobs and S. J. Thien. Wm. C. Brown Comp. Publ., Dubuque, 1982, 143 p. ISBN 0-697-05855-7.

This is the 6th edition of a laboratory book accompanying basic college courses in soil science. The book offers 15 essential exercises, each divided in an introduction, the laboratory procedure(s), data forms and question sheets. One exercise (water movement in soil) is to accompany the film of the same title by Gardner and Hsieh. The exercises are: the soil as a natural body, soil texture, particle size distribution, bulk density and total pore space, soil water, water movement in soil, weathering of minerals in soils, properties of colloids, types of soil acidity, determining limestone requirements for acid soils, saline and sodic soils, available phosphorus, organic matter and its microbial decomposition, the use of soil survey reports. Included are two appendices: a reagent list and the application of chemistry to soil science.

Price: US\$ 11.95.

Orders to: In U.S.A.: Wm. C. Brown Publishers, P.O. Box 539, Dubuque, Iowa 52001, U.S.A. Elsewhere: through your bookseller to Feller and Simons, Education Division, 8 High Street, Arundel, Sussex, England.

Handbook of Polycyclic Aromatic Hydrocarbons. A. Bjørseth, editor, Marcel Dekker, New York and Basel, 1983, 727 p. ISBN 0-8247-1845-3.

During recent years, it has become increasingly evident that cancer in man is linked to environmental factors. In particular, attention has been focused on the importance of chemical carcinogens, one of the largest classes known today being the polycyclic aromatic hydrocarbons (PAH). These compounds have their main sources in fossil or synthetic fuels or from combustion or high-temperature reactions of organic materials. Since these sources are ubiquitous in an industrialized society, there are a large number of stationary as well as mobile sources of PAH. In developing countries PAH from fires may also represent a pollution problem. The environmental concern for these compounds is well justified. A prerequisite for their control in the environment is an understanding of the chemical and physical properties of PAH as well as the methodologies for their sampling, sample handling, and analysis.

This comprehensive and systematic treatise describes present knowledge in these areas in such a way that it might be of value to active researches as well as to people involved in regulatory actions, monitoring work, etc. Furthermore, a handbook giving a state-of-the-art review and providing hints for the practical application of methods would be valuable for those researchers beginning work in this area. It is also useful to show how modern-day analytical techniques are applied to various environmental problems.

References to relevant soil studies are few although a considerable portion of PAH will occur in this medium for agricultural and food production.

Price: Sw.Fr. 332.00.

Orders to: Marcel Dekker, 270 Madison Avenue, NY 10016, U.S.A.

Soil Map of England and Wales 1:250,000. Soil Survey of England and Wales, Harpenden, 1983, 6 map sheets and legend.

This new Soil Map of England and Wales is based on published soil maps which cover a quarter of the land at scales between 1:25,000 and 1:100,000 and on reconnaissance mapping of previously unsurveyed areas. The legend, which is available in booklet form or as a flat sheet for wall display, shows all geographic soil associations identified by the most frequently occurring soil series and by combinations of ancillary series.

The map units are further identified by number codes, and are coloured by dominant soil subgroups (or graphs), of which sixty-seven are recognised. The number of each code indicates the predominant major soil group, group and subgroup. The legend also lists for each unit: (1) the geological materials influencing soil characteristics; (2) important soil properties and conditions affecting rooting depth cultivations and drainage; (3) cropping and other information; and (4) percentage and area covered by the soil associations.

The soil classification system is briefly given; in 1984 a newly revised and rationalised classification of soil series will be published. The soil association and their component soil series will be further described in regional bulletins to accompany the individual map sheets.

Price for the set: £ 30.00, including postage. Separate sheets: £ 4.60.

Orders to: Publications Officer, Soil Survey of England and Wales, Rothamsted Experimental Station, Harpenden, Herts, AL5 2JQ, England.

Lateritisation Processes. A. J. Melfi and A. Carvalho, editors. Univ. of Sao Paulo, Brazil, 1983, 595 p.

These are the proceedings of the Second International Seminar on Lateritisation Processes, held in Sao Paulo, Brazil, July 1982, which was organized by the Working Group of Lateritisation Processes (Project 129, Unesco-Int. Geological Correlation Program, IGCP) and the Working Group Laterites and Lateritisation (Int. Ass. of Geochemistry and Cosmochemistry, IAGC).

The study of lateritic formations, which cover parts of the earth surface, mainly in the tropics, is of interest for various fields of the geosciences, such as geology, engineering, soil science and astronomy, and especially for the evaluation as a mineral resource. In view of the importance and magnitude of the problem, Unesco, through IGCP, and IAGC, approved projects directed towards the acquisition of a better understanding of the geochemistry, mineralogy and technology of laterites and of the genetic processes involved in their formation. One of the aims of the projects was the organization of international seminars; the first was organized in Trivandrum, India, in 1979 (see Bulletin 60, p. 57 for the proceedings).

The present proceedings contain 4 plenary lectures and 42 papers. Although the quality of reproduction of maps, graphs, tables and photographs is rather poor, the book is very useful for geoscientists interested in the various problems of lateritic materials.

Price: US\$ 13.00 incl. surface mail or US\$ 20.00 including airmail charges. Prepayment required.

Orders to: Dr. A. Carvalho, Secretary, Second Int. Seminar on Lateritisation Processes, Instituto de Geociencias-USP, C.P. 20899, 01498 Sao Paulo-SP, Brazil.

Mechanical replacement processes in mobile soft calcic horizons: their role in soil and landscape genesis in an area near Mérida, Spain. Agr. Res. Reports 919. G. W. W. Elbersen, Pudoc, Wageningen, 1982, xii + 208 p. ISBN 90-220-0810-X (doctoral thesis, Agr. University Wageningen).

A mechanical replacement process is described to explain the way in which soft calcic horizons become 'mobile' and actively penetrate the soil. This model implies that the horizons are pedogetic features which may be very old since they can escape exposure in a landscape subject to erosion. The lime they contain can be derived from the weathering strata through which they have passed in the course of time. The process is initiated by subterranean gilgai formation which introduces soil material into the lower part of the calcic horizon which subsequently moves this material upward and expels it from the top. The transport process was re-created in the laboratory and monitored by stereo radiography. Its driving force is derived from air enclosure which occurs upon wetting of crystalline powdery lime. Field data from the study area have yielded evidence of the replacement process and indicate the main controlling factors. Rates of downward movement of the calcic horizons have been calculated to be of the same order of magnitude as representative erosion rates for the area. Implications of the process for soil science, agriculture, geomorphology and archeology are briefly treated.

Price: Dfl. 55.00

Orders to: Pudoc, P.O. Box 4, 6700 AA Wageningen, The Netherlands.

Atlas of rock-forming minerals in thin section. W. S. MacKenzie and C. Guilford, Longman, Harlow, 3rd impression, 1982, 98 p. ISBN 0-582-45591-X.

Several of the common rock-forming minerals, as they appear under the microscope and in thin section, have been portrayed in 200 colour micrographs. Colour photography was used to better illustrate characteristics of individual minerals using plane-polarized light and crossed polars. Chemical formula, crystal system, optic sign, refractive index(indices), birefringence and a short description of each mineral are given. A birefringence chart was also included. The authors have succeeded in their goal to produce an atlas which can help the undergraduate geology student to recognize minerals under the microscope in rocks. Students in soil mineralogy can also use this book although the treated minerals are fresh and not weathered. A German edition is published by Enke, Stuttgart. Price DM 48.00.

Price: £ 8.95 in U.K.

Orders to: see below.

Atlas of igneous rocks and their textures. W. S. MacKenzie, C. H. Donaldson and C. Guilford, Longman, Harlow, 1982, 148 p. ISBN 0-582-30082-7.

After the success with the book 'Atlas of Rock-Forming Minerals in Thin Section', the authors, aided by C. H. Donaldson, have made a similar quality book on igneous rocks. It is intended as a laboratory handbook to assist the undergraduate student in the study of igneous rocks in thin section. Part 1 of the work gives description and photographs of textures of the rocks and Part 2 discusses minerals which are present in micrographs of mostly common rocks. For obvious reasons interpretations on the origin of igneous rocks were avoided in the atlas. The book can be used by the soil mineralogist as an aid when studying rock fragments in soils and to compare them with bedrock (mother rock). Usually, however, rock fragments in soils contain weathering minerals which makes correlations more complicated.

Price: £ 9.95 in U.K.

Orders to: Longman Group, Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England. In the U.S.A.: Longman Inc., 19 West 44th Street, New York, NY 10036, U.S.A.

E. Bisdom, Wageningen.

Fragipan horizons in soils: a bibliographic study and review of some of the hard layers in loess and other materials. New Zealand Soil Bureau Bibliographic Report 30. I. J. Smalley and J. E. Davin. New Zealand Soil Bureau, 1982, 122 p. ISSN 0110-165X (series).

This bibliography provides information on fragipans as well as indicating where fragipan papers are published. It gathers together the literature on fragipans from 1968 to 1981. The review of fragipans by Grossman and Carlisle in 1969 (Fragipan soils of the Eastern United States, *Advances in Agronomy* 2, p. 237-279) is used as a starting point. Extracts from selected papers are presented in historical sequence. Comments are added where appropriate. In addition a bibliography (arranged alphabetically by author) of references on fragipans and references used in the bibliography is included. The definitions, nature and formation of fragipans are discussed. A subject index and a places, deposits and soils index are provided.

Price: NZ\$ 10.00 plus NZ\$ 2.00 postage by surface mail

Orders to: Administration Officer, Soil Bureau, Private Bag, Lower Hutt, New Zealand.

Environmental Change. 2nd ed. Contemporary Problems in Geography. A. Goudie. Clarendon Press - Oxford University Press, Oxford, 1983, 258 p. ISBN 0-19-874132-4 (hardback), 0-19-874135-9 (paperback).

This is a concise, modern survey of the many recent inter-disciplinary developments in the study of environmental changes during the last three million years. Traditional and recent techniques for the study of the Pleistocene are described and then the chronology, nature and effects of the major events are outlined. This is followed by a discussion of the Holocene and a detailed analysis of changes during the period of meteorological observations. The book ends with sections on sea-level changes and the causes of climatic change. There is a wide geographical coverage, using a minimum of technical language.

Price: £ 15.00 (hardback) and £ 6.50 (paperback), in U.K.

Orders to: Oxford University Press, Walton Street, Oxford OX2 6DP, England.

Ground Water Monitoring Technology. Procedures Equipment and Applications. R. D. Morrison. Timco Mfg., Inc., Prairie du Sac, 1983, xv + 111 p. ISBN 0-9611060-0-X.

Ground water monitoring has evolved into a science founded upon a knowledge of hydrogeologic principles and practical field experience. In addition, an understanding of the equipment and techniques available for monitoring is required. The purpose of this book is to provide such information for use in the vadose and saturated zones. The inclusion of techniques for the vadose zone underscores the importance of this system in any ground water monitoring effort. No longer will a simple monitoring well suffice in providing the detailed information required for understanding the contamination of ground water resources.

A degree of discrimination was exercised in selecting technologies which were directly applicable for field use. Emphasis was placed upon a presentation of field proven methods which have been documented; many unproven, but highly promising, techniques were omitted. Laboratory methods which relied upon the collection of a soil sample were excluded except for a brief discussion of those methods required for the calibration or verification of a particular instrument. The book includes about 480 references, a short glossary and is profusely illustrated.

Price: US\$ 33.00 in U.S.A. and Canada, \$ 44.00 elsewhere, including postage, prepayment required.

Orders to: Timco Mfg., Inc., 851 Fifteenth Street, Prairie du Sac, Wisconsin 53578, U.S.A.

A Simulation Model for Physical Soil Ripening in the IJsselmeerpolders. Flevovericht No. 203. K. Rijniersee. IJsselmeerpolders Development Authority, Lelystad, 1983, 126 p. (doctoral thesis, Agricultural University Wageningen).

Just after reclamation, the clayey sediments in the IJsselmeerpolders can be characterised as very soft and wet, almost impermeable and unsuited for agricultural use. A complex process termed 'soil ripening' transforms these sediments into normal soils, very suitable for agricultural production. During this process, soil physical properties are subject to change. As in the Netherlands, in summer, climatic conditions cause evaporation surpluses, the water content in the soil is decreasing irreversibly. The resulting compaction of the soil leads to subsidence and crack formation. Via these cracks water can flow toward a field drainage system. This system discharges part of the precipitation surpluses in winter. Naturally, the process of physical ripening is not confined to the IJsselmeerpolders; in watery sediments and peats elsewhere in the world similar processes take place.

This book describes the process of physical ripening and the factors influencing the process. It deals with the water balance of a ripening soil and the role of evapotranspiration, seepage, dewatering measures and soil properties. The reader is informed on measures to accelerate ripening and thus limit the period of inproductivity of soils. A numerical model developed to simulate the ripening process is described. A calculation technique has been developed to overcome problems of shifting pF-curves, decreasing thicknesses of soil layers and changing permeabilities. Some examples of application give an insight in the effects of factors influencing the process such as soil-cover, seepage and climate. A separate chapter deals with the limitations of the model.

This book has been written for soil scientists and hydrologists, not only in land reclamation areas but also in other regions.

Price: Dfl. 30.00, including postage.

Orders to: IJsselmeerpolders Development Authority, P.O. Box 600, 8200 AP Lelystad, The Netherlands.

Nitrogen Cycling in South-East Asian Wet Monsoonal Ecosystems. R. Wetselaar, J. R. Simpson and T. Rosswall, editors. Australian Academy of Science, Canberra, 1981, 216 p. ISBN 0-85847-097-7.

The SCOPE/UNEP International Nitrogen Unit was established in 1978 at the Royal Swedish Academy of Sciences in Stockholm. The two main objectives of this Unit were to collect and evaluate existing knowledge of the biogeochemical nitrogen cycles in major regions and ecosystems throughout the world and to draw attention to regional environmental problems related to these cycles. With respect to the regional objectives, three workshops have been held. The first one was in West Africa in 1978, the second one was in South-East Asia in Chiang Mai in 1979, and the third one was in Latin America in 1981. (also in this Bulletin).

Most of the papers presented at the second workshop are included in these Proceedings. The fact that half of these are related to rice, emphasizes the importance of this food crop in the region. After a paper giving a comprehensive review of existing data on the different aspects of nitrogen cycling in wetland rice, the following eight papers reflect the importance of the nitrogen fixation processes in a paddy field, although latter papers stress the need for nitrogen fertilizers if high grain yields are to be achieved.

The second half of the papers covers a wide variety of ecosystems such as forests, mangrove, rubber and oil palm. In addition, attention is given to nitrogen cycling in a catchment context, environmental problems associated with terrestrial nitrogen transformations, methods for studying nitrogen cycle processes under field conditions, and a modelling approach to nitrogen exchanges. The importance of nitrogen input via precipitation is underlined by a bibliography on this subject.

The Work Groups covered the four areas of Irrigated Wetland Rice, Forests and Plantation Crops, Catchments, and Shifting Cultivation. In addition, one group specifically addressed itself to how the Man and the Biosphere (MAB) programme of Unesco could contribute in the area of the biogeochemical nitrogen cycle. All Work Groups' Reports point out the problems associated with obtaining reliable data on nitrogen balance sheets, and all list the research priorities needed to overcome these problems.

These Proceedings present for the first time a collection of papers that reflects current knowledge of nitrogen cycling in South-East Asian ecosystems, and indicates research priorities through the Work Group Reports. This book is meant as catalyst for individual scientists concerned with nitrogen cycling in the natural and managed ecosystems of the region, and as an encouragement to such scientists to make contact with each other and to assist their cooperation towards a common goal.

Price: Austr. \$ 33.50 plus \$ 7.00 for surface post. Prepayment required.

Orders to: The Executive Secretary, Australian Academy of Science, G.P.O. Box 783, Canberra, A.C.T. 2601, Australia.

Nitrogen Cycling in Ecosystems of Latin America and the Caribbean. Developments in Plant and Soil Sciences, vol. 6. G. P. Robertson, R. Herrera and T. Rosswall, editors. Martinus Nijhoff/Dr. W. Junk Publishers, the Hague, 1982, 430 p. ISBN 90-247-2405-8 (series), 90-247-2719-7 (this volume).

The large and rapidly expanding body of literature related to nitrogen cycling in both managed and native terrestrial ecosystems reflects the importance accorded to the behaviour of this vital and often limiting nutrient. Research at the organism, ecosystem and landscape levels commonly addresses questions concerning nitrogen acquisition, internal cycling and retention. Goals for this research include increased agricultural productivity and a better understanding of human impact on local, regional and global nitrogen cycles.

