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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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DBG

ISSS AISS IBG

VORINFORMATIONEN ZUM 13. KONGRESS

vom 13.–20. August 1986 in Hamburg, BRD.

Der Kongress steht unter dem Motto: 'Böden – unter steigender Vielfalt und Intensität der Inanspruchnahme'. Diese Themenstellung umfasst drei Bereiche:

1. Die breite Zeitspanne von ununterbrochener Nutzung vom Neolithikum an bis zu neuester Inkulturnahme.
2. Das breite Spektrum von Intensivnutzung in Ballungsgebieten bis zur Extensivnutzung marginaler Standorte.
3. Den aktuellen Problemkreis der Nutzungskonkurrenz.

Bodenentwicklungszustand und Standorteigenschaften als Folgen bzw. Ergebnisse der drei Anläufe bzw. Vorgänge stehen dabei im Zentrum des Interesses. Dabei soll versucht werden, die gesamte Breite bodenkundlicher Forschungen zu erfassen und auf ein gemeinsames Ziel – nämlich die Minimierung der steigenden Inanspruchnahme – auszurichten. Das Programm wird wie üblich Plenarsitzungen und Kommissionssitzungen enthalten. Fachübergreifende Symposien und Posterveranstaltungen werden ein erhebliches Gewicht haben.

Exkursionen sind als Vor- und Nachkongresstouren vorgesehen. Dabei sind längere Touren geplant, die einen weiträumigen Überblick über Böden und deren Inanspruchnahmen in der Bundesrepublik vermitteln. Ausserdem wird es kurze Touren geben, die jeweils auf einen engeren Problemkreis innerhalb enger Bereiche der Bundesrepublik ausgerichtet sind.

PRÉ-INFORMATION SUR LE 13ÈME CONGRÈS

ayant lieu du 13 au 20 août 1986 à Hambourg, RFA.

Le Congrès a pour devise: 'Demandes aus sols – croissant en diversité et intensité'. Il y a trois thèmes principaux:

1. L'espace de temps évoluée depuis le début de l'occupation humaine permanente, qui se situe entre le Néolithique et les temps les plus modernes.
2. La grande gamme des intensités d'utilisation des terres, pratiquées dans les zones à différentes concentrations de population.
3. Les problèmes actuels de la compétition entre les différentes modes d'utilisation des sols.

Le point focal de ces trois thèmes sera les répercussions de l'action humaine sur le sol et on essayera de viser les recherches pédologiques de toutes sortes au but commun – c'est d'alléger les demandes croissantes aux sols.

Le programme comprendra comme d'habitude des séances plénières et des réunions des commissions. Des symposiums interdisciplinaires et des sessions–exposition seront d'une grande importance.

On prévoit des excursions avant et après le Congrès. Il y aura des excursions assez longues donnant une vue générale sur les divers sols et demandes aux sols. Il y aura aussi des excursions relativement courtes, qui visent à présenter des problèmes particuliers dans certaines zones de la RFA.

PRE-INFORMATION ON THE 13th CONGRESS

to be held from August 13th to 20th 1986 at Hamburg, F.R.G.

The Congress will be held under the motto: 'Demands on soils – increasing in variety and intensity'.

This covers three main themes:

1. The stretch of time that has passed since the start of management of the soil by man, varying from uninterrupted use as from Neolithicum, to recent occupation.
2. The great variety in land use intensity.
3. The present problems of competing demands for different kinds of land use.

The focal point of these three themes will be the repercussions of human activities on the soil and an attempt will be made to direct the various kinds of soil research to one common goal: to relieve the pressure on the soil from the increasing demands.

The programme will include plenary sessions and commission sessions as usual. Interdisciplinary symposia and poster sessions will be given considerable importance. Excursions are being provided as pre- and postcongress tours. They will include both longer tours covering a wide range of soils and different demands, and shorter tours dedicated to more special topics in some areas of the Federal Republic of Germany.

PROFILES/PROFILS/PROFILE

PROF. DR. K. H. HARTGE, New President of the International Society of Soil Science, 1982–1986.

Prof. Hartge was born in Dorpat, Estland, on March 18th, 1926. After an initional training as forest nursery technician, he studied horticultural science at the Technical College in Hannover. He obtained his Ph. D. in soil science in 1958 with Professor Schachtschabel on the subject of the influence of liming on the structure stability of arable soils. He then joined the scientific staff of the Institute for Soil Science in Hannover.

In 1963 he obtained his teaching licentiate ('Habilitation') for soils science at the Faculty of Horticulture and Agriculture of the Hannover Technical University, on the subject of pore systems in soils, and in 1965 became scientific councillor and professor at the same University, a position he still holds at present.

Prof. Hartge has been a co-editor and is now still a member of the editorial board of the 'Zeitschrift für Pflanzenernährung und Bodenkunde'. From 1964 to 1969 he served as Vice-Chairman and from 1969 to 1977 as Chairman of Commission I (soil physics) of the German Soil Science Society DBG. From 1968 to 1974 he was also Vice-Chairman of Commission I of the International Society. He was a consultant for FAO in Bulgaria in 1972, and visiting professor at the Agricultural University of Uppsala, Sweden (1969), the State University of Minnesota, USA (1973, 1978) and the Universidad Austral in Valdivia, Chili (1976).

Prof. Hartge has published many articles in scientific journals (73 till 1980), and he is the author of two textbooks on soil physics, viz.: 'Die Physikalische Untersuchung von Böden' (1971) and 'Einführung in die Bodenphysik' (1978), both of the them published by Enke Verlag, Stuttgart. He was also co-editor of the 9th and 10th editions of Scheffer-Schachtschabel's classical 'Lehrbuch der Bodenkunde'.

PROF. DR. H. W. SCHARPENSEEL, New Vice-President of the International Society of Soil Science, 1982–1986

Prof. Scharpenseel was born in Münster, Westfalen, FRG, on June 5th, 1923. He studied agricultural science at the University of Bonn, where he obtained his Ph. D. in agricultural chemistry on the basis of his research on the humus conserving effects of furnace slags. In 1960 he obtained his teaching licentiate for soil science and agricultural chemistry at the University of Bonn on his radiometric studies to the nature of humic substances.

He became professor at the same University in 1965 and Head of its Section on Tropical Soils in 1970. In 1975 he was nominated professor at the Chair ('Ordinariat') of Soil Science at Hamburg University. He is at present Director of the soil Science Institute and Vice Dean of that University.

Prof. Scharpenseel was visiting professor or research officer in other countries for many years. He served at the Araneta and Santo Thomas University of the Philippines (1954–1957) and the University of Illinois, USA (1957–1958). He was research officer with IAEA/FAO on the Philippine Science Development Board (1961), with INRAT in Tunesia (1964–1965), and with IRRI in the Philippines (1977–1978). For the latter international research centre he is at present member of the Board of Trustees. In-between and after his foreign assignments he travelled widely, in tropical and subtropical countries mostly and often in connection with joint research projects with his home University.

Prof. Scharpenseel published about 170 articles and was a contributor to the textbook 'Soil Biochemistry', edited by McLaren and Shujins (1970).

ACTIVITIES OF THE COMMISSIONS AND WORKING GROUPS
ACTIVITÉS DES COMMISSIONS ET GROUPES DE TRAVAIL
TÄTIGKEIT DER KOMMISSIONEN UND ARBEITSGRUPPEN

Working Group on Land Evaluation/Groupe de Travail sur evaluation des terres/Arbeitsgruppe über Landbewertung

Advance Notice

ISSS/ILCA/ITC WORKSHOP ON LAND EVALUATION FOR EXTENSIVE GRAZING

ILCA, Addis Abeba, Ethiopia, November 1983

Meeting of the International Society of Soil Science, Working Group on Land Evaluation (ISSS-LE), with the support of the International Livestock Centre for Africa (ILCA), the Food and Agriculture Organization of the United Nations (FAO), and the International Institute for Aerial Survey and Earth Sciences (ITC).