Nitrogen cycle research in tropical regions has a long and distinguished history. Research on different aspects of nitrogen cycling in ecosystems of the tropics has been carried out in many regions. In relatively few instances has there, however, been a focus on the biogeochemical cycles at the ecosystems level. The meeting resulting in this volume was an attempt to bring together existing information on nitrogen cycling in ecosystems of Latin America and the Caribbean and discuss this in an ecosystem context.

The papers represent the proceedings of a workshop on Nitrogen Cycling in Ecosystems of Latin America and the Caribbean, the third workshop on nitrogen cycling within particular regions organized by the SCOPE/UNEP International Nitrogen Unit of the Royal Swedish Academy of Sciences, Stockholm. It was held in March 1981 at CIAT, Cali, Colombia. The purpose of the workshop was: (1) to emphasize the importance of the nitrogen cycle in the different ecosystems of the region, (2) to provide a forum for scientists from the region to present papers describing ongoing nitrogen-cycle research, (3) to compile available data into coherent nitrogen budgets for the region's main ecosystems, and (4) to define nitrogen-cycle research priorities for the region. Previous workshops have been held in West Africa and in Southeast Asia. (also in this Bulletin).

Three days of symposia and contributed paper sessions were followed by two days of workgroup discussions organized around major ecosystems of the region. These included shifting cultivation and traditional agroecosystems, sugarcane, cereal and grain crops, coffee and cacao plantations, savannas and shrublands, forests, and wetlands and aquatic systems. The workgroup reports are also included in the volume. All papers are in English and have Spanish abstracts.

Price: Dfl. 150.00.

Orders to: Kluwer Academic Publishers Group, Distribution Center, P.O. Box 322, 3300 AH Dordrecht, The Netherlands. In U.S.A. and Canada: Kluwer Boston, 190 Old Derby Street, Hingham, MA 02043, U.S.A.

Perspectives in Geomorphology. Concept's International Series in Geography No. 2. H. S. Sharma, editor. Concept Publ. Comp., New Delhi, 1982, 4 volumes, 1362 p.

This is the second set in an ongoing series entitled Concept's International Series in Geography which has been planned to provide the university students with a compendium of knowledge and information on the latest developments in the discipline, branch by branch.

The volumes on Perspectives in geomorphology present research studies and review chapter by leading authorities from India and other countries, comprehensively covering a wide range of topics relating to the different aspects of geomorphology. Volume I covers trends in geomorphological research, climatic geomorphology, planation surfaces and granitic inselbergs, karst processes, coastal processes and land-forms, glacial processes and application of Landsat imageries in geomorphological studies. Volume II presents papers on quantitative fluvial geomorphology. Volume III deals with applied geomorphology and volume IV covers papers on Indian geomorphology.

This comprehensive introduction to various aspects of geomorphology in 4 volumes, will meet an increasingly felt need in this rapidly expanding field of study. The various volumes are generously illustrated with maps, diagrams and photographs. This series has been designed to help not only research scholars and teachers but also the general student who wishes to keep abreast of the latest developments in the field of geomorphology. Unfortunately, the price of this series outside India, is high.

Price: US\$ 160 for set of 4 volumes.

Orders to: D.K. Agencies, H-12, Bali Nagar, New Delhi 110015, India.

Soils of China – Their Use and Improvement, Nature of Fertility and Soil Properties, and Genesis, Classification and Distribution. Nanking Institute of Soil Science and Academia Sinica. Translated from the Chinese by K. Kawase and I. Kanno. Hakuyusha, Tokyo, 1983, xxx + 1020 p. (in Japanese).

This extensive publication on the soils of China was originally published in 1976. Part I, covering one third of the book, discusses the use and improvement of the different main soils of China. The second part gives information on soil properties and processes, and on the fertility status, e.g. N, P, K, and micro-elements. The soil types and their distribution are treated in the last chapter, covering more than one third of the contents. The book is supplemented with a 1:10 million soil map of 1976 with Chinese, Japanese and English legend. Since other accessible information on the soils of China is scarce, soil scientists who are able to read Japanese must feel fortunate to have the present book at their disposal. The translators should be complimented with their achievement. Unfortunately, the price is high.

Price: 35000 Yen or about US\$ 145.00.

Orders to: Hakuyusha, 9 Agebacho, Shinjuku-ku, Tokyo 162, Japan.

Chemistry and World Food Supplies: The New Frontiers. CHEMRAWN II. L. W. Shemilt, editor. Pergamon Press, Oxford, New York, 1983, 664 p. ISBN 0-08-029243-7 (hardback), 0-08-029242-9 (paperback).

CHEMRAWN II, the International Conference on Chemistry and World Food Supplies – The New Frontiers, of which the ISSS was an affiliate sponsor, took place in Manila from 6–10 December 1982. (see also ISSS Bulletin no 63, p 11–12). Its objectives were: (1) to identify and put into perspective those areas of research and development having the potential to increase significantly food production and improve food storage and processing; (2) to strengthen scientific research in developing nations, particularly in those fields which require professional competence and initiative without excessive capital and human resources; and (3) to accelerate implementation of research priorities and objectives by fostering cooperation among governments, industries and universities.

The present volume contains invited papers in the following sections: soil and crop management for efficient use of water and nutrients (8 papers), integrated approaches to pest management (7 papers), the role of chemistry and biochemistry in improving animal production systems (8 papers), contributions of chemistry and biochemistry to developing new and improved food sources (8 papers), chemistry and biochemistry in the processing and storage of food (7 papers), chemistry in the assessment and control of the food supply (8 papers), the forward edge (10 papers). A second volume will include the conference summary, conclusions and recommendations. The proceedings of the general plenary sessions is also in preparation.

Price: US\$ 135.00, £ 75.00 (hardback); \$ 75.00, £ 42.00 (paperback).

Orders to: Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, England; or: Pergamon Press, Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.

Loess & Agriculture. 1975–1981. A Bibliography. J. Kwong and I. Smalley. Loess Letter Supplement No. 1, October 1983.

The purpose of this bibliography is to give a brief and general impression of the research on loess, from an agricultural point of view, which was published between 1975 and 1981. The about 200 entries have been solely derived from volumes 39–45 of the 'Bibliography of Agriculture', published by Oryx Press. It complements Bibliographic Report 31 of the New Zealand Soil Bureau, by I. J. Smalley, entitled 'An agricultural view of loess: subject entries in the catalog of the USDA National Agricultural Library 1862–1980'.

Requests to: Dr. Ian Smalley, Dept. of Earth Sciences, Univ. of Waterloo, Waterloo, Ontario, Canada N2L 3G1.

Landscape Ecology and Land Use. A. P. A. Vink, Edited by D. A. Davidson. Longman, London and New York, 1983, 264 p. ISBN 0-528-30077-0 (paperback).

By bringing together the concept of landscape with the scientific perspectives of ecology, integrated with the practical concerns of land use and environmental planning, the author demonstrates how theoretical work in environmental science can be given practical application. The book begins by outlining the nature and scope of landscape ecology, with particular attention to the structure and functioning of landscapes ecosystems. This theoretical background is expanded in subsequent chapters dealing with landscape ecological surveys, crop ecology and land management, urban ecology, land degradation and improvement, and conservation. The last chapter introduces various systems for land classification and considers their role in land use planning.

This book is an up-dated translation of an edition in Dutch, published in 1980.

Price £ 7.95 in U.K.

Orders to: Longman Group, Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England. In the U.S.A.: Longman Inc., 19 West 44th Street, New York, NY 10036, U.S.A.

Soil. Longman Handbooks in Agriculture. K. Simpson. Longman, London and New York, 1983, X + 238 p. ISBN 0-582-44641-4.

Over the last few decades significant advances have been made in the understanding of soil science, but the number and range of books available can make the subject seem daunting, and the approach taken in specialist literature is often too theoretical to help those concerned with the business of growing crops.

The present publication is a practical book which tackles both basic soil science and the problems of the farmer. In Part One, the author explains the fundamentals of soil formation and classification and the main properties of soils. This section will give a good basic knowledge of the subject to farmers, advisers and anyone concerned with the prosperity of the farming industry. It is also a useful basis for courses in soil science at diploma and degree level. The second and third parts of the book deal respectively with physical and chemical problems, their causes and suggested solutions.

Price: £ 6.95 in U.K.

Orders to: Longman Group Ltd., Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England. In the U.S.A.: Longman Inc., 19 West 44th Street, New York, NY 10036, U.S.A.

Basis of accounts for Norway's natural resources. J. Låg, editor. Universitetsforlaget, Oslo, 1982, 262 p. ISBN 82-00-12655-2.

This publication contains comprehensive summaries and complete literature references of lectures, given in Norwegian to celebrate the 125th anniversary of the Norwegian Academy of Science and Letters. The symposium was held in Oslo in April 1982. Most contributions deal with the natural resources of Norway, some papers put these in a global perspective. In a relatively large number of lectures, soil aspects are of importance.

Price: N.Kr. 130.00.

Orders to: Universitetsforlaget, Box 2977, Toyem, Oslo 6, Norway. In UK: Global Book Resources Ltd., 109 Great Russel Street, London WC1B 3NA, England. In USA and Canada: Columbia Univ. Press, 136 South Broadway, Irvington-on-Hudson, NY 10533, U.S.A.

Soils of Papua New Guinea. P. Bleeker. CSIRO in association with Australian National University Press, Canberra, 1983, 352 p. ISBN 0-7081-1104-1.

The aim of this book is to bring together and summarise present knowledge of the soils of Papua New Guinea. Although much of it is based on data collected during CSIRO's land resource surveys, the book also attempts to incorporate the widely scattered and relatively inaccessible information gathered by other researchers. Soil Taxonomy has been used, making the data accessible to scientists working in other parts of the tropics. Eight orders, twenty-six suborders and sixty-one great soil groups have been identified in Papua New Guinea. Following an introductory section on the environment and a discussion on soil classification and mapping, the soils at great soil group level are described. For each great group separate short sections on morphology, genesis, occurrence, association, fertility, and land use are given.

The second part of the book discusses soil related subjects, attempting as far as possible to synthesise the available information. A review of the various land inventory methods, including land system surveys is given, and soil erosion and conservation are discussed, as is the possible application of the Universal Soil Loss Equation (USLE) to Papua New Guinea conditions. Type, depth, rate and the assessment of the degree of weathering are dealt with, together with some examples from Papua New Guinea. The author examines the content of the primary nutrients (N, P and K) in some typical great soil groups and trace element deficiencies in tree crops. A review of soil microrelief features at various locations is given, while the last chapter briefly examines traditional food crop agriculture, especially in relation to soil properties and crop yield declines under cultivation.

The appendix includes soil profile descriptions, site characteristics, and analytical data. The publication is well-illustrated and also contains a number of colour plates with pictures of soil profiles.

Price: Austr. \$ 14.95.

Orders to: Australian National University Press, P.O. Box 4, Canberra, ACT 2600, Australia. In Europe and Africa: Eurospan, 3 Henriette Str., London, WC2E 8LU, England. In North America: Books Australia, 15601 SW 83rd Avenue, Miami, FL 33157, U.S.A.

Rainfall Simulation, Runoff and Soil Erosion. Catena Supplement 4. J. de Ploey, editor. Catena Verlag, Cremlingen, 1983, 214 p. ISSN 0722-0724 (Catena), ISBN 3-923381-03-4 (this issue).

This Catena Supplement may be an illustration of present-day efforts made by geomorphologists to promote soil erosion studies by refined methods and new conceptual approaches. On one side it is clear that we still need much more information about erosion systems which are characteristic for specific geographical areas and ecological units. With respect to this objective the reader will find in this volume an important contribution to the knowledge of active soil erosion, especially in typical sites in the Mediterranean belt, where soil degradation is very acute. On the other hand a set of papers is presented which enlighten the important role of laboratory research in the fundamental parametric investigation of processes, i.e. erosion by rain. This is in line with the progressing integration of field and laboratory studies, which is stimulated by more frequent feed-back operations. Finally attention is drawn to the work of a restricted number of authors who are engaged in the difficult elaboration of pure theoretical models which may pollinate empirical research, by providing new concepts to be tested. It contains the fairly extensive publication of two papers on soil creep mechanisms, whereby the basic force-resistance problem of erosion is discussed at the level of the individual particles. All the other contributions are focused mainly on the processes of erosion by rain.

It is mentioned that the effects of oblique rain, time-dependent phenomena such as crusting and runoff generation, detachment-limited and transport-limited erosion including colluvial deposition, are all aspects of single rainstorms and short rainy periods for which particular, predictive models have to be built. Moreover, it is argued that flume experiments may be an economic way to establish gross erodibility classifications. The present volume may give an impetus to further investigations and to the evaluation of the proposed conclusions and suggestions.

Price: DM 125.00 or US \$ 75.00, incl. surface mail postage.

Orders to: Catena Verlag, Margot Rohdenburg M.A., Brockenblick 8, 3302 Cremlingen 4, Fed. Rep. of Germany.

Land Drainage: planning and design of agricultural drainage systems. L. K. Smedema and D. W. Rycroft. Batsford Academic, London, 1983, 376 p. ISBN 0-7134-3500-3.

The increase of land drainage in the areas of irrigated agriculture in developing countries has made its wider application of fundamental importance to their continuing success and to increasing the world's agricultural production. Here is a modern comprehensive text, at university level, which discusses the diagnosis and solution of agricultural drainage problems, based on the understanding of the physical principles involved. Land drainage is treated as being essentially a field of applied soil physics and applied hydrology.

All major drainage problems are covered, each in its particular environment and field of application: groundwater drainage and water table control; surface drainage of sloping and flat lands; shallow drainage of heavy land; drainage for salinity control in irrigated land; drainage and reclamation of polders; drainage for seepage control; and main drainage: design discharges, canal design, outlets. The approach is analytical, giving the reader a good understanding of what is physically (or chemically) going on in the soil, and on the land, during the various stages of different drainage processes. Such an understanding will help the reader appreciate the many factors and interrelationships to be taken into account in the diagnosis and solution of drainage problems, as well as being aware of the reliability and limitations of existing theories and formulae. Universal relationships between the main design variables and soil, climatology and other relevant environmental conditions are also stressed. Theory is backed up by practical application, the material being ideally organised for students, while the way in which the applied form is presented will appeal to the professional.

Price: £ 19.95, prepayment required.

Orders to: Batsford Books, 4 Baker's Mews, London W1M 1DD, England.

Environmental Biogeochemistry. Ecological Bulletins 35. R. Hallberg, editor. Publishing House/FRN, Stockholm, 1983, 576 p. ISSN 0346-6868 (series), ISBN 91-86344-10-2 (this volume).

On two session days the subjects pertained to the biogeochemical cycles of natural reservoirs. The presentations focused on reservoir component pool-size variability, chemical transformation mechanisms, and the impact of these factors on the interpretation of field data. This somewhat unusual approach may have been the reason why some papers concentrated more on the description of the data than on a critical inquiry into their relevance to the problem under study. On a third session day the topics related to the effects of man-made emissions on the biosphere. The final day of the symposium was reserved for a case-study of the Baltic Sea. The papers from that session will be published elsewhere.

Scientists in the field of environmental biogeochemistry generally focus their studies on energy or mass balances of elemental or mineral cycles. Consequently, the papers in this volume have mainly been organized in sections according to such cycles, as follows: (1) biogeochemistry of rivers and seawater (6 papers); (2) biogeochemistry of sulfur (5 papers); (3) biogeochemistry of nitrogen (6 papers); (4) biogeochemistry of carbon (7 papers); (5) biogeochemistry of metals (11 papers); (6) diagenetic systems (4 papers); and (7) miscellaneous fluxes (10 papers).

Price: SwCr. 260, incl. airmail postage, about US \$ 38.

Orders to: Publishing House/FRN, Box 6710, S-11385 Stockholm, Sweden.

Microbiology of Tropical Soils and Plant Productivity. Developments in Plant and Soil Sciences, volume 5. Y. R. Dommergues and H. G. Diem, editors. Martinus Nijhoff/Dr. W. Junk Publishers, the Hague, 1982, 328 p. ISBN 90-247-2405-8 (series) 90-247-2624-7 (this volume).

It is an established fact that we must continually increase and improve agricultural production if we are to meet even the minimum requirements of a growing population for food, shelter, and fuel. In recent years, the introduction of new plant varieties and the extensive use of fertilizers have effectively increased crop yields, but intensifying agricultural methods has often led to depleting soil fertility. Two examples of the harmful consequences of intensive farming practices are the loss of topsoil through erosion and the alarming rise in environmental pollution through widespread use of pesticides. Countless other processes affecting the activity of soil microflora and the interactions between microorganisms and plants may pose an equal danger to soil equilibrium, but their potential hazards are often overlooked because of an insufficient understanding of soil microbiology in the part of scientists.

In the first published study of its kind, the authors of this book have attempted to address major aspects of the microbial activity of soil in the tropics. Tropical conditions serve as an ideal context for a discussion of soil microbiology, since biological processes in the soil are particularly active in tropical environments in comparison to other settings and in relation to physical and chemical processes.

The book's essays represent contributions from a variety of schools of thought and encompass the major concepts in the field of soil microbiology. The purpose of these discussions is to stimulate and quicken the development of farming techniques designed to regulate the interactions between soil microorganisms and plants in order to increase plant productivity while maintaining or increasing soil fertility.

Price: Dfl. 160.00.

Orders to: Kluwer Academic Publishers Group, Distribution Center, P.O. Box 322, 3300 AH Dordrecht, The Netherlands. In U.S.A. and Canada: Kluwer Boston, 190 Old Derby Street, Hingham, MA 02043, U.S.A.

Metals and Micronutrients: Uptake and Utilization by Plants. Phytochemical Society of Europe Symposia Series No. 21. D. A. Robb and W. S. Pierpoint, editors, Academic Press, London and New York, 1983, 341 p. ISBN 0-12-589580-1.

The current vigour in the field of inorganic biochemistry has been stimulated by environmental awareness as well as by the development of new and powerful instrument techniques. Popular texts on this topic usually have a chemical and medical bias and tend to neglect plants. This volume, by contrast, provides up-to-date reviews on many aspects of phytometallurgy, the processes by which plants absorb, transport, store and utilize metals and related micronutrients. It is based on a symposium organized by the Phytochemical Society of Europe in 1981. It begins with a general review of the uptake and transport of cations and goes on to consider the influence of environmental factors – symbiotic mycorrhiza, metalliferous, seleniferous and saline soils. Further chapters deal with the cell membrane, iron, its storage as phytoferritin and its incorporation into porphyrin. However, the largest section of the book reviews the role of transition metals in photosynthesis, respiration and nitrate reduction, considering also the evidence for metabolic regulation by calcium-calmodulin interaction, and the antagonism of sulphur metabolism by selenium. Finally, there is a chapter giving a perspective on mineral nutrition, which includes an assessment of how far known metalloproteins account for the metal content of plant cells. The epilogue discussed the features which may have led organisms to select elements as micronutrients.

This collection of review essays will prove of primary importance to research scientists and teachers in plant science, soil science, biochemistry and chemistry. Post-graduate and senior undergraduate students in any of the previously mentioned fields will find a stimulating source of updated material here.

Price: £ 30.00; US \$ 49.50.

Orders to: Academic Press, 24–28 Oval Road, London NW1 7DX, England; or: 111 Fifth Avenue, New York, NY 10003, U.S.A.

Atomic Absorption Spectrometry. Techniques and Instrumentation in Analytical Chemistry, Volume 5. J. E. Cantle, editor. Elsevier Scientific Publishing Company, Amsterdam, Oxford and New York, 1982, 448 p. ISBN 0-444-42015-0.

Today, few analytical laboratories do without AAS. This book on the application of AAS in a wide range of laboratories originated from the author's dissatisfaction with manufacturers' manuals and published analytical methodologies. The present multi-author text is really a methods manual with a limited, but essential amount of theory and apparatus technology. The general aspects include instrumental optimisation, calibration, background correction, interferences and sample preparation. As for the application, analysts working in one or more of the following fields may put this book to good use: water and effluents, geochemical, airborne particles and marine analysis, foodstuff, ferrous and non-ferrous metallurgy, petroleum industry, glasses and ceramics, clinical analysis as well as analysis of body fluids and tissues, forensic science and fine, industrial and other chemicals.

Price: Dfl. 210.00.

Orders to: Elsevier Scientific Publishing Company, P.O. Box 211, 1000 AE Amsterdam, The Netherlands. In U.S.A. and Canada: Elsevier, 52 Vanderbilt Avenue, New York, NY 10017, U.S.A.

L. P. van Reeuwijk, Wageningen

Chemical Sediments and Geomorphology: precipitates and residua in the nearsurface environment. A. S. Goudie and K. Pye. Academic Press, London and New York, 1983, 439 p. ISBN 0-12-293480-6.

The aim of this book is to provide a summary of recent work concerning the nature, origin, field relationships and geomorphological implications of chemical sediments in near-surface terrestrial environments. It is primarily intended for advanced students and research workers in geomorphology, but the book should also provide a useful summary of modern ideas and an introduction to the literature for sedimentologists, soil scientists, Quaternary workers and others who perceive a need to improve their understanding of the geomorphological relationships and environmental significance of chemical precipitates and weathering residua.

Many of the data presented are new. Contributors have not attempted to be comprehensive in their treatment, but rather have sought to summarize the more important aspects and to emphasize new developments. By extensive referencing interested readers will be able to follow up points of particular concern.

The book has chapters on: laterites, silcrete, calcrete, gypsum crusts, evaporite sedimentation, surface efflorescences and nitrate beds, desert varnish, red beds, aeolianite, chemical sedimentation in caves, lacustrine chemical sediments, phosphate rocks on coral reef islands, and beach rock and intertidal cements. The book is well-illustrated.

Price: £ 35.00; US\$ 58.00.

Orders to: Academic Press, 24-28 Oval Road, London NW1 7DX, England; or: Academic Press, 111 Fifth Avenue, New York, NY 10003, U.S.A.

Guy D. Smith Discusses Soil Taxonomy. Reprint Soil Survey Horizons, 42 p.

This interesting booklet has been compiled from a series of articles which originally appeared in New Zealand Soil News and then in Soil Survey Horizons, and in Soil Taxonomy News. The N.Z. Soil News articles are composed of questions about Soil Taxonomy from Dr. Michael Leamy, with answers by Dr. Guy D. Smith. The reprint of these articles should prove useful for soil scientists and others concerned with processes and rationale used in establishing Soil Taxonomy parameters for the diagnostic horizons, climate regimes, and categories. The articles were compiled by Terry D. Cook.

Persons wishing to have a copy are requested to contact Dr. Cook at the address mentioned below. When there is sufficient interest, a second printing will be made; at present no copies are anymore available. Price: US\$ 3.00 in the U.S.A., \$ 4.00 elsewhere.

Orders to: Dr. T. D. Cook, International Soils Program, Soil Conservation Service, P.O. Box 2890, Washington, DC 20013, U.S.A.

Groundwater Models. Volume I. Concepts, problems, and methods of analysis with examples of their application. Unesco Studies and Reports in Hydrology 34. Unesco, Paris, 1982, 235 p. ISBN 92-3-102006-4.

This volume is prepared for the International Hydrological Programme, Working Group 8.1, under the chairmanship of J. D. Bredehoeft. It was put together by a team of scientists, heavily weighted toward the USA and USSR. The first section is a brief general technical management discussion of the problems and opportunities of groundwater modelling. Although some mathematics is used to explain certain points, it is not necessary to have a strong mathematical background in order to appreciate and learn from this document. The 21 case histories present an excellent cross-section of the applicability of groundwater modelling. The two sections combined will give someone without experience in this area a well-considered view of the possibilities of its use.

Volume II (now being prepared) will present formally the techniques by which groundwater models are developed, and will be an excellent companion document.

Price: FF 70.00.

Orders to: Unesco National Distributors around the world, or, in case of difficulties: Unesco Press, 7 place de Fontenay, 75700 Paris, France.

Land Erosion by Water in Different Climates. UNGI Rapport No. 57. B. J. Jansson. Dept. of Physical Geography, Uppsala University, Uppsala, 1981, 151 p. (doctoral thesis Uppsala University). ISBN 91-506-0343-4.

Five major factors affect erosion and transportation processes by water: climate, relief, soil, vegetation and man's activities. These major factors consist of elements whose effects on erosion and transport are considered and whose interdependence is dealt with. In order to discern climatic differences in erosion, soil loss models and erosion maps are analysed. Relationships between precipitation and sediment yield are examined. An attempt to assess the importance of the major factors in different climates is made. Global and regional maps of sediment yield are reproduced and the construction methods and the reliability of the maps are considered. Fournier's and Strakhov's global maps are compared with regional maps in order to evaluate the reliability of the global maps. Other types of erosion maps which do not show sediment yield and which do not give numerical values for the erosion rates are also studied as well as maps which indicate the relative erosion potential or which give numerical values of potential erosion.

Price: Sw. cr. 103.50, plus postage.

Orders to: Almqvist & Wiksell, P.O. Box 45150, S-104 30 Stockholm, Sweden.

Productivity of Sahelian Rangelands. A study of the soils, the vegetations and the exploitation of that natural resource. PPS Course book, volume I, theory; volume II, exercises. Compiled by N. de Ridder, L. Stroosnijder, A. M. Cisse and H. van Keulen. Agricultural University Wageningen, 1982, 231 resp. 135 p.

From 1976 to 1980, the PPS project (Primary Production in the Sahel) carried out scientific research aiming at a better understanding of the production of Sahelian rangelands. The field of research was primary production, in relation to climate, soil, plant physiology, ecology, and soil microbiology. This research was done to arrive at a better understanding of the relationship between primary production and the Sahelian ecosystem and its utilisation for animal husbandry. The results of the project have provided a better understanding of the real possibilities of the Sahel which can be used to plan longterm development and utilization of this fragile ecosystem.

The goal of the course is to show and explain the project's results to middle- and high-level officials involved in Sahelian animal husbandry, in order to increase their knowledge and to inspire them to use this knowledge.

The four week course is divided into three sections: the first two weeks are devoted to theory, the third week to a field trip, and the last week to applications. The course books are supplied as a guide during the course as well as for the final report of the PPS project (see Bulletin 62, p. 63). The course books I and II are also available in French. They are available free of charge.

Requests to: Dept. of Theoretical Production Ecology, Agricultural University, P.O. Box 430, 6700 AK Wageningen, The Netherlands.

Idaho Soils Atlas. R. J. Barker, R. E. McDole and G. H. Logan. University Press of Idaho, Moscow, 1983, 148 p. ISBN 0-98301-088-X.

This atlas features 54 soils from throughout the state of Idaho. The object is to present all of the prominent soil characteristics or properties which exist in the state and to show how these characteristics affect use and management. Properties include physical as well as chemical ones. This atlas is meant to be only an introduction to understanding the complex nature of soils of Idaho. It is also an introduction to more complete information available in soil survey publications.

The soils included in this atlas were selected from several hundred different soils which have been identified in Idaho. Profile landscape colour photos have been included for each soil type. Each soil horizon is briefly described. The glossary explains a number of technical words used in referring to soils. Included also is information on soil forming processes involved in the development of each type, as well as comments on agricultural use and characteristic native vegetation.

Such publications are not only of importance for educational purposes, but they will also play a role in making the interested layman more soilconscious.

Price: US \$ 18.95.

Orders to: University Press of Idaho, P.O. Box 3368, University Station, Moscow, Idaho 83843-0368, U.S.A.

Multiple Cropping in the Humid Tropics of Asia. A. A. Gomez and K. A. Gomez. IDRC publ. 176c. Int. Dev. Research Centre, Ottawa, 1983, 248 p. ISBN 0-88936-304-8.

Multiple cropping, or the practice of growing several crops on the same piece of land, is an ancient strategy for crop production among farmers in the tropics. Traditionally, it is used by subsistence farmers primarily to increase the diversity of their products and the stability of their annual output. However, with the rapid increase in farm population and the dwindling supply of new lands for cultivation, multiple cropping is being looked upon as an excellent strategy for intensifying land use and for absorbing excess farm labour.

With the intensification of land use through multiple cropping, the succession of crops is very rapid and the management of one crop can significantly influence performance of succeeding crops. Thus, the traditional procedures for the generation and dissemination of technology, which concentrated on one crop at a time, may not be adequate for multiple cropping.

What is required for the generation of multiple-cropping technology is a procedure that is able to measure the interaction among crops grown on the same piece of land. For the dissemination of that technology, more motivation and guidance may be required by the farmers before they accept multiple-cropping techniques that generally require more resources and management capability relative to monocropping.

This book is written in recognition of the great potential of multiple cropping for increasing farm productivity in the humid tropics of Asia, and of the unique requirements, as well as the urgent need for the rapid generation and dissemination, of multiple-cropping technology. Written primarily for practicing and prospective agricultural researchers and rural development workers, the book summarizes the results of current research and development efforts in multiple cropping, evaluates contemporary schools of thought on research and extension methodologies, identifies areas of research and development that are expected to maximize payoff in terms of increased farm productivity, and describes the Philippine experience in accelerating the adoption by farmers of multiple-cropping techniques.

Price: \$ 12.00.

Orders to: International Development Research Centre, Communications Division, Box 8500, Ottawa, Canada K1G 3H9. In U.S.A.: UNIPUB, Box 433 Murray Hill Stn., New York, NY 10016, U.S.A.

Field Extract of 'Soil Taxonomy', International Soil Museum, Wageningen, 1980, 95 p. Reprint 1983.

This handsome field extract (size 11 × 25 cm) of the USDA/SCS 1975 system of soil classification has now been reprinted. It contains the definitions of all diagnostic characteristics in a shortened form, the family differentiae in full as well as the keys to orders, suborders and great groups. The relevant sections of the approved amendments of May 1978 are also included.

Price: US \$ 5.00, including surface mail charges. Extra for airmail to Africa and North America \$ 1.00; Asia, Australia and Latin America \$ 2.00. Prepayment required. Discount for 10 or more copies.

Orders to: International Soil Museum, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

Proceedings of the Regional Colloquium on Soil Organic Matter Studies, Brazil. C. C. Cerri, D. Athié and D. Sodrzejewski, editors. CENA/USP and PROMOCET, 1982, 254 p.

In the last few years advanced laboratories, generally in developed countries, have produced new data on soil organic matter phenomena and its component substances. The chemical structure of these substances and their properties have been investigated by, notably, modelling research. In the field, global balance calculations have become even more precise and, due to the use of isotopes, there has been a better understanding of organic matter dynamics.

However, what is the situation with regard to the tropics? Are there specific problems connected with tropical soils? And, what is the importance of soil organic matter to cultural systems taking into consideration the present economic situation?

The objective of this Regional Colloquium was to find answers to the above questions and make an appraisal of the present situation. The following sessions were held: soil organic matter in natural ecosystems (9 papers), organic matter and soil productivity (8 papers), use of isotope techniques in soil organic matter studies (13 papers), use of organic residues in agriculture (6 papers). A quarter of the papers is in English; the rest in Spanish and some in Portuguese, both with English summaries.

Requests to: Regional Colloquium on Soil Organic Matter Studies, CENA, Caixa Postal 96, 13400 Piracicaba, SP, Brazil.

Proceedings ISSS Conference on Savannah Soils of the Sub-humid and Semi-arid Regions of Africa and their Management. Ghana, 24–26 November 1975. H. B. Obeng and P. K. Kwakye, editors. Soil Research Institute, CSIR, Kumasi, 214 p. (undated).

The proceedings of this conference of ISSS Commissions I, IV, V and VI have now finally been published. The publication contains the three opening addresses, the keynote address by Dr. Obeng, President of the Soil Science Society of Ghana, nine papers on soil genesis, classification and cartography, five on soil physics, soil fertility and plant nutrition and six on soil technology and soil management. Unfortunately, the text has many printing errors.

Price: US \$ 20.00 or £ 10.00.

Orders to: Prof. Acquaye, Faculty of Agriculture, University of Ghana, Legon, Accra, Ghana.

Dryland Agriculture. Agronomy Monograph 23. H. E. Dregne and W. O. Willis, editors. American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Madison, 1983, 622 p. ISBN 0-89118-075-3.

This monograph sets forth the principles and the best practices currently known of dryland agriculture in North America. It represents a distillation of the knowledge of the leading authorities in the field from government, universities, and private industry. Extrapolation of North American practices to other dryland farming regions of the world cannot be done without modifications to fit local conditions, but the practices can serve as useful guides to what may be successful in similar environments elsewhere. Certainly, the principles are applicable anywhere.

After an introduction on the regional setting, the book contains papers in the following sections: water conservation (18 papers), soil conservation (10 papers), cropping practices (10 papers), weeds, pests and diseases of major crops (3 papers), and papers on economics and sociology.

Price: US \$ 35.00. Advance payment and \$ 0.75 per book required on orders outside the U.S.A.

Orders to: Book Order Dept., ASA, CSSA, SSSA, 677 South Segoe Road, Madison, WI 53711, U.S.A.