Aims and Scope

Evaluation of land for extensive grazing needs to be based on sound information of the land, including its vegetative cover, on the objectives and functioning of grazing systems and on the land requirements of these grazing systems.

This workshop is the continuation of a series of workshops on land evaluation methodology organized by, or in cooperation with FAO in connection with rainfed agriculture, irrigated agriculture, and forestry.

During the meeting the land evaluation concepts developed will be applied to extensive grazing, including lifestock and wildlife grazing in the (semi-)natural vegetation. The management systems may vary from nomadic grazing to sophisticated ranching, from game ranching to strict conservation.

Subject

The subject is divided into:

- Review of rangelands and their utilization in the world;
- Rangeland inventory methodology, techniques and classification;
- Existing evaluation (appraisal) systems;
- Concepts of modern land evaluation;
- Special problems of land evaluation for extensive grazing, compared tot agriculture and forestry
- Applications

Address

Persons interested in participating and in presenting technical papers are requested to write to the chairman of the Organizing Committee:

Prof. Dr. Ir. I. S. Zonneveld
c/o ITC, Department of Vegetation and Agricultural Land Use
P.O. Box 6
7500 AA Enschede
The Netherlands

At the appropriate time speakers and participants will be informed.

ISSS Subcommission on Salt affected Soils & Israel Sociey of Soil Science

Announcement

INTERNATIONAL CONFERENCE ON 'SOIL SALINITY UNDER IRRIGATION – PROCESSES AND MANAGEMENT'

The Volcani Center, ARO, Bet Dagan, Israel – 25–29 March, 1984

A meeting of Subcommission on Salf Affected Soils of the ISSS in collaboration with the Israel Society of Soil Science will be held at the Institute of Soils and Water of the Agricultural Research Organization, The Volcani Center, Bet, Dagan, Israel. The program will include paper presentation, symposiums and irrigation equipment exhibition. Special post-Conference trips to field experiments and advanced irrigation farming will be organized.

The main topics of the Conference will be:

1) Diagnostic criteria for soil and water salinity.
2) Movement and accumulation of salts in soils.
3) Irrigation management and field salt balance.
4) Chemical reactions and control of soil-physical properties.
5) Reclamation of saline-sodic soils.
6) Drainage for salinity control.
7) Management aspect of crop production under saline stress.

Language of the Conference: English

Registration fee will be $ 120.00 with an additional 10% for ISSS. The registration will cover: abstracts, transportation from Tel-Aviv to Bet Dagan and various social events. Accommodation will be in a 4-star hotel, in Tel-Aviv (12 km from Bet Dagan) and is expected to cost $ 25 per person per day in a double-occupancy room. Additional 30% for single-occupancy. A program for accompanying persons will also be arranged.

Attendance is limited, and an early response is advisable.

CONFERENCE ON SOIL SALINITY UNDER IRRIGATION
NOTICE OF INTENT
(Please type or print in block letters)

Name:. . . . . .
Title:. . . . . .
Address: . . . . . .
. . . . . .
Institution: . . . . . .

- ☐ I am interested in receiving further details on the Conference on Soil Salinity Under Irrigation.
- ☐ I expect to attend the Conference from 25–29 March, 1984.
- ☐ I shall be accompanied by . . . . . .
- ☐ I propose to submit a paper on . . . . . .
  . . . . . .

Date:. . . . . Signature: . . . . . .

This notice of intent should be returned by 1st March, 1983 to:
Conference Secretariat P.O. Box 3054, Tel-Aviv 61030, Israel.

ISSS-Subcommission on Salt-Affected Soils & Venezuelan Society of Soil Science

Announcement

INTERNATIONAL WORKSHOP ON SALT-AFFECTED SOILS OF LATIN AMERICA

Maracay-Barquisimeto, Venezuela, 23–29 October 1983

The *date* of the Meeting has been changed from February 1983 to October 1983, for reasons of programming and securing financial support.