Limitations to Efficient Water Use in Crop Production. H. M. Taylor, W. R. Jordan and T. R. Sinclair, editors. American Society of Agronomy, Crops Science Society of America and Soil Science Society of America, Madison, 1983, 538 p. ISBN 0-89118-074-5.

This hardcover book deals comprehensively with practically every aspect of water from the time it falls as rain, passes through the soil and plant, and emerges again into the atmosphere. It also includes detailed consideration of the many interactions of water with plant tops, roots, soil, and soil organisms – especially as they affect crop yield. It particularly focuses upon factors likely to be involved in research that affect water as a limiting resource. Scientists, researchers, students and other individuals interested in water resources and crop production will find this publication to be a valuable reference.

Price: US \$ 30.00. Advance payment and \$ 0.75 per book required on orders outside the U.S.A.

Orders to: Book Order Dept., ASA, CSSA, and SSSA, 677 South Segoe Road, Madison, WI 53711, U.S.A.

Methods of Soil Analysis. Part 2 – Chemical and Microbiological Properties, Second edition. A. L. Page, R. H. Miller and D. R. Keeney, editors. Agronomy Monograph No. 9 (Part 2). American Society of Agronomy and Soil Science Society of America, Madison, 1982, 1184 p. ISBN 0-89118-072-9 (pt. 2).

This is an extensively revised and expanded successor of the well-known first edition, published in 1965 and edited by Dr. C. A. Black, of which more than 12,300 copies have been sold worldwide. Since 1965 the technological advances in analytical instrumentation and methodology have been substantial. Additionally, the widespread public concern over environmental quality created a need to expand the coverage to include methods for elements and constituents not contained in the first edition.

In a system as complex as soil, and a discipline that contains such diverse constituents, it is impossible for any one individual to prepare a text of the type needed. The editorial committee, therefore, selected those considered to be most knowledgeable to prepare chapters in their subject matter area specialty. The book is prepared by 73 authors and co-authors and consists of 54 chapters.

As with the first edition, the intent of this second edition is to guide the reader through virtually all chemical and microbiological methods currently in use to characterize soils. Seven chapters deal with principles, methods, and applications of various types of instrumentation. Separate chapters are devoted to general soil chemical properties such as cation exchange capacity, exchangeable cations, soluble salts, carbonate and gypsum, soil pH, and lime requirement. Methods for the determination of soluble, adsorbed, and total concentrations of 30 elements, as well as information on their sources and sinks in soil, and indices of plant availability and phytotoxicity are included. Five chapters are devoted to methods to determine the various forms of nitrogen in soil, including total, organic, inorganic, urea, and methods for isotope ratio analysis.

Methods for characterization and enumeration of specific groups of soil microorganisms, as well as methods for analyzing soil microbiological activity, are extensively covered in this edition. Chapters that deal with general cultural, microscopic, and most probable number of methods for enumerating soil microorganisms, as well as coverage of specific groups of soil organisms such as fungi, actinomycetes, anaerobic bacteria, nitrifying bacteria, Rhizobium, free-living nitrogen fixing organisms, algae, protozoa, nematodes, mites, and other soil arthropods, are included. Other chapters cover methods for measuring microbial biomass, soil respiration, activity of soil enzymes, and the characterization of soil organic matter.

No doubt, also the present second edition will become a reference work for many years to come.

Price: US \$ 36.00. Advance payment and \$ 0.75 per book required on orders outside the U.S.A.

Orders to: Book Order Dept., ASA and SSSA, 677 South Segoe Road, Madison, WI 53711, U.S.A.

Soil Biotechnology: Microbiological Factors in Crop Productivity. J. M. Lynch. Blackwell Scientific Publications, Oxford and London, 1983, 191 p. ISBN 0-632-00952-7.

Soil biotechnology is the study and manipulation of soil micro-organisms and their metabolic processes to optimize crop productivity. While microbiology and plant pathology are the principal disciplines involved, the subjects also depends on several others related to soils and plants: chemistry, physics, biochemistry, genetics, plant physiology and agronomy.

The present publication shows how ecological concepts can be applied to improve agricultural and horticultural productivity by manipulation of the microbial activity. It is based on a course of eight lectures by the author to students in agriculture and forestry and is intended for undergraduate and postgraduate students studying microbiology, soil science, plant science, agriculture, forestry and horticulture. This book is well illustrated with many figures and pictures, some in colour.

Price: £ 10.80.

Orders to: Blackwell Scientific Publications, Osney Mead, Oxford OX2 0EL, England; or: 52 Beacon Street, Boston, Massachusetts 02108, U.S.A.

Soil Classification in New Zealand. Occasional Report No. 2. E. J. B. Cutler. Lincoln College, Canterbury, 1983, 148 p.

About a decade ago it was suggested by a few soil scientists that it would be better for New Zealand to adopt a soil classification system with wider international acceptance than those of Taylor (1948) and later modifications of Taylor and Pohlen (1962), such as Soil Taxonomy. Rapid advances in the techniques as well as phylosophy of soil classification are being made in a number of countries and it is essential that these advances are appraised in terms of their potential contribution to improving the existing New Zealand classifications. It is essential also that these ideas are used to test the validity of existing soil classes and to revise them for today's needs. The author states that this approach is preferable to the adoption of Soil Taxonomy. The present work contains an appraisal of the New Zealand classifications and the more recent classifications in a number of countries, e.g. the U.S.A., Canada, U.K., South Africa, Australia and some systems developed in France, and the FAO/Unesco Soil Map of the World units. The major part of the report consist of a first draft of proposals for the revision of the New Zealand system, including a description of the criteria, definitions of soil orders, groups and subgroups, and their relationship with the genetic system of Taylor.

Price: NZ \$ 5.00 plus \$ 1.50 for surface mail postage.

Orders to: University College of Agriculture, Lincoln College, Canterbury, New Zealand.

Bodenkunde – Aufbau, Entstehung, Kennzeichnung und Eigenschaften der landwirtschaftlich genutzten Böden der DDR. 3., neu bearbeitete Auflage. I. Lieberoth. VEB Deutscher Landwirtschaftsverlag Berlin, 1983, 432 S.

Alle Kapitel wurden neu bearbeitet, der Text ist gegenüber der zweiten Auflage um 100 Seiten erweitert worden. Durch Einfügung telegraphischer Absätze wird das Stoffgebiet zwar komprimierter dargestellt, die zahlreichen Abbildungen und Tabellen sowie eine stärkere Aufgliederung lockern jedoch den Text hinreichend auf. Der bisherige Gesamtaufbau des Buches wurde beibehalten, im Detail sind aber wesentliche Umstellungen und Ergänzungen vorgenommen worden.

Folgende inhaltliche Aspekte sind besonders herauszustellen. Die Substrat- und Bodenbildung wird unter einem einheitlichen Gesichtspunkt zusammengefaßt. Aktuelle Ergebnisse der periglaziären Überprägung der bodenbildenden Substrate sind ebenso wie die der Tonmineralbildung und des organischen Stoffumsatzes eingearbeitet worden. Die Ausführungen zum horizontalen und lateralen (Erosion) Stofftransport, zum Einfluß des Menschen auf die Bodenbildung und zur Rekultivierung von Halden erfuhren wesentliche Erweiterungen. Die modernen Aspekte der profil- und arealbezogenen Boden- und Standortgliederung werden voll berücksichtigt. Der neueste Stand über die Substrat- und Bodenklassifikation in der DDR mit Parallelisierung zu den Einheiten der FAO-Weltbodenkarte, über die Grundlagen der Ausgrenzung von Bodenformen und über die Unterscheidung von topischen und chorischen Einheiten wird umfassend dargelegt. Neu ist das Kapitel zur automatisierten Verarbeitung von Standortdaten. Alle Kartierungsverfahren, insb. die neue Mittelmaßstäbige Landwirtschaftliche Standortkartierung (MMK) einschl. Auswertungsmöglichkeiten werden beschrieben und bis zur komplexen Bewertung über Bodenfruchtbarkeitskennziffern geführt. Die agronomische Beurteilung der verbreiteten Böden wurde weiter ausgebaut. Den aktuellen Problemen der Nährelementtransformation, der Redoxreaktionen, der Wasserbindung und -bewegung, der Gefügemetamorphose und der technologischen Bodenkennzeichnung wird verstärkte Beachtung geschenkt.

Mit der neuen Auflage soll durch die Verknüpfung von modernen Grundlagen und einer praxisbezogenen Anwendung wieder ein größerer Leserkreis angesprochen werden. Durch stärkere Erschließung der Fachliteratur aus der DDR und durch die Darlegungen zu den Grundprinzipien der Bodenkennzeichnung und -beurteilung hat das vorliegende Buch auch für Bodenkundler, Geographen, Geologen, Hydrologen, Biologen und Archäologen benachbarter Länder informativen Charakter.

Preis: 25.20 M, Kunstdruck, Leinen mit Schmutzumschlag.

Bestellungen: Buchexport, Leninstr. 16, 7010 Leipzig, Deutsche Demokratische Republik.

Acid Deposition. S. Beilke and A. J. van Elshout, editors. D. Reidel Publishing Co., Dordrecht, 1983, x + 235 p. ISBN 90-277-1588-2.

This book contains the proceedings of a workshop organized by the Commission of the European Communities as part of the Concerted Action 'Physico-chemical Behaviour of Atmospheric Pollutants', held in Berlin, 9 September 1982.

The volume contains 16 papers dealing mainly with atmospheric aspects of acid deposition, with state-of-the-art reviews on the past and present situation of acid deposition in Europe, on relevant atmospheric processes and on measurement procedures for acid deposition and cloud chemistry. Whereas the importance of dry deposition is recognized and emphasized, most work reported deals with wet deposition. Three papers discuss deposition of heavy metal components. Only one paper, by Ulrich, deals explicitly with effects of acid deposition on terrestrial ecosystems.

In view of increasing concern about the effects of acid deposition on soils, surface- and groundwaters and biota, this volume is a timely and useful addition to the growing literature on this subject. About half of the papers, however, do not provide much new information and those interested specifically in effects of acid deposition on soils and vegetation will find the book too much atmosphere-oriented.

The photo-offset text is generally of fair quality and contains few typing errors. There is no subject index.

Price: Dfl. 75.00 or US \$ 32.50.

Orders to: Kluwer Boston Inc., 190 Old Derby Street, Hingham, MA 02043, U.S.A. (for orders from the U.S.A. and Canada); or Kluwer Academic Publishers Group, P.O. Box 322, 3300 AA Dordrecht, Netherlands (for orders from all other countries).

N. van Breemen, Wageningen

1982 Soil and Water Transactions. Transactions of the American Society of Agricultural Engineers, Special Edition. ASAE, St. Joseph, 1983, 573 p.

This compilation of soil and water related articles from the Transactions of the American Society of Agricultural Engineers (ASAE) has 101 full-length technical articles, representing current research and applications technology in the field of irrigation, hydrology, drainage, erosion, and soil science.

The original articles were published in the Transactions of the ASAE, volume 25, 1982. All articles have the same page numbers they had in the earlier publication so that references will be consistent.

Price: US \$ 15.00 plus \$ 1.50 postage for orders outside U.S.A., Canada and Mexico. Order no. 510 SW 081.

Orders to: ASAE, 2950 Niles Road, Box 410, St. Joseph, MI 49085, U.S.A.

Systematic and Applied Microbiology. ISSN 0723-2020. 4 issues per volume in irregular sequence. Gustav Fisher Verlag, Stuttgart and New York.

This Journal is succeeding the 'Zentralblatt für Bakteriologie, Mikrobiologie und Hygiene I, Abt. Originale, Series C'. Original papers will be published from the following fields of microbiology: 1) Systematics: e.g. new descriptions and revisions of taxa, methods for the determination of taxonomical and genealogical relationships; 2) morphology and physiology: comparative studies, particularly concerning the classification or phylogenetic assignment to the considered organisms, their way of life and role in the natural material budget or their importance for agriculture as well as for food processing and biotechnology; 3) applied microbiology: all aspects of agricultural and industrial food and sewage microbiology, inasmuch as the main emphasis concerns the role or characteristics of the microorganisms; 4) ecology: all aspects of soil, water and air microbiology including the analysis of populations occurring at various locations, their role in the material cycle and the effect of human activity upon them. The executive editor is Dr. O. Kandler, München, Fed. Rep. of Germany.

Subscription price: DM 225.00 per volume.

Orders to: Gustav Fischer Verlag, P.O. Box 720143, D-7000 Stuttgart 70, Fed. Rep. of Germany.

Soils with Variable Charge. B. K. G. Theng, editor. New Zealand Society of Soil Science, 1980, 464 p., 106 fig. 95 tables, hardbound, ISBN 0-477-06668-2.

'Soils with variable charge' of the temperate regions and some areas of the sub-tropics, are among the most productive soils of these regions. They are not naturally fertile, and their high productivity has been achieved only after severe limitations to plant and animal production have been overcome. Within the tropical regions, and remaining areas in the sub-tropics, much more work remains to be done before these soils are producing near their potential. This is an appropriate time to review existing knowledge of the properties of these soils, their problems and how they may be overcome by suitable management under various land uses.

With this in mind, the New Zealand Society of Soil Science offered to host a meeting of Commissions IV, V, VI and VII of the ISSS which would allow soil scientists of several disciplines to discuss these soils as a single subject. The organization of this meeting also coincided with the 50th Anniversary of the New Zealand Soil Bureau.

The present book provides an up-to-date comprehensive review of knowledge on soils with variable charge. As such, the book stands independent of the Conference proceedings, it contains papers on macro- and micro-morphology (4 papers), sand, silt and clay mineralogy (4), chemistry (4), physics and mechanics (4), biology (2), genesis and classification (3). This publication represents very good value for money.

Price: NZ \$ 28.00 or US \$ 18.50, including postage. Advance payment required.

Orders to: The Secretary, New Zealand Society of Soil Science, c/o Soil Bureau, DSIR, Private Bag, Lower Hutt, New Zealand.

Keeping the Land Alive, soil erosion – its causes and cures. H. W. Kelley. FAO Soils Bulletin 50. FAO, Rome, 1983, 89 p. ISBN 92-5-101342-X.

The first Soils Bulletin was issued in 1965, now number 50 has been reached, encompassing a wide spectrum of soil science publications with the intention of bringing basic knowledge to anyone interested in developing the resources of their country. The present Bulletin, of which French and Spanish editions are in preparation, shows the urgent need to reduce soil erosion. Erosion is especially severe in many developing countries, causing increasing losses in productive capacity. The Bulletin has the following sections: how soil is destroyed, food production versus land degradation, human barriers to conservation, aims and techniques of soil management, government's responsibility for information, obtaining more facts about resources, sources of project assistance, and conclusion: a time for national action. The appendix contains the full text of the World Soil Charter.

Price: US \$ 4.00.

Orders to: Official country FAO sales representatives, or, in case of difficulties, through Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Peatlands and their Utilization in Finland. Jukka Laine, editor. Finnish Peatland Society and Finnish National Committee of the International Peat Society, Helsinki, 1982, 139 p. ISBN 951-99402-9-4.

The frontiers of both the knowledge and use of peatlands have been ever-advancing since 'Finnish Peatlands and Their Utilization' was first published in 1972 as new concepts, facts and statistics have been brought into being. For these reasons, and in particular the great demand received by the earlier issue, it was decided to produce an up-dated publication on this subject.

All the articles have been completely rewritten so as to present facts which are up-to-date at the time of publishing. It contains a listing of Finnish literature on peat and peatlands, which appeared between 1972 and 1981.

Price: FIM 30, plus postage.

Orders to: Government Printing Office, P.O. Box 516, SF-00101 Helsinki 10, Finland.

Food Works. Twenty years of food aid for development 1963-1983. World Food Programme, Rome, 1983, 30 p.

The UN/FAO World Food Programme (WFP) is the food-aid arm of the UN system. It is a multilateral and inter-governmental agency which includes nations from all parts of the world, as both donors and recipients. Since it began its operations, the WFP has committed over \$ 6000 million to more than 1100 development projects and 600 emergencies. More than 170 million people have directly benefited. The present booklet describes the role of food aid as a development tool and what WFP does to put that food to work and is written for those who wish to get a general view of what WFP does and how it functions.

Requests to: World Food Programme, c/o FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Better Crops for Food. Ciba Foundation Symposium 97. Pitman, London, 1983, 248 p. ISBN 0-272-79729-4.