The *program* of the Meeting will be:

Sunday October 23 (Maracay):	Registration and Opening Session
Monday October 24 (Maracay):	Symposium on 'Salt-affected soils of Latin America'.
Tuesday October 25 (Maracay):	Technical Sessions on Salt-affected soils of different parts of the World (paper presentations).
Wednesday October 26 – Saturday 29:	Field Tour (Maracay – Coro – Maracaibo – Barquisimeto).
Saturday October 29 (Barquisimeto):	Closing Session.

The complete Program, including details about Registration and Field Tour, will be mailed to all people showing interest to participate in the Workshop, by March 1983.

The *deadline* for receiving abstracts (500–1.000 words) is May 30, 1983; the deadline for receiving the complete papers (no more than 5.000 words) is September 30, 1983.

The *languages* are: Spanish, English, French.

The *Organizing Committee* is as follows:

President: Prof. Dr. Ildefonso Pla Sentís, Universidad Central de Venezuela

Vice-President: Ing. Agr. Angel V. Chirinos, Ministerio de Agricultura y Cría; Prof. Feyis Dappo, Universidad de la Región Centro-Occidental 'Lisandro Alvarado'; and Prof. Audio Atencio, Universidad del Zulia

Secretary-Treasurer: Prof. Adriana Florentino, Universidad Central de Venezuela

Member: Prof. Omar Rodríguez, Universidad Central de Venezuela

Information: Prof. A. Florentino, Apartado 1208, Santa Rosa, Maracay, Venezuela

ISSS Subcommission B. Soil Micromorphology – RESPONSE TO ENQUIRY

In the last ISSS bulletin (no. 61, p. 43) an enquiry for soil micromorphologists was published. Up to now somewhat more than 50 persons returned the form. The interests seem to be rather evenly spread over microstructure, general fabric analysis, mineralogy and weathering, whereas humus forms are apparently less popular. Most of the correspondents are applying micromorphology primarily to soil genesis. Several laboratories offer facilities (e.g. thin section preparation, XRD, SEM) on commercial base or free of charge. Most persons are interested in a publication of Micromorphological abstracts and are even willing to cooperate as regional abstracter. Moreover some interesting proposals were made e.g. exchange of impregnated slabs of typical soils etc.

In order to bring this enquiry to a good end, all micromorphologists that forgot to return the form to the Chairman of Subcommission B are asked to do this as soon as possible. Detailed information will be sent later to all participants of the enquiry.

G. Stoops, Ghent, Belgium

New Working Group PT/Nouveau Groupe de Travail PT/Neue Arbeitsgruppe PT

ENGINEERING PROPERTIES ON SOILS (PEDOTECHNIQUE). PROPRIÉTÉS CONSTRUCTUELLES DES SOLS (PÉDOTECHNIQUE) ZIVILTECHNISCHE EIGENSCHAFTEN VON BÖDEN (PEDOTECHNIK)

The ISSS Council as convening during the 12th ISSS Congress established this new working group in recognition of the individuality and potential scope of engineering aspects of Soil Science. For example, Engineering Interpretations have been included as major applications of soil surveys (Commission V) for more than two decades. Principles established Civil Engineering Soil Mechanics and Geotechnical Engineering are being used more and more frequently in Soil Technology (Commission VI). Principles established in Soil Science are at the same time used to solve Geotechnical engineering problems. Farm drainage, irrigation, road networks and buildings are now being designed by Agricultural engineers as well as Civil engineers. Other specialist fields in agricultural soils and forestry soils are developing (terrain trafficability, energy considerations in tillage of soils, etc.) and input from the Soil Scientist into these fields is logically developing. But for Soil Science to benefit, perhaps more encouragement is required to develop expertise from within Soil Science. It is noted that in a modern treatise a tillage of soils, less than 10% of the references quoted were from Soil Science sources (compared to 20% from non-agricultural sources). For Soil Survey Interpretations, professionals from other disciplines are frequently relied upon for consultation to a greater extent than professional expertise within Soil Science.