With the human race rapidly exhausting the food and fuel reserves of the world the development of better crops for food becomes ever more urgent. To avoid a crisis in the not too distant future we need to improve the present range of crop plants, establish efficient cultivation methods and exploit underdeveloped crops now. The symposium, on which the present book is based, was held in London in September 1982. The subjects discussed include modifications of plant biochemistry; breeding programmes that enhance yield, improve nutritional value, or increase resistance to pests or tolerance of hostile environments; and farming systems that exploit beneficial interactions between crops or help to minimize chemical inputs.

Price: £ 25.00.

Orders to: Pitman Books Ltd., 128 Long Acre, London WC2E 9AN, England. In North America: CIBA (Medical Education Division), P.O. Box 12832, Newark, NJ 07101, U.S.A.

Minéralogie des argiles. 2e édition, S. Caillère, S. Hénin et M. Rautureau. Tome 1, structure et propriétés physico-chimiques, 1982, 198 p. ISBN 2-225-76550-2. Tome 2, classification et nomenclature, 1982, 189 p. ISBN 2-225-76560-X. Masson, Paris. New York.

The objective of these monographs is to inform all who are interested in life sciences, especially agricultural production, ecosystems and the conservation of natural resources. The present volumes are completely rewritten second editions of Caillère and Hénin's well-known earlier monographs. The first volume deals with the structure of the different clay minerals, physical and chemical analytical methods, and with the properties. The second volume contains a classification and nomenclature of clay minerals. From all minerals are given: formula, crystallography, common synonyms, identification (through X-ray, optical, thermic, and chemical means), genesis, bibliography. It also has chapters on iron aluminium manganese and silicium oxides and hydroxides. It ends with a list of names of minerals which have not been clearly defined and recognized, mostly in the earlier years.

Orders to: Masson, 120 Bd Saint-Germain, 75280 Paris Cedex 06, France; or: Masson Publ. Comp., 133 East 58th Street, New York, NY 10022, U.S.A.

Les sols ferrallitiques. Tome X. Facteurs de fertilité et utilisation des sols. Collection Initiations. Documentations Techniques 52. J. Boyer. Office de la Recherche Scientifique et Technique Outre-Mer, Paris, 1982, 384 p. ISBN 2-7099-0637-6.

The potential productivity and the agricultural development of ferrallitic soils have been the subject of numerous partial works up to now. Therefore, it was necessary to make a well-documented synthesis. After briefly mentioning the environmental constraints (climate and relief), an attempt is made to emphasize the role of those which are dependent on the depth of the useful soil, the soil physical components (coarse elements and fine earth), the structure and the soil water characteristics.

Given the shortage of nutrients in many ferrallitic soils, numerous problems are being raised; so soil mineral elements (N, P, S, K, Ca, Mg, Al and the minor elements) are largely debated insofar as soil fertility is conditioned by them. After surveying their triple origin (parent material, vegetation and atmosphere) and emphasizing the significance of those which are contained in the forest vegetation, their forms in the soil are distinguished as well as the particular dynamics of each element both under the natural vegetation and under cultivation.

The absolute contents of elements in the soil are largely studied in terms of thresholds and limit contents whether they are minimum contents (deficiency thresholds) or maximum ones (toxicity). The figures mentioned in this respect can be very useful for the agronomist and the soil scientist.

Throughout this monumental study, however, it becomes clear that the soils whose fertility form the subject of discussions, are a very heterogeneous, illdefined group of soils. They include Oxisols, Ultisols and Alfisols (or Ferralsols, Nitisols, Acrisols, Luvisols), who on their own present already wide ranges in fertility characteristics. A very extensive bibliography (1000 titles) gives a good impression which literature exist on the subject in French (complete overview), Portuguese and English language (very substantial), and may be very helpful in searching additional information. From the ten planned publications in this series on ferrallitic soils, four have appeared (Vol. 1, Y. Chatelin, 1972, *Historique. Développement des connaissances et formation des concepts actuels*. Vol. 3, Y. Chatelin, 1974, *L'altération*. Vol. 4, P. de Boisseson 1973, *La matière organique et la vie dans les sols ferrallitiques*).

Price: FF 150.00.

Orders to: Service des Editions, ORSTOM, 70, route d'Aulnay, 93140 Bondy, France.

FAO Series: FAO Conservation Guides.

FAO Conservation Guide 1. Guidelines for Watershed Management. Forest Conservation and Wildlife Branch. FAO, Rome, 1977, 293 p. ISBN 92-5-100242-8.

Prices: English US\$ 12.20; French \$ 14.90.

This guide is one of a series which illustrate conservation techniques, examples of land rehabilitation and watershed management principles, primarily for mountain lands, forests, eroded areas and other lands not normally used for intensive agriculture. The papers are based on case studies from all regions but are mainly oriented to provide practical examples of interest to developing countries. The topics in the volume presented here include: erosion evaluations, watershed management principles, erosion control methods, land classification, land use planning, slope rehabilitation by terracing, remote sensing for watershed management, the cost/benefit relations of conservation, landslide problems, environmental impact evaluation and water quality measurements.

FAO Conservation Guide 2. Hydrological Techniques for Upstream Conservation. S. H. Kunkle and J. L. Thames, editors. FAO, Rome, 1976, 134 p. ISBN 92-5-100115-4.

Prices: English or French US\$ 5.80.

This guide contains 12 papers which are examples and case studies of hydrological methods related to conservation work, particularly in mountain and forested zones. The examples include torrent control, sedimentation surveys, some field techniques for estimating runoff, measurement of snow cover in the mountains, surveys for erosion and water quality measurements, as well as case studies of forest influences and evaporation measurements.

FAO Conservation Guide 3. Conservation in Arid and Semi-arid Zones. Forest Conservation and Wildlife Branch. FAO, Rome, 1976, 125 p. ISBN 92-5-100130-8.

Prices: English US\$ 5.40, French \$ 5.80. Also available in Arabic.

This collection of articles from conservation specialists in nine countries around the world reviews a number of conservation techniques for arid and semiarid areas from the point of view of forestry and range management and with emphasis on developing countries. The phenomenon of desertization is described, including the problems of wind, rangeland degradation, erosion, water shortage and blowing dunes. Examples are then given for the correction of these problems including: techniques for erosion and degradation surveys; dune stabilization and afforestation methods; shelterbelt establishment guidelines; ways to restore degraded rangelands; range management guide; rainfall harvesting methods; vegetation management schemes and methods for terracing and other treatment of slopes.

FAO Conservation Guide 4. Special Readings in Conservation. Forest Resources Division in cooperation with the Land and Water Development Division. FAO, Rome, 1978, 101 p. ISBN 92-5-100615-6.

Prices: English US\$ 4.50; French or Spanish \$ 4.60.

This group of papers presents particular techniques used in the conservation of forest, mountain and wildland areas. The six papers include material on: the use of fire to improve the management of forest lands; management of snow in mountain areas of temperate countries; the use of certain mulching techniques for shrublands; a method to evaluate temperature on a watershed; hydro-seeding; procedures, examples and prospects in Jamaica; and forest plantation techniques for the rehabilitation of eroded lands.

Cahier FAO: Conservation des Sols 5. Manuel de contrôle des avalanches. Division des Ressources Forestières en coopération avec la Division de Développement des Terres et des Eaux. FAO, Rome, 1978, 238 p. ISBN 92-5-200736-9.

Prix: Français SEU 10.10.

Ce volume présente les techniques de contrôle des avalanches. Aux méthodes de détermination du manteau de neige et la localisation du risque d'avalanche suivent les diverses techniques de défense temporaire, de déviation, freinage et retenue, de stabilisation de la neige dans la zone de décrochement de l'avalanche, et les ouvrages déflecteurs. Le manuel contient enfin quelques exemples classiques, une liste de terminologie et de symboles et une liste bibliographique.

FAO Conservation Guide/Cahier FAO: Conservation des Sols/Guia FAO: Conservación de Suelos 6. Torrent Control Terminology/Terminologie de Correction des Torrents/Terminología de Corrección de Torrentes. FAO, Rome, 1981, 156 p. ISBN 92-5-001091-5.

Price: US\$ 6.60 (trilingual).

This Terminology of torrent control in French, German, English, Spanish and Italian, produced by the FAO (European Forestry Commission) Working Party on the Management of Mountain Watersheds includes the definition of the technical terms in the first three languages and the translation into the other two, an index of the terms in each language and illustrations presenting the various aspects of torrential processes and torrent control.

FAO Conservation Guide 7. Environmental Impact of Forestry. R. C. Zimmermann. FAO, Rome, 1982, 85 p. ISBN 92-5-101296-2.

Prices: English or Spanish US\$ 4.00.

The need for environmental planning is being increasingly recognized in developing countries. Costly degradation of the environment as a result of illconceived projects in the past has provided an impetus for this. At the same time, international funding agencies are becoming more concerned with environmental considerations in project planning and evaluation. As a result, Environmental Impact Assessment is gradually taking its place in the decisionmaking process. Unlike traditional environmental norms which concentrate on limiting the extent of the damage which has already occurred, Environmental Impact Assessment methods are instruments of environmental policy through which possible negative environmental effects of organized human actions can be analysed in advance, and hopefully prevented. It can be expected that the environmental dimension will receive growing attention in the development of projects for the utilization of the resources of forest ecosystems. These guidelines attempt specifically to propagate experience gained in the environmental assessment of forestry projects.

FAO Conservation Guide 8. Management of Upland Watersheds: Participation of the Mountain Communities. J. J. Bochet. FAO, Rome, 1983, 199 p. ISBN 92-5-101337-0.

Prices: English US\$ 8.60, French \$ 8.40, Spanish \$ 9.40.

The purpose of this guide is to examine the role of mountain communities in the design and implementation of watershed management programmes, in short, their moral commitment to and physical and material participation in these programmes. Part one analyzes the problem and its effect on various socio-economic groups. Part two looks at the administrative structures and legal regulations for intervention, socio-economic data gathering and analysis, planning and programming. Part three deals with implementation: the role of the community and methods to be used.

FAO Series: FAO Environment Paper.

FAO Environment Paper 1. Natural Resources and the Human Environment for Food and Agriculture. FAO, Rome, 1980, 62 p. ISBN 92-5-100967-8.

Prices: English, French or Spanish US\$ 4.00.

This Report is a first attempt to interrelate at global level population pressure, natural resources use and management, with particular reference to increased food and agricultural demand and the ensuing environmental issues. The report is the result of teamwork carried out by the Inter-Departmental Working Group on Natural Resources and the Human Environment, and was first published as Chapter 3 of The state of food and agriculture 1977.

FAO Environment Paper 2. Environmental Impact Assessment and Agricultural Development: a Comparative Law Study. D. Alhéritière. FAO, Rome, 1982, 131 p. ISBN 92-5-101110-9.

Prices: English US\$ 5.60, French \$ 5.00.

The subject of Environmental Impact Assessment (EIA) has generated an abundance of writings both legal and technical. Where the author has sought to introduce a fresh note is in treating of an aspect that so far has received less than its due by way of research, namely the EIA of agricultural development. The study sets out first to consider the juridical and administrative aspects, next to describe the present status of the question; and, finally, to indicate the various sources of information and the divers avenues of research that can be followed wherever it is wished to take certain points to greater depth.

FAO Environment Paper 3. Management and Utilization of Mangroves in Asia and the Pacific. FAO, Rome, 1982, 160 p. ISBN 92-5-101221-0.

Price: US\$ 7.20.

It is increasingly being recognized that mangroves are highly productive ecosystems which are not only able to provide a range of valuable forest products, but also maintain estuarine water quality and play crucial roles in the life cycle of many commercially important species of fish and prawns.

Mangrove resources are under growing pressure as a result of population growth and economic development. The demand for wood and wood products is increasing and mangrove forests are being cleared for the construction of aquaculture ponds and reclaimed for the cultivation of rice, coconuts or other crops. While these alternative forms of land-use can provide food for local consumption or for export, an adequate balance must be sought between the environmental benefits of the original mangroves and the productive role of these ecosystems on a sustained management basis.

Most studies on mangroves have dealt with only particular aspects and there is an obvious lack of comprehensive studies considering both environmental and socio-economic factors in the entire mangrove ecosystems. The present publication provides basic information on the resource and its management in the Asia and Pacific region and throws light on the complex problems connected with various form of land-use.

Notes: Prices are given in the separate entries. ISBN numbers given are of the English texts. Availability of publications and languages mentioned: October 1983.

Orders to: Authorized FAO Sales Agents throughout the world, or, in case of difficulties, to Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Applied Geomorphology in the Tropics. I. Douglas and T. Spencer, editors. Zeitschrift für Geomorphologie, Supplementband 44. Gebr. Borntraeger, Berlin and Stuttgart, 1982 p. ISBN 3-443-21044-9.

In recent years, many geomorphologists working in the (sub)tropics, have begun to apply geomorphological theory to practical problems of slope stability, land evaluation and soil erosion. They have started to explore the potentialities of environmental and earth resources satellites and to participate in the programmes of such international bodies as FAO, Unesco and UNEP. This activity is, however, taking place against a backdrop of continuing rapid population growth, requiring the intensification and extension of agricultural land but leaving little finance for investment in conservation measures. As soil erosion, flood, landslide and siltation hazards increase and land cover changes alter the dynamics of denudation systems, geomorphologists are being faced by the need to save lives and to produce the greatest benefit for the lowest cost. Eight contributions to the British Geomorphological Research Group's meeting on Geomorphology in Tropical Environments at Manchester in October 1981 which addressed these problems are presented in this volume.

Price: DM 76.00.

Orders to: Gebr. Borntraeger Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Fed. Rep. of Germany.

Assessment of the Nitrogen Status of the Soils. T. Batey, K. Vlassak and L. M. J. Verstraeten, editors. Lab. of Soil Fertility and Soil Biology, Leuven, 1982, 92 p.

The efficient use of nitrogen fertilizer is a key subject of research in every country in Western Europe. The aim of the Research Workshop, held at Leuven in January 1982 was to bring together for the first time those scientists who have initiated research into the development of soil and plant tests for the improvement of advice on nitrogen fertiliser recommendations for arable crops, particularly cereals, potatoes, and sugar beet. The specific objectives were: (1) to bring about a better understanding of the origin and development of the methods, as used in different localities; (2) to examine fundamental processes involving nitrogen in the soil and plant, in relation to the methods and tests developed; (3) to describe particular techniques and to evaluate the potential use and limitations in practice; and (4) to consider further cooperation, in both design of experiments and further exchange of data and ideas.

Price: £ 5.00 or equivalent in other currencies, including surface mail.

Orders to: Dr. T. Batey, Dept. of Soil Science, Univ. of Aberdeen, Meston Walk, Old Aberdeen AB9 2UE, U.K.; or: Lab. of Soil Fertility and Soil Biology, de Croylaen 42, B-3030 Leuven, Belgium.

Carbon Dioxide: Friend or Foe? S.B. Idso. IBR Press, Tempe, 1982, 92 p.

This publication has as a subtitle 'An Inquiry into the Climatic and Agricultural Consequences of the Rapidly Rising CO₂ Content of Earth's Atmosphere'. The author, who is a research physicist, studied historical temperature and atmospheric (CO₂) data and finds no evidence that the earth is headed for a calamitous climatic warning as a result of the 'greenhouse effect'. But in a similar analysis of a century of agronomic research, he finds evidence for beneficial effects on agricultural productivity and vegetative water use efficiency. He concludes that the increase in CO₂ content is a phenomenon to be encouraged rather than suppressed.

Price: US\$ 9.95, prepayment required.

Orders to: Institute for Biospheric Research, 631 E Laguna Dr., Tempe, Arizona 85282, U.S.A.

Agricultural Research Centres. 1983 edition, N. Harvey, editor, Longman, London and New York, 1982, 1300 p. ISBN 0-582-90014-X.

Over 2500 main organizations controlling more than 6000 departments which conduct or finance research in agriculture, fisheries, food, forestry, horticulture, and veterinary sciences are listed in this established reference source. Each entry includes, where appropriate, the address, type of organization and affiliation, senior staff, scope of interest and publications. Establishments are indexed both by original title and English translation. For the first time an extensive subject index is included.

Price: £ 148.00 in U.K.

Orders to: Longman Group Ltd., Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England. In the U.S.A.: Longman Inc., 19 West 44th Street, New York, NY 10036, U.S.A.

Desertification. A bibliography with regional emphasis on Africa. G. Leng. Bremer Beiträge zur Geographie und Raumplanung - Heft 4. Univ. Bremen, Bremen, 1982. 177 p.

This bibliography is divided into two sections. The smaller Part I is concerned with general references on desertification, i.e. literature without any particular geographic focus, whereas the larger Part II is comprised of material on desertification in Africa. This main section is, in turn, arranged according to geographic region and by individual country. The annex includes a selected list of United Nations documents, country papers and an author index.

Price: DM 15.00.

Orders to: Presse- und Informationsamt Universität Bremen, Postfach 330 440, 2800 Bremen 33, Fed. Rep. of Germany.

Water Relations of Plants. P. J. Kramer, Academic Press, New York and London, 1983, 496 p. ISBN 0-12-425040-8.

This work surveys modern concepts in the field of plant water relations and explains the importance of water by describing the factors that control the plant water balance and showing how they affect the physiological processes determining the quantity and quality of growth. Although the book deals primarily with modern concepts, attention is paid to earlier work that directed modern thinking.

Written in clear, concise terminology and offering an extensive bibliography, this book is intended for students, teachers, and investigators in basic and applied plant science and will appeal to botanists, agronomists, foresters, horticulturists, and soil scientists.

Price: US\$ 35.00.

Orders to: Academic Press, 111 Fifth Avenue, New York, NY 10003, U.S.A.; or: 24/28 Oval Road, London NW1 7DX, England.

Simulation of Plant Growth and Crop Production. F. W. T. Penning de Vries and H. H. van Laar, editors. Pudoc, Wageningen, 1982, 320 p. ISBN 90-220-0809-6.

This textbook is based on an international course on simulation of plant growth and crop production that was organized by the Foundation of Postgraduate Studies of the Agricultural University of Wageningen, the Netherlands in 1981. The reader is introduced to the systematic analysis of crop production systems and their modelling. The simulation language CSMP, which is explained in a separate section, is used throughout the book. Particular attention is paid to simulation of crop when either the carbohydrate supply, the water supply or the nitrogen supply is the principal factor limiting the growth rate. The modelling of the availability of those limiting factors is also treated, as well as the simulation of the development of pests and diseases on a growing crop. Exercises are provided throughout the book, to test and illustrate newly learned skills. Answers to the exercises are given in a separate chapter.

Price: Dfl. 65.00.

Orders to: Pudoc, P.O. Box 4, 6700 AA Wageningen, The Netherlands.

Soils of the Kisii area, Kenya. W. G. Wielemaker and H. W. Boxem, editors. Agr. Res. Report 922. Pudoc, Wageningen, 1982, XIV + 208 p. with separate appendices in folder. ISBN 90-220-7816-9.

The Kisii Area lies in the south-west of Kenya; the area surveyed covers 3000 km². Land-use, vegetation, climate and ecological zones, geology, geomorphology and present status of erosion are described on the basis of thematic maps. Soils are defined by taxonomy (units mainly according to FAO/Unesco Soil Map of the World legend) and physiography and depicted on a soil map of scale 1:100,000; factors in their formation are also discussed. For land evaluation, existing and proposed land utilization types are described in detail as a basis for selection of alternatives, for which land suitability is assessed. A detailed account is given of the rating procedures on the basis of land qualities.

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Zur Morphogenese in den feuchten Tropen. Verwitterung und Reliefbildung am Beispiel von Sri Lanka. H. Bremer, A. Schnütgen und H. Späth. Relief-Boden-Klima, Teil 1. Gebr. Borntraeger, Berlin, Stuttgart, 1981, X + 296 S. ISBN 3-443-09001-X. ISSN 0720-4872 (Reihe).

Die Schriftenreihe hat drei Ziele: sie soll einmal die Möglichkeit schaffen, Monographien aufzunehmen, welche die Reliefgenese eines grösseren Erdraumes allseitig erfassen. Der Titel 'Relief-Boden-Paläoklima' soll dartun, dass das Klima mit dem Boden als dem Träger aller breitenhaften Abtragungsvorgänge auch die massgebenden, exogen erzeugten Züge des Reliefs bestimmt. Der Zusatz 'Paläo-' zum Klima weist darf hin, dass in langen vorzeitlichen Klimaphasen fest in der Erdkruste eingeprägte Reliefzüge weithin rasche Klimawandlungen der jüngeren Erdgeschichte überdauern und so auch as heutige Relief entscheidend mitbestimmen. Der zweite Zielpunkt ist ein wichtiges Teilgebiet der Erde oder einen bestimmten Problemkreis, zu dem bereits viele Einzel- und Spezialarbeiten vorliegen, zusammenfassend darzustellen. Als drittes Anliegen ist daran gedacht, in die Reihe Arbeiten aufzunehmen, welche die in dem Titel der Reihe angesprochenen Problemkreise und die daraus gewonnenen Ergebnisse für die Praxis darlegen.

Über die Vorgänge der Verwitterung, Boden- und Reliefbildung in den feuchten Tropen ist sehr viel weniger bekannt als in den Ausetropen. Eine Forschungsreise im Frühjahr und Sommer 1975 sollte der Untersuchung geomorphologischer Prozesse, insbesondere solchen der Flächenbildung in Abhängigkeit vom Klima sowie der Relation von Boden und Relief dienen. Sie führte zunächst nach Sri Lanka, wo verschiedene Teilräume im S der Insel besucht wurden, anschliessend in das Australische Nordterritorium. Zugleich bot Ceylon nach früheren Forschungen in tropischen Tief- und Hügelländern in Australien, Nigeria und Amazonien auch den Anreiz eines tropischen Berglandes im Bereich eines alten Schildes, so dass die Auswirkungen der Hebung auf die Reliefbildung in den Tropen im Vergleich studiert werden sollten.

Dieses Buch hat die folgende Beiträge: Reliefformen und reliefbildende Prozesse, Bodenbildung und Reliefentwicklung, und Analysen zur Verwitterung und Bodenbildung am Proben.

Preis: DM 118,00.

Bestellungen: Gebr. Borntraeger Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Bundesrepublik Deutschland.

The Role of Centrosema, Desmodium, and Stylosanthes in Improving Tropical Pastures. Westview Tropical Agriculture Series 6. R. L. Burt, P. P. Rotar, J. L. Walker and M. M. Silvey, editors. Westview Press, Boulder, 1983, 292 p. ISBN 0-86531-401-2.

This integrated collection describes the importance of forage legumes for pasture development and improvement in the tropics and subtropics. Leading agronomists review the magnitude of the need for pasture improvement; tropical and subtropical soil and climate environments; reports of the successful use of legumes in pasture development in a wet and a dry tropical environment; and the scope of the problem in terms of area to be developed and development logistics required. Three legume genera, *Centrosema*, *Desmodium*, and *Stylosanthes*, are discussed in detail – information is presented on taxonomy, adaptation, distribution, productivity, and usefulness – and considerable emphasis is placed on *Rhizobium* germplasm resources for these genera. A concluding section of technical essays addresses special considerations in using tropical legumes in pasture development and presents a coordinated, multidisciplinary approach to legume exploration and evaluation.

Price: US \$ 30.50.

Orders to: Bowker Publishing Company, Erasmus House, Epping, Essex, CM16 4BU, England. In U.S.A. and Canada: Westview Press, 5500 Central Avenue, Boulder, Colorado 80301, U.S.A.

The Role of Fire in Northern Circumpolar Ecosystems. SCOPE 18, R. W. Wein and D. A. MacLean, editors. John Wiley & Sons, Chichester and New York, 1983, xxii + 322 p. ISBN 0-471-10222-9.

This volume is based on a conference held at the University of New Brunswick, Fredericton, Canada in October 1979. This is the first book to synthesize the available data on the ecological impact of fire in circumpolar regions. It examines fire concepts and theories from temperate regions and identifies which of these can be applied to northern ecosystems. Those concepts which are unique to northern regions are discussed. Internationally recognized experts from different disciplines are brought together to demonstrate the large gaps still remaining in our knowledge of this subject and emphasize the need for further international cooperation.

After an overview of fire in northern ecosystems, this interesting publication has the following sections: past and present fire frequencies (2 papers); physical effects of fire (4 papers); concepts of fire effects on individuals and species (2 papers); fire effects in selected vegetation zones (4 papers); and fire control and management (2 papers).

This volume 18 of SCOPE will be valuable as a reference work for under-graduate and graduate students of natural resource conservation, wildlife, soils and forestry. Researchers and professionals in these areas will also find it useful, particularly those working in Arctic and Boreal ecosystems and fireprone areas.

Price: £ 27.95.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England; or: 605 Third Avenue, New York, NY 10016, U.S.A.

Selected Climatic Data for a Global Set of Standard Stations for Vegetation Science. Tasks for Vegetation Science, Vol. 5. M. J. Muller. Dr. W. Junk Publishers, the Hague, 1982, 334 p. ISBN 90-6193-945-3.

Anyone working in the field of world ecological conditions knows the difficulties in obtaining basic climatic data needed for research and interpretation. There are regional publications and there are other data sets available. In both cases the distribution is limited. The present volume intends to provide a selection of climatic parameters as they are commonly needed. The same set of monthly mean values are provided for about 1000 stations distributed as evenly as possible over the global land surfaces.

The tabular presentation of data from the individual stations is put into a geographical context through various means. Climatological classifications according to Köppen/Geiger and Troll/Paffen are included as well as a revised system of climate diagrams from Walter and Lieth. In the present form the global standard climatic data set should prove to be useful for vegetation science, biometeorology, agriculture, and forestry as well as general geography.

Price: Dfl. 200,00.

Orders to: Kluwer Acad. Publ. Group, Distribution Centre, P.O. Box 322, 3300 AH Dordrecht, the Netherlands; or: Kluwer Boston, 190 Old Derby Street, Hingham MA 02043, U.S.A.

Micromorphology to Genetical and Practical Soil Science. L. J. Reintam, Editor in Chief. Tartu. 1983, 148 p.

This booklet contains the abstracts (in Russian) and abstracts of these (in English) of more than 80 papers presented at the Second All-Union Conference on Soil Micromorphology, held at Tartu, in June 1983. It shows the increasing use of micromorphological techniques by workers in the USSR, applied to a wide range of subjects in soil science, such as the characterization of various soil types and pedogenetic processes, changes due to soil management, paleosols, etc. It would be beneficial to micromorphologists outside the USSR if the full papers could be made accessible.

Requests to: Prof. L. J. Reintam, Dept. of Soil Science and Agr. Chemistry, Viljandi Road, Eerika, 202400 Tartu, Estonian SSR, U.S.S.R.

D. Creutzberg, Wageningen

Remote Sensing for Resource Management. C. J. Johannsen and J. L. Sanders, editors. Soil Conservation Society of America, Ankeny, 1982, 665 p. ISBN 0-935734-08-2.

This publication is based on the Conference 'Remote Sensing for Resource Management', Kansas City, 1980. The book contains ten parts. The first two present the state of the art and describe remote sensing techniques for land and water applications. In part 3 to 8, articles concentrate on the application of remote sensing to vegetative resources, soil resources, water resources, the mining of coal resources, agricultural production and on industrial application. In the remaining parts the remote sensing applications by public agencies are discussed and an insight is given in current ideas about expected or desirable future developments.

In this book the main topics are: the processing and interpretation of satellite MSS imagery, and colour (infra red) and, occasionally, black and white aerial photography. The articles cover application of remote sensing in a great number of fields. A particularly useful approach in the majority of articles is the objective assessment of the results of the applied methods. Possibilities and limitations become apparent, required improvements are indicated. Within the scope of developments to be expected are the increase of spatial, spectral and radiometric resolution of satellite data; for the monitoring of some resources an increase in temporal resolution will be welcome. This development might give, as several authors point out, a major advance in the use of this type of remote sensing in the management of our resources. Most articles refer to situations in the United States, with very few exceptions only, which limits the applicability of some procedures to highly developed countries. Nevertheless, the book is recommended to all who work in the field of resource management, to those in charge of establishing survey procedures, to teachers on the subject and to advanced students.

Price: US\$ 45.00.

Orders to: Soil Conservation Society of America, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021, U.S.A.
E. Nieuwenhuis, Enschede.

Petrography, An Introduction to the Study of Rocks in Thin Sections. Second ed. H. Williams, F. J. Turner and C. M. Gilbert. W. H. Freeman and Comp., San Francisco, 1982, 626 p., 162 ill. ISBN 0-7167-1376-4.

This is the second edition of the well-known descriptive treatment of igneous metamorphic and sedimentary rocks, first published in 1954. It is intended as a basis for introductory and advanced courses in the microscopic study of rocks, but it certainly will also be useful as a reference for professional workers. The readers are assumed to be familiar with the macroscopic aspects of rocks and they should be acquainted with the principles of optical mineralogy. The discussion of modern sub-microscopic techniques is deliberately omitted, although its fruitfulness is acknowledged.

Like the first edition, the book consists of three parts, dealing with igneous, sedimentary and metamorphic rocks. In each part, the descriptive section is preceded by explanatory statements on topics such as composition, genesis and classification. Considering the spectacular advances in all branches of petrology, the two surviving authors, Turner and Gilbert, have extensively rewritten and expanded the original text (626 vs. 416 pages). Much more attention is given to the modes of origin of igneous and metamorphic rocks, in a manner, consistent with modern concepts of petrogenesis.

The theoretical parts are furnished with explanatory graphs; the descriptive sections are attractively illustrated with more than 350 microdrawings of thin sections. A discussion of relevant thermodynamic concepts is presented in the appendix.

The book does not offer guidelines or tables for a rapid determination of rock names; it rather gives the basics for a clear understanding of the geological significance of purely descriptive study. As such the book is to be much recommended.

Price: £ 23.95, plus £ 0.60 per if ordering by post. Prepayment required.

Orders to: W. H. Freeman and Comp., 20 Beaumont Street, Oxford OX1 2NQ, England.

D. Creutzberg, Wageningen.

Obstacles to Tree Planting in Arid and Semi-arid Lands: Comparative Case Studies from India and Kenya. J. Burley. The United Nations University, Tokyo, 1982, 52 p. UNUP Publication 391. ISBN 92-808-0391-3.

The objective of this study was to consider two countries, India and Kenya, the first with some experience and the second with pressing problems of arid zone development, and to compare and contrast them in terms of environmental, technical, social, and economic factors in order to identify constraints to tree planting in arid and semi-arid lands. It proved easier to make a fuller assessment of the environmental and technical aspects than of the socio-economic aspects.

After an introduction and purpose of the study, the chapters on India and Kenya contain extensive information on how the major obstacles to tree planting are overcome. Attention is also given to land tenure, government policy, resources and needs for forest products and services in the arid zones, and some current programmes of afforestation.

Price: US \$ 7.00.

Orders to: National Distributors. For a list of distributors: Publications Section, Academic Services, The United Nations University, Toho Seimei Bldg., 15-1 Shibuya 2-chome, Shibuya-ku, Tokyo 150, Japan. In U.S.A.: UNIPUB, P.O. Box 433 Murray Hill Str., New York, NY 10157, U.S.A.. In Europe and Africa: Bowker Publishing Company, Erasmus House, Epping, Essex CM16 4BU, England.

Podzols and podzolization in temperate regions. D. L. Mokma and P. Buurman. ISM Monograph 1. International Soil Museum, Wageningen, 1982, 126 p. ISBN 90-6672-011-5.

The term 'podzol' which originated in Russia has been adopted in several soil classification systems and is now defined in various ways. The concept varies from country to country and with time in a single country. *Several processes play a role in the formation of podzols. Insight into the processes involved has changed with time, depending on the kind of information gathered. Variation in the information collected has depended, at least partially, on changes in the podzol concept.*

The most important feature of Podzols or Spodosols is the presence of a horizon with an accumulation of amorphous organic matter and aluminium, with or without iron. Therefore, criteria for a podzol B horizon or spodic horizon have been based, at least partially, on the amounts of organic carbon, Al and Fe extracted by specific solutions from these horizons.

The objectives of this study were to: (1) review the literature on the Podzols and Spodosols, the criteria for classifying Podzols and Spodosols, and the processes involved in podzolization; (2) study the processes of podzolization in profiles collected for this purpose in the Netherlands and Belgium and on other profiles existing in the International Soil Museum collection, and (3) develop new chemical criteria for classifying Podzols and Spodosols and compare these with existing criteria.

Podzols and Related Soils. C. A. van Diepen and P. Buurman. Photography W. C. W. A. Bomer. International Soil Museum, Wageningen, 1983, wallchart, size approx. 70 × 100 cm. ISBN 90-6672-012-3.

This wallchart contains 41 high quality colour plates of soil profiles discussed in ISM Monograph 1 mentioned above. These are complemented with some other profile photographs of Podzols and Spodosols and some similar soils. The poster carries an explanatory text, allowing to use it without the monograph.

Price: Monograph and poster, including surface mailing charges: US\$ 12.00. Wallchart only: US\$ 8.00. Prepayment required.

Orders to: International Soil Museum, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

Annotated Bibliographies Price List. A cumulative index of all Bibliographies published up to 1983. Commonwealth Agricultural Bureaux, Farnham Royal, 1983, 124 p.