The first programme for this Working Group is to plan for a Technical Session at the next ISSS Congress. The session will explore the existence or the possibility of developing a technical base within Soil Science to formulate interpretations for farm (engineering) soil problems. This will provisionally entail papers on the following range of topics:

- Soil Tillage
- Soil Compaction
- Trafficability on Soils
- Farm Building and Soil Problems

The objective is to demonstrate state-of-practise. How are (or how should) soil scientists assess soils in relation to these farm related problems. The objective is also to develop some cooperative work between Soil Science specialists in Commissions V an VI. For this sessions, scientists in Commission VI, who will be submitting the papers, will be encouraged to develop interpretations for their research sites in such a way that they can also be generalized for application to broader concepts of mapping units. The mapping units are assumed to be pedological and pedotechnique intentionally differentiates engineering properties of soils known to the Soil Scientist from those kwown to geotechnical engineers and others. A good example of a publication resulting from a technical session of this type is given by Transportation Research Record 642 'Soil Taxonomy and Soil Properties', a publication of the Transportation Research Board, National Research Council, Washington, D.C. 1977. In this record, soil scientists of Commission V are interfacing with geotechnical engineering specialists on non-farm applications of soil technology. In the technical session proposed, the accent would be on farm related engineering problems and the Commission V soil scientists would interface with Commission VI soil technologists and agricultural engineers.

G. Wilson, Land Resource Research Institute, Central Experimental Farm, Ottawa, Ontario K1A OC6, Canada

REPORTS OF MEETINGS
COMPTES-RENDUS DE RÉUNIONS
BERICHTE VON TAGUNGEN

EGS SYMPOSIUM ON SPATIAL VARIABILITY OF SOIL PHYSICAL PROPERTIES

Leeds, England, August 1982

The yearly meetings of the European Geophysical Society were held in Leeds (UK) in August, 1982. One Symposium of interest for ISSS members dealt with the Spatial variability of soil physical properties. Twenty seven papers were presented by authors from nine countries, including the USA and Australia.

Geostatistical techniques are increasingly applied in soil science research to characterize data not only in terms of averages and standard deviations, as usual,but also in terms of the spatial dependance of individual data points. This aspect is particularly relevant for soil studies in the field, which often try to define properties of areas of land.

Theoretical aspects were covered by five speakers, illustrating use of various geostatistical techniques such as, for example, preparation of correllograms and semi-variagrams and use of interpolation techniques such as kriging and co-kriging. One aspect of interest was the observation that particular soil and land properties have different scales of spatial dependance. Exploratory surveys should therefore be made to establish these relationships, before large scale sampling is to take place.

An encouraging feature of this Symposium was the presentation of results of seventeen practical field studies, in which geostatistical techniques had been applied. Clearly, these techniques have moved beyond theoretical interest and are rapidly becoming indispensible tools in soil research. Studies ranged in scope from the variability of the microstructure of soil crumbs to the variability of soil physical properties within a large watershed. Emphasis was generally placed on water movement, but case studies covering solute movement, crop production and evapotranspiration were presented as well. Any statistical analysis tends to focus on the mathematical manipulation of data obtained. Five speakers have emphasized the urgent need to properly select measurement methods and associated calculation procedures. No statistical treatment can salvage data obtained by using the wrong method at the wrong time, at the wrong place. The physical characterization of clay soils, in particular, may offer serious problems in this context, as was emphasized and illustrated by three speakers.

Most of the papers presented will be published in a special issue of the Journal 'Agricultural Water Management' in early 1983.

J. Bouma, Wageningen, the Netherlands

NINTH INTERNATIONAL PLANT NUTRITION COLLOQUIUM

Warwick University, Coventry, England, 22–27 August, 1982

The Warwick University at Coventry, U.K., hosted the Ninth International Plant Nutrition Colloquium. Approximately 300 participants and quests from at least 35 nations met at the elaborate facilities of the Warwick University Campus where they were well accomodated in residences grouped around Rootes Hall. The congress was organized by professor D. J. Greenwood, Dr. A. Scaife, Dr. I. G. Burns and colleagues from the National Vegetable Research Station, Wellesbourne, Warwick, U.K. Programme arrangements (scientific as well as leisure) were outstanding in any aspect. Oral papers (15 + 5 minutes each) were presented in subsequent sessions (Art Centre