Annotated Bibliographies have been prepared by CAB for a number of years and new ones are continuously being prepared. Bibliographies provide abstracts of the literature relevant to specific subject areas. The present list has an index on subjects, referring to sections in which the bibliographies are given in order to appearance. On soils and fertilizers about 850 bibliographies are mentioned. This is a very useful guide, free of charge.

Requests to: CAB, Farnham House, Farnham Royal, Slough SL2 3BN, England.

Computer simulation model of soil water movement and uptake by plant roots. H. N. Hayhoe and R. de Jong. LRRI Contr. 82-13. Research Branch, Agriculture Canada, 1982, 74 p.

A computer simulation model is presented of soil water movement and uptake by plant roots including the computer software package which implements the model. The flow of soil water is assumed to satisfy Darcy's law and is modeled with a nonlinear parabolic partial differential equation. Soil-water uptake by the root system is accounted for in the model by a volumetric sink term. The numerical implementation of the model uses one dimensional linear elements and an implicit time step. The model is designed to be sufficiently versatile that it can be applied to a wide range of soils and function with available daily meteorological data.

Efficient and reliable computer software is a prerequisite to implementing and understanding of soil physical processes into operational prediction schemes. Another requirement is more routine methods of specifying soil water characteristics. The bulletin is designed to provide the technical documentation of a computer software package that was developed with a view to contributing in these two areas. It provides the necessary technical material so that the mathematical formulation, the numerical techniques and the computer implementation can be assessed.

Requests to: Agrometeorology Section, LRRI, Research Branch, Agriculture Canada, Ottawa, Canada K1A 0C6.

Advances in Ecological Research Volume 13. A. MacFadyen and E. D. Ford, editors. Academic Press, New York and London, 1983, 400 p. ISBN 0-12-013913-8.

This thirteenth volume of *Advances in Ecological Research* continues the tradition established in the earlier volumes. Here, reports on ecological research with important applications to fields outside ecology are brought to the attention of a wider audience than usual for specialist publication.

This volume includes papers on: the population biology of Turbellaria with special reference to the freshwater triclads of the British Isles; throughfall and stemflow in the forest nutrient cycle; biological strategies of nutrient cycling in soil systems; and estimating forest growth and efficiency in relation to canopy leaf area.

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7246 FEDERICI F.	IST. MICR. TECN. E AGRARI	BORG XX GIUGNO	I 06100 PERUGIA	0	2
7247 FERRARI A. MS.	IST. DI MICR. AGRARIA	VIA CELORIA 2	I 20133 MILANO	0	2
7248 FERRARI G.	CENTRO AGRICOLO PILOTA	PIAZZA ROOSEVELDT 4	I 40121 BOLOGNA	0	2
7251 FIORI S. MS.		VIALE TRIESTE 69	CAGLIARI	0	2
7252 FIRPI M. DR.	E.N.C.C.	VIA MILANO 1	MILANO 1	0	2





7253 FLORENZANO G. PROF.	IST.DI MICR. AGRARIA	DELL' UNIVERSITA	I 50100 FIRENZE	0	2
7254 FRANCHINI M. MS.	IST. MINERALOGIA	VIA S. MASSIMO 24	I 10123 TORINO	0	2
7421 FREZZOTTI M.	E.N.E.A.PAS-ISP-GEOSISM.C	CASACCIA,VIA ANGUILLARESE	I-00100 ROMA	500020	1
7255 FUSI P. DR.	IST. CHIMICA AGR. FOREST.	PIAZZALE D. CASCINE	I 50144 FIRENZE	0	2
7256 GATTORTA G. PROF.DR.	STAZ. SPERIM. CHIMICO AGR	VILLA CELIMONTANA	I 00184 ROMA	0	2
7257 GESSA, C., DR.	ISTITUTO CHIMICA AGRARIA	VIA E. DE. NICOLA	I 07100 SASSARI	0	2
7258 GIACOMELLI E.	ISTITUTO DI MECCANICA AGR	PLE.CASCINE 15	I 50144 FIRENZE	0	2
7259 GIARI M., DR.	IST. GENIO RURALE	VIA F. RE4	I 40126 BOLOGNA	0	2
7260 GIOVAGNOTTI C. DR.		VIA T. BERARDI 2	I 06100 PERUGIA	0	2
7261 GIOVANNOZZI SERMANI G. DR.	LAB.RADIOBIOCHIM.,LA.RE.V	AREA RICERCA MONTELIBR.	I 00016 MONTEROTONDO STAZ. ROMA	0	2
7263 GISOTTI G. DR.	MIN.AGRIC.E FORESTE	VIA G. CARDUCCI 5	I 00100 ROMA	0	2
7264 HAUCK F.W. DR.	FAO	VIALE TERME DI CARACALLA	I 00100 ROME	0	2
7266 HESSE P.R.	FAO	VIALE TERME DI CARACALLA	I 00100 ROME	0	2
7422 KETTING M.J. MRS.		VIA LEON ALB.BATTISTA 25	I-00153 ROMA	0	1
7265 LEMOS P. DR.	FAO	VIALE TERME DI CARACALLA	I 00100 ROME	0	2
7267 LEPIDI A. PROF.	IST.DI MICROBIOLOGIA AGRA	VIA BORGHETTO 80	I 56100 PISA	0	2
7268 LEVI MINZI R. DR.	IST. CHIMICA AGRARIA	VIA S. MICHELE 2	I 56100 PISA	0	2
7270 LIPPI-BONCambi C. PROF.DR.	IST. DE GEOLOGIA	BORG XX GIUGNO 24	I 06100 PERUGIA	0	2
7271 LOMBARDO V. DR.	IST. DI AGRONOMIA GENERAL	VIALE DELLE SCIENZE	I 90128 PALERMO	0	2
7272 LOPEZ G.	IST.SPESIMENTALE AGRONOMI	VIA C. ULPANI 5	I 70125 BARI	0	2
7273 LULLI L. DR.	ISTITUTO DEL SUOLO	PIAZZA M. D'AZELIO 30	I 50121 FIRENZE	0	2
7274 MACCIONI L.		VIA ELEONORA 10	I 09050 MOGO RO CA.	0	2
7275 MALQUORI A. PROF.	FACOLTA AGRARIA FORESTALE	PIAZZALE DELLE CASCINE	I 50144 FIRENZE	0	2
7276 MANACHINI P.	IST. DI MICROBIOL.INDUSTR	VIA CELORIA 2	I 20133 MILANO	0	2
7277 MANCINI F. PROF.DR.	IST. DI GEOLOGIA APPLICAT	PIAZZALE DELLE CASCINE 15	I 50144 FIRENZE	0	2
7278 MANFREDI E. PROF.DR.	ISTITUTO MECCANICA AGRARI	VIA FILIPPO RE 4	I 40126 BOLOGNA	0	2
7290 MANNIPIERE P. DR.	LAB.PER LA CHIM.DEL TERRE	VIA CORRIDONI 78	I 56100 PISA	0	2
7279 MARCHESINI A. PROF.	IST.SPESIM.NUTRIZIONE PIA	VIA DUCA D'AOSTA 115	I 34170 GORIZIA	0	2
7280 MARIZZA L. DR.	SEZ.IST.NUTRIZIONE PIANTE	VIA DUCA D'AOSTA 115	I 34170 GORIZIA	0	2
7281 MARTINI A.	IST.MICROBIOL.AGRAR.&TECN	BORG XX GIUGNO	I 06100 PERUGIA	0	2
7282 MASSOUD F.I. DR.	FAO	VIALE TERME DI CARACALLA	I 00100 ROME	0	2
7283 MATERASSI R. DR.	IST.DI MICROBIOL.AGRARIA	PIAZZALE DELLE CASCINE 28	I 50144 FIRENZE	0	2
7284 MATHIEU M.	FAO	VIALE TERME DI CARACALLA	I 00100 ROME	0	2
7285 MATSUI H. DR.	FAO	VIALE TERME DI CARACALLA	I 00153 ROME	0	2
7286 MATTEI F. DR.	UCEA	VIA DEL CARAVITA 7/A	I 00196 ROME	0	2
7287 MOGGI G. PROF.DR.	IST.BOT. DELL'UNIVERSITA	VIA LAMARMORA 12	I 50121 FIRENZE	0	2
7288 MONOTTI M. DR.	FAC. DI AGRARIA,IST.AGRON	BORG XX GIUGNO	I 06100 PERUGIA	0	2
7289 MOUTTAPA F.J. DR.	FAO	VIALE TERME DI CARACALLA	I 00153 ROME	0	2
7333 NANNIPIERE P. DR.	LAB.PER LA CHIM.DEL TERRE	VIA CORRIDONI 78	I 56100 PISA	0	1
7291 NUTI P. PROF.	IST. DI MICROBIOL. AGRARI	VIA CELORIA 2	I 20100 MILANO	0	2
7292 OCHEMAN L.H.J.	TAC U.G.D.,G-301 FAO	VIA DELLE TERME CARACALLA	I 00100 ROME	0	2
7293 OFORI C.S. DR.	FAO	VIALE TERME DI CARACALLA	I 00100 ROME	0	2
7294 PACHEO R.	FAO	VIALE TERME DI CARACALLA	I 00100 ROME	0	2
7295 PALLOTTA U. PROF.DR.	IST. DI CHIMICA AGRARIA	VIA S. GIACOMO 7	I 40126 BOLOGNA	0	2
7296 PALMIERI F. DR.	ISTITUTO CHIMICA AGRARIA		I 80055 PORTICI NA.	0	2
7297 PANCARO F. DR.	FAC.SCI.AGR.,IST.GEOL.APP	PLE DELLE CASCINE	I 50144 FIRENZE	0	2
7298 PANICUCCI M. DR.	ISTITUTO DEL SUOLO	PIAZZA M. D'AZEGLIO 30	I 50121 FIRENZE	0	2
7299 PAOLETTI C.	ISTITUTO DI MICROBIOLOGIA	PIAZZA DELL CASCINE 28	I 50144 FIRENZE	0	2
7300 PARIS P. DR.	FAC.DI AGRARIA,IST.AGRONO		I 29100 PIACENZA	0	2
7301 PARISI V. DR.		VIA UNIVERSITA 12	I 43100 PARMA	0	2
7302 PASSINO A. MISS.	ISTITUTO DI MINERALOGIA	VIA E. DE NICOLA	I 07100 SASSARI	0	2
7303 PATRUONO A., MISS.	ISTITUTO DE AGRONOMIA	VIA AMENDOLA 165	I 70126 BARI	0	2
7304 PERNIOLA M. DR.	IST.SPESIMENT.AGRONOMIC	VIA ULPANI 5	I 70126 BARI	0	2

7305 PETRUCCI F. DR.	IST.GEOL.DELL'UNIVERSITA	VIA MASSIMO D'AZEGLIO 85	I 43100	PARMA	0	2
7306 PICCI G. DR.	IST.MICROBIOLOGIA AGRICOL	VIA S. MICHELE 4BIS	I 56100	PISA	0	2
7307 PICCONE G.	IST. DI CHIMICA AGRARIA	VIA P. GIURIA 15	I 10126	TORINO	0	2
7308 PITZURRA P. DR.		VIA CASTIGLIONE 92/B	I 09100	NAPOLI	0	2
7309 RAGLIONE M.	IST. DEL SUOLO,SEZ.OPERAT	VIA CAGLIARI	0000000	CATANZARO LIDO	0	2
7310 RAMUNNI U.	IST. DI CHIMICA AGRARIA		I 80055	PORTICI NA.	0	2
7311 RASPI M.A. DR. SSA	IST.GEOLOGIA APPLICATA	P.LLE DELL CASCINE 15	I 50144	FIRENZE	0	2
7312 RAVELLI FR.	CASSA DEL MEZZOGIORNO	PIAZZALE KENNEDY	I 00144	ROME	0	2
7313 ROMANIN-VISINTINI M. DR.	IST.SPERIM.NUTR.PIANTE	VIA DUCA D'AOSTE 115	I 34170	GORIZIA	0	2
7314 ROMANO E. PROF.DR.	STAZ.CHIM.AGRARIA SPERIM.	VILLA CELIMONTANA	I 00184	ROME	0	2
7315 RONCHETTI G. PROF.	IST.SPERIM.DEL SUOLO	PIZZA M. D'AZEGLIO	I 50121	FIRENZE	0	2
7316 ROSINI G.	IST.MICROBIOL.AGR.E TECNI	BORG XX GIUGNO	I 06100	PERUGIA	0	2
7317 ROSSI N. PROF.	IST. DI CHIMICA AGRARIA	VIA S. GIACOMO 7	I 40126	BOLOGNA	0	2
7318 ROSSI P.P. DR.	IST. DE AGRONOMIA	VIA FILIPPO RE 4	I 40126	BOLOGNA	0	2
7319 ROTINI O.T. PROF.	IST. DI CHIMICA AGRARIA	V.S.MICHELE DEGLI SCALZII	I 56100	PISA	0	2
7320 SANTORO N.C.		VIA SARULLO 15	I 90100	PALERMO	0	2
7321 SAPETTI C. PROF.	IST. DI CHIMICA AGRARIA	VIA P. GIURIA 15	I 10126	TORINO	0	2
7322 SARTI A. DR. SSA		VIA CIOCIARIA 11	I 00162	ROME	0	2
7323 SCHIPPA G. PROF.	FACOLTA DI INGEGNERIA		0000000	MONTELUCCO ROIO AQ.	0	2
7324 SEQUI P. PROF.		VIA GARIBALDI 36	I 55045	PIETRASANTA LU.	0	2
7326 SERRA S. DR.	IST.GEOLOGIA E PALEONTLOG	VIA TRENTO 51	I 09100	CAGLIARI	0	2
7325 SEVERINI M. DR.		P.ZA LUIGI STURZO 31	0000000	ROME	0	2
7327 SFALANGA M.	ISTITUTO DEL SUOLO	PIAZZA M. D'AZEGLIO 30	I 50121	FIRENZE	0	2
7328 SIEF L.		VIA ROSSELLI 47	I 32100	BELLUNO	0	2
7329 SILANOS L.	SEZIONE PEDOLOGIA,C.R.A.S	VIA L.B. ALBERTI 22	I 09100	CAGLIARI	0	2
7330 SILI C.	IST.MICROBIOLOGIA AGRARIA	P.LE CASCINE 27	I 50144	FIRENZE	0	2
7331 SILVA S.	IST.CHIM.AGR.UN.CAT.S.CUO	VIA EMILIA PARMENSE 84	I 29100	PIACENZA	0	2
7332 SIRAGUSA N. DR SSA	IST.SPERIM.NUTRIZ. PIANTE	VIA ORMEA 47	I 10125	TORINO	0	2
7334 SOLINAS V. DR.	IST. DI CHIMICA AGRARIA	VIA E. DE NICOLA	I 07100	SASSARI	0	2
7335 SPALLACCI P.	IST.SPER.AGRON.SEZ MODENA	VIAL.CADUTI IN GUERRA 134	I 41100	MODENA	0	2
7336 STEFANELLI G. PROF.ING.	IST.DI MECCANICA AGRARIA	PIAZZALE DELLE CASCINE 18	I 50144	FIRENZE	0	2
7337 STEFANO C. DR.		VIA CORRIDONI 78	I 56100	PISA	0	2
7338 STOPPINI Z. DR.	ISTITUTO IDRAULICA AGRARI	BORG XX GIUGNO	I 06100	PERUGIA	0	2
7339 TAFURI F.	IST. DI CHIMICA AGRARIA	BORG XX GIUGNO	I 06100	PERUGIA	0	2
7340 TAGLIATTI R. DR.	ENTE DELTA PADANO	VIA S. FELICE 25	I 40122	BOLOGNA	0	2
7341 TALAMUCCI P. DR.	IST. AGRICOLTURA MONTANA	PIAZZALE DELLE CASCINE 18	I 50144	FIRENZE	0	2
7342 TELLINI M. DR. SSA	IST.SPERIM.DEL SUOLO	PIAZZA M. D'AZEGLIO 30	I 50121	FIRENZE	0	2
7343 TOMASELLI FEROCI L., MRS.	IST.DI MICROB.AGRARIA	PIAZZALE DELLE CASCINE	I 50144	FIRENZE	0	2
7344 TOURNON G. PROF.ING.	IST.IDRAULICA AGRARIA	CORSO RAFFAELLO 8	I 10126	TORINO	0	2
7345 TRECCANI V. PROF.DR.	IST.MICROBIOL.GEN.AGRARIA	VIA CELORIA 2	I 20133	MILANO	0	2
7346 TROPEA M. DR.	IST. DI CHIMICA AGRARIA	VIA VALDISAVOIE 5	I 95123	CATANIA	0	2
7347 TURCHETTI T.	IST. PATOLOGIA VEGETALE	PIAZZALE DELLE CASCINE	I 50144	FIRENZE	0	2
7348 UBERTINI L.		BORG XX GIUGNO 74	I 06100	PERUGIA	0	2
7349 VENIALE F. PROF.	IST.MINERAL.&PETROGR.UNIV	VIA BASSI 4	I 27100	PAVIA	0	2
7350 VERGNANO G. DR.	IST. BOTANICO	VIA MICHELI 1	I 50121	FIRENZE	0	2
7351 VERONA O. PROF.	IST. MICROBIOLOGIA AGRARI	VIA S. MICHELE 2	I 56100	PISA	0	2
7352 VINCENZINI M.	IST. MICROBIOLOGIA AGRARI	P. LE CASCINE 27	0000000	FIRENZE	0	2
7353 VIOLANTE A. DR.	IST. DI CHIMICA AGRARIA		I 80055	PORTICI NA.	0	2
7354 VITTORINI S.	IST.GEOGR.DELL'UNIVERSITA	VIA TRIESTE 20	I 56100	PISA	0	2
7355 ZANCHI C.	ISTITUTO DEL SUOLO	PIAZZA M. D'AZEGLIO 30	I 50121	FIRENZE	0	2
7356 ZANINI E. PROF.	IST.AGR.UN.CAT.SACRO CUOR	S. LAZZARO	I 29100	PIACENZA	0	2