Lecture Hall) with ideal accoustics and perfect slide projections. Each day was concluded by a general discussion aimed at substracting essential progress and views put forward in the papers. Posters alternative to the oral presentations were exhibited daily between 12 and 15 hours, thus allowing all delegates to discuss amply at manned posters and/or in the lounge of Benefactor Hall. As in the case of the 1978 Colloquium in Auckland, New Zealand, the proceedings were presented to the delegates on their arrival. Mid-week excursions to different centres of research provided particularly those from abroad with the welcome opportunity to visit illustrious institutions such as the National Vegetable Research Station at Warwick, the ARC Letcombe Laboratory, the Imperial Chemical Industries Jealot Hill Research Station at Bracknell, or the Rothamsted Experimental Station, Harpenden. The tours passed through the lovely landscapes of the Midlands which presented themselves in the best English weather!

In the scientific programme, papers and posters concentrated in sessions on 'fertilization practices', 'diagnostic techniques and applications', 'root environment and nutrient uptake', 'Ca, Mg and trace elements' as well as 'physiology and genetics'. In his presidential lecture professor Greenwood stressed the need for more research and understanding on nutrient stresses, simple methods for effective relief and yield increase. Indeed, plant nutrionists as wel as soil scientists all over the world should be more concerned about this need than they have been in the recent past. This smouldering expectation was actually articulated by the Deputy Lord Mayor of Conventry during the reception of the delegates at the Museum of British Road Transport. Faced with this need, the gap between basic research aspects of plant nutrition and those concerned with applied work seems wide, if judged from the papers and posters presented at Warwick. Most of the presentations were well prepared, of high standard and carefully chaired by experienced scientists. The closing general discussions tended to dwell upon some broad and accidental comments rather than focussing on new and original presentations or interpretations. Participants undoubtedly had a fruitful and enjoyable week that culminated in a lively farewell party. The organizers deserve warm congratulations for their remarkable performance.

For those not fortunate enough to participate, copies of the carefully edited Proceedings (Vol. I and II) are available from the Commonwealth Agricultural Bureaux, Farnham House, Slough SL2 3BN, United Kingdom.

J. C. G. Ottow, Stuttgart-Hohenheim, F.R.G.

SIXTH MEETING OF THE WEST-AFRICAN SUBCOMMISSION ON SOIL CORRELATION AND LAND EVALUATION

Lomé-Togo, December 1981

This sixth meeting of the West-African subcommittee, organised by the FAO Regional Office for Africa, in co-operation with the 'Direction des études pédologiques et de l'écologie générale' (Ministère de l'aménagement rural – Togo), was held in Lomé, Togo, from December 7 to 12, 1981.

The meeting was part of a programme of soil correlation and land evaluation for the African continent, effectuated through regional West-african and Eastern African subcommittees. National members and technical observers congregate at such meetings, to report on progress in soil survey in the countries concerned; to present papers on selected topics and to study soils and soil conditions in the host country.

The meeting in Lomé was attended by 15 national delegates (Benin, Guinée, Guinée-Bissau, Upper Volta, Niger, Nigeria, Senegal, Sierra Leone, Togo and Cameroun) and 25 observers, amongst them representatives from FAO, ORSTOM, IRAT, UNESCO, B.I.S./O.A.M. and ISM.

During the first two days each delegate presented a paper, under the main topic chosen for this meeting: 'Evaluation des terres, critères physique-chimique utilisable et leur conversion en unités de mise en valeur'. The quality of the papers was fair but more time should have been allowed for the presentation and especially for the discussion. As most of the delegates were from French speaking countries, French was used as the main language during the seminar.

Three days were spent on a field excursion and to tour agricultural institutions between Lome and Sokodé. This field trip was well organised. The field guide presented ample information on climate, geology, etc. and included profile descriptions and laboratory data for all 13 soil profiles examined, which included mainly Luvisols and Acrisols. The discussion on the classification and management aspects of these soils was lively, however sometimes controversial; much of the discussion was focussed on the highly weathered members of the Acrisols and Luvisols, and their place in the various classification systems, in particular the USDA, French, FAO and Ghana systems.