NEWS FROM THE ISSS SECRETARIAT AND TREASURY NOUVELLES DU SECRETARIAT ET DE LA TRESORERIE DE L'AISS MITTEILUNGEN DES IBG-SEKRETARIATS U.D. KASSENVERWALTUNG

The following soil scientists have now become life-member of ISSS:

Les pédologues suivants sont devenu membres pour la vie:

Die folgenden Bodenkundler sind Mitglieder auf Lebenszeit geworden:

Dr. E. Pushparajah, RRI – Malaysia
Dr. R. Dudal, FAO – Italy
Dr. A. Osman, ACSAD – Syria
Mr. J. H. V. van Baren, ISM – Netherlands
Dr. Go Ban Hong, FAO – Thailand
Dr. P. Smart, Glasgow Univ – UK
Dr. H. Ch. Moss, Saskatoon – Canada

Mr. J. G. van Brandt, FAO – Senegal
Dr. R. W. Fitzpatrick, CSIRO – Australia
Mr. C. A. van Diepen, ISM – Netherlands
Dr. A. K. Singh, IARI – India
Mr. J. H. S. Bruin, FAO – Upper Volta
Mr. H. Brammer, FAO – Rome
Mr. J. Riquier, Villeneuve Loubet – France
Dr. M. Bybordi, Plan & Budget Org. – Iran.

COMMITTEE ON RULES

The standing Committee on Rules of the Society met in Ghent, Belgium, on 15th July 1983. A number of issues were discussed, partly emanating from correspondence with the Executive Committee and members at large. The main items were:

- the unrestricted participation of all paid-up bona-fide ISSS members to our Congresses and inter-Congress meetings;
 - the managing of the ISSS Young Scientists Travel Fund, started at the instigation of the Dutch Society;
 - the appropriation of the proceeds of the Life Membership Fund;
 - the guidelines for the levying of 10% of the registration fees for ISSS inter-Congress meetings, in compensation for publicity given in the Bulletin;
 - the distinction between active members, sustaining members and non-membership subscribers to the Bulletin. It was re-iterated that active members are individual persons – soil scientists (current annual fee \$ 8.00); sustaining members are corporate bodies like soil science institutions, with one membership vote (annual fee \$ 25.00); non-membership subscribers to the Bulletin are libraries etc., without a voting right or entitlement to the Membership List (annual fee \$ 15.00);
 - the position of some Working Groups, in view of their permanent and/or interdisciplinary character, and the tendency of such groups to form their own society or organisation.
- The consensus was that several of the Working Groups may well be elevated to the status of ISSS Sub-commissions. Such Subcommissions can in fact be *intra-Commissional*, *inter-Commissional* or *interdisciplinary* (i.e. between ISSS and another scientific Society or Union);
- the revision of procedures and criteria for election of Officers for the Commissions at the Congress, and for the Subcommissions partly at their inter-Congress meetings;
 - the mode of screening of the quality of invited and voluntary papers to be presented at the Congress;
 - the process of formulation of, and voting upon, the Recommendations to be adopted at the closing session of the Congress.

The minutes of the meeting, with a number of recommendations on modifications or additions of the Bylaws, will be circulated to the members of the ISSS Executive Committee for their attention and suggestions. Thereafter the Chairman of the Rules Committee, Prof. Dr. E. G. Hallsworth, will publish the recommendations in the Bulletin, for ultimate approval by the ISSS Council at the 1986 Congress in Hamburg.

COMITÉ DU RÈGLEMENT

Le Comité du règlement de l'AISS s'était réuni à Gand le 15 juillet 1983. On a discuté sur un nombre de questions en partie provenant de la correspondance avec le Comité Exécutif et les membres en général. À l'ordre du jour furent les sujets suivants:

- la participation sans restriction de tous les membres payants de l'AISS aux Congrès et aux réunions inter-Congrès;
- la gestion du Fonds de Voyage pour les Jeunes Chercheurs de l'AISS, initié par l'Association néerlandaise;
- l'appropriation des revenus du Fonds de l'Adhésion à vie;
- les directives pour la levée de 10% des frais d'inscription des réunions inter-Congrès à titre de compensation pour la publicité au Bulletin;

- la distinction entre membres actifs, membres soutenant, et les abonnés au Bulletin.
Il était réitéré que des membres actifs sont des personnes individuelles/pédologues (cotisation est à présent 8 dollar E.U. par an); des membres soutenant sont des organismes comme des instituts de la science du sol, avec le droit de voter en tant que membre (cotisation 25 \$ E.U. par an); des abonnés non adhérents sont des Bibliothèques etc., sans droit de voter ou de recevoir la Liste de Membres (cotisation 15 \$ E.U. par an);
- la position de quelques Groupes de travail en vue de leur caractère permanent et/ou interdisciplinaire, ainsi que la tendance que ces groupes forment des associations ou organisations à eux-mêmes.
On s'est mis d'accord que plusieurs Groupes de travail peuvent être élevés au rang de Souscommission de l'AISS. En effet, ces Souscommissions peuvent être soit *intra-Commissional*, soit *inter-Commissional* ou *interdisciplinaire* (p.e. entre l'AISS et une autre Société ou Union scientifique);
- la révision des procédures et critères pour l'élection des Membres du Bureau pour les Commissions au Congrès, et pour les Sous-commissions en partie lors de leur réunions entre-congrès;
- la mode d'examiner la qualité des contributions volontaires ou invitées à présenter au Congrès;
- le processus de formulation et de scrutin des recommandations à adopter à la Session de Clôture du Congrès.

Le compte-rendu de la réunion avec un nombre de recommandations d'amender le règlement sera circulé aux membres du Comité Exécutif pour leur attention et suggestions. Ci-après, le Président du Comité du règlement, Prof. Dr. E. G. Hallsworth, publiera les recommandations au Bulletin, pour approbation finale par le Conseil de l'AISS au Congrès à Hambourg en 1986.

SATZUNGSKOMITEE

Das amtierende Satzungskomitee hat in Gent, Belgien, getagt am 15.7.83. Manche Fragen wurden besprochen. Diese entstammten der Korrespondenz, zum Teil mit den Verwaltungsausschuss vorwiegend aber mit aktive Mitglieder. Die wichtigsten Punkte der Sitzung waren:

- der uneingeschränkte Teilnahme an unsere Kongresse und Sitzungen die zwischen zwei Kongresse stattfinden, von aktiven Mitglieder die ihren Beitrag ordnungsgemäss geleistet haben;
- die Verwaltung des Reisefonds für junge IBG-Wissenschaftler, der gegründet wurde auf Anreiz des niederländischen Gesellschafts;
- die Bestimmung der Erlöses aus der Fond für Mitglieder auf Lebenszeit;
- die Richtlinien zur Erhebung von 10% des Eintragsgebühren für Versammlungen zwischen zwei Kongresse, als Ausgleich für die Publizität im Mitteilungsblatt;
- die Unterscheidung mittels Mitgliedklassen zwischen aktive Mitglieder, fördernde Mitglieder und Bezieher des Mitteilungsblattes die kein Mitglied sind.

Es wurde widerholt dass aktive Mitglieder Einzelpersonen sind – Bodenkundler (momentane jährliche Beitrag US \$ 8,00); dass fördernde Mitglieder juristische Personen sind, wie z.B. bodenkundliche Institute, mit nur eine Stimme (jährliche Beitrag U.S. \$ 25,00); dass das Mitteilungsblatt fördernde Körperschaften, wie Büchereien usw. kein Mitglied sind, und weder Recht auf eine Stimme noch auf die Mitgliederverzeichnis haben (jährliche Beitrag U.S. \$ 15,00);

- die Position einiger Arbeitsgruppen, vom Gesichtspunkt ihrer permanenten und/oder interdisziplinären Charakter, und der Tendenz dieser Gruppen ihre eigene Gesellschaft oder Organisation zu gestalten.

Es herrschte Einstimmigkeit darüber dass verschiedene Arbeitsgruppen bestimmt zur Status von IBG-Subkommission erhoben werden können. Subkommissionen können im Grunde genommen ihr Arbeitsfeld entweder *innerhalb* der zuständigen Kommission oder *zwischen* zwei Kommissionen haben, aber auch *interdisziplinär* in der Art sein (z.B. zwischen der IBG und ein andere wissenschaftliche Verein oder Verband);

- die Revision der Arbeitsweise und Kriterien zur Auswahl von Amtsträger für den Vorstand der Kommissionen während Versammlungen die zwischen auf einander folgende Kongresse stattfinden;
- der Modus in Bezug auf die Beurteilung der Qualität von Vorträge die entweder auf Einladung oder freiwillig während des Kongresses gehalten werden sollen;
- die Prozedur der Formulierung von, und der Abstimmung über Empfehlungen die während der Schliessungssitzung des Kongresses angenommen werden sollen.

Die Protokolle der Versammlung werden samt Empfehlungen bezüglich Abänderungen oder Hinzufügungen des Reglements, an die Amtsträger des IBG-Verwaltungsausschusses geschickt zu ihrer Andacht und Vorschläge ihrerseits. Daraufhin wird der Vorsitzende des Satzungskomitees, Prof. Dr. E. G. Hallsworth, die Empfehlungen veröffentlichen in das Mitteilungsblatt, damit diese die Zustimmung erhalten können des IBG-Beirats während des Hamburgerkongresses in 1986. ☐

MEMBERSHIP APPLICATION FORM/FICHE DE DEMANDE
D’AFFILIATION/AUFNAMEANTRAG FORMULAR



ISSS-AISS-IBG

International Society of Soil Science (ISSS)
Association Internationale de la Science du Sol (AISS)
Internationale Bodenkundliche Gesellschaft (IBG)

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- ☐ CHANGE OR CORRECTION OF ADDRESS/CHANGEMENT OU CORRECTION D’AD-
RESSE/ANSCHRIFTENÄNDERUNG
- ☐ STATEMENT ON SPECIAL INTERESTS/DECLARATION D’INTERÊTS SPECIAUX/ANZEI-
GUNG VON SPEZIALINTERESSEN
- ☐ APPLICATION FOR LIFE MEMBERSHIP/DEMANDE D’AFFILIATION POUR LA VIE/
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* Surname (Apellido/Sobrenome)
* Nom de famille
* Familienname

First name (s) (Nombre/Nome) or initials, and title(s)
Prénom(s) ou initiales, et titre(s)
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Datum	Unterschrift

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- 1 A Salt Affected Soils/Sols salins/Salzböden
- 2 B Micromorphology/Micromorphologie/Mikromorphologie
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- HP History, Philosophy and Sociology of Soil Science/Histoire, philosophie et sociologie de la science du sol/Geschichte, Philosophie und Soziologie der Bodenkunde (Comm. V)
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Dr. I. P. Abrol, Central Soil Salinity Research Institute, Karnal 132001, Haryana, India

B. Soil Micromorphology/Micromorphologie du sol/Bodenmikromorphologie

Prof. Dr. G. Stoops, Geologisch Instituut, Universiteit van Gent, Krijgslaan 271, 9000 Gent, Belgium

C. Soil Conservation and Environment/Conservation du sol et environnement/Bodenerhaltung und Umwelt

Dr. K. W. Flach, Soil Conservation Service, U.S. Dept. of Agriculture, P.O. Box 2890, Washington, D.C. 20013, USA

Working Groups of the Commissions/Groupes de Travail des Commissions/Arbeitsgruppen der Kommissionen – Chairmen/Présidents/Vorsitzende

ZO Soil Zoology-Pedofauna/Zoologie du Sol/Bodenzoologie (Comm. III; with/avec/mit IUBS).

Dr. K. E. Lee, CSIRO Division of Soils, P.B. 2, P.O. Glen Osmond, S.A. 5064, Australia.

FT Soil Fertility Trials/Essais de fertilité des sols/Bodenfruchtbarkeitsproben (Comm. IV)

Prof. Dr. E. von Boguslawski, Versuchsstation Rauisch-Holzhausen, Justus-Liebig-Universität Gießen, 3557 Ebsdorfergrund 4, BRD

DP Soil Information Systems/Informatique en pédologie/Informationssysteme i.d. Bodenkunde (Comm. V)

Dr. A. W. Moore, CSIRO Div. of Soils, 306 Carmody Road, St. Lucia, Queensland 4067, Australia

DC Desertification/Désertification/Verwüstung (Subcomm. C)

Prof. Dr. H. E. Dregne, Texas Technical Univ., P.O. Box 4169, Lubbock, TX 79409, USA

FS Forest Soils/Sols forestiers/Waldböden (Comm. V)

Dr. R. Saly, Dept. of Soil Science and Geology, Sturova 2, 96001 Zvolen, Czechoslovakia

RB International Reference Base for soil classification/Base internationale de référence pour la classification des sols/Internationale Referenzbasis für Bodenklassifikation (Comm. V)

Prof. Dr. E. Schlichting, Institut für Bodenkunde und Standortlehre, Universität Hohenheim, P.O. Box 106, D-7000 Stuttgart-70, BRD

PP Paleopedology/Paléopédologie/Paläopedologie (Comm. V; with/avec/mit INQUA)

Prof. Dr. D. H. Yaalon, Department of Geology, Hebrew University, Jerusalem 91000, Israel

RS Remote Sensing for Soil Surveys/Pédologie et Télédétection/Fernerkundung für Bodenkartographie (Comm. V)

Dr. S. Bialousz, Ul. Belska, 24M24, 02.638, Varsovie, Poland

LE Land Evaluation/Evaluation des terres/Landbewertung (Comm. VI)

Prof. Dr. K. J. Beek, I.T.C., P.O. Box 6, 7500 AA Enschede, Netherlands

CO Soil Colloid Surfaces/Surfaces des colloïdes de sol/Kolloidale Oberflächen in Böden (Comm. II)

Prof. Dr. G. H. Bolt, Dept. of Soil Science and Plant Nutrition, Agricultural University, P.O. Box 8005, 6700 EC Wageningen, Netherlands

EP Engineering Properties of Soils-Pedotechnique/Propriétés constructuelles des sols/Ziviltechnische Eigenschaften von Böden (Comm. VI)

Dr. G. Wilson, Land Resource Inst. C.E.F., K. W. Neatby Bldg., Ottawa, Ont. K1A 0C6, Canada

AS Acid Sulphate Soils/Sols sulfatés acides/Saure Sulfatböden (Comm. V)

Prof. Dr. L. J. Pons, Dept. of Soil Science and Geology, Agric. University, P.O. Box 37, 6700 AA Wageningen, Netherlands

HP History, Philosophy and Sociology of Soil Science/Histoire, philosophie et sociologie de la science du sol/Geschichte, Philosophie und Soziologie der Bodenkunde (Comm. V)

Prof. Dr. D. H. Yaalon, Department of Geology, Hebrew University, Jerusalem 91000, Israel

MV Moisture Variability of Field Soils/Variabilité en humidité des sols sur le terrain/Veränderlichkeit von Bodenfeuchtgehalt im Gelände (Comm. I)

Dr. D. R. Nielsen, Dept. of Water Science and Engin., Univ. of California, Davis, CA 95616, USA

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