At the closing session of the meeting some recommendations were made: the national governments were requested to set up or strengthen existing national soil survey organisations. FAO was requested to lend further support of the subcommittee, and to continue assisting the different countries in the region with the formation or strengthening of the national soil survey organisations.

I was proposed and accepted that the seventh meeting will be held in 1983 in Niger or Congo, with the theme: 'Evaluation des terres pour l'aménagement hydroagricole: étude de cas'.

The papers of the meeting and field excursion will be published in the FAO World Soil Resources Report Series.

For information on the African subcommittee meetings please contact: Dr. Rachim Sant'Anna, Regional Soil Resources Officer, FAO Regional Office, P.O. Box 1628, Accra, Ghana.

R. F. van de Weg, Amsterdam, the Netherlands

SECOND INTERNATIONAL SEMINAR ON LATERITIZATION PROCESSES

São Paulo, Brazil, 4–8 July, 1982

The second International Seminar on Lateritization Processes was held July 4–8, 1982, at the University of São Paulo, São Paulo, Brazil. Preseminar and post-seminar excursions took participants to several of Brazil's impressive mineral deposits, including Carajas, Niquelandia, Quadrilatero Ferrifero, and locations in central-southern Brazil. The excursions were forums for lively interactions and contributed much to the development of common perspectives.

The seminar included three days of formal presentations under the general headings of Lateritic Mineral Deposits, Lateritic Cover, Lateritic Soils and Engineering Applications. Contributors were geologists, pedologists, geochemists, engineers, and others concerned with laterite for agricultural or mining purposes or for significance to landscape evolution processes and geochemistry.

The First International Seminar on this subject was held in Trivandrun, India, three years earlier, under the auspices of the International Geological Correlation Programme (IGCP) of Unesco, via its International Working Group on Lateritisation Processes (IGCP project 129, see also ISSS Bulletin no. 57, page 26). At the present seminar, also the Working Group on Laterites and Laterisation of the International Association of Geochemistry and Cosmochemistry (IAGC) participated. P. K. Banerji, India, was convenor for the IGCP group. For the IAGC, the officers were J. Goni, France, Chairman; A. J. Melfi, Brazil, Vice-Chairman; and F. Mrna, Czechoslovakia,

Secretary. The Brazilian organizing committee was led by A. J. Melfi, President, and A. Carvalho, Secretary. All are to be congratutaled on a useful meeting.

Followings the formal sessions was a day of meetings of standing working groups. There was general consensus that the international and interdisciplinary communications fostered by the first two seminars were positive steps toward more effective exchange of information and technology transfer. Several steps toward common terminology were agreed upon, including progress on definition of laterite and classification of laterites. A subgroup on standardization of analytical procedures for lateritic material reported considerable work done and 2 to 3 more years of hard work yet to do.

The IGCP project terminates in 1983. The purpose of the project is to lay groundwork for better international correlation and information exchange. Plans were begun to request a new mandate. New objectives would include continued interdisciplinary participation, and possibly collection of lateritic materials at a central place, for international reference. Attention to description of processes and materials would continue. Those soil scientists interested to join in the interdisciplinary discussions may want to contact the Director, International Soil Museum, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

C. Steven Holzhey, Lincoln, USA

ANNUAL MEETING OF THE U.S. CLAY MINERAL SOCIETY
held in Hilo, Hawaii, August 8–14, 1982

Those attending this year's 19th meeting of the US Clay Mineral Society again focussed their interest on a wide range of clay and clay mineral research topics. Participants were housed in the pleasant atmosphere of the Naniloa Surf Hotel right at the beach on the island of Hawaii. Dr. Rolin Jones from the Dept. of Agronomy and Soil Science, University of Hawaii, Honolulu, HI 96822 organised the conference to perfection, thus guaranteeing the good fellowship that abounded at the sessions, on the field trips and at all conference functions.

The scientists present were particularly attracted to a special symposium on the Chemistry of Iron in Soils and Sediments, which contained opening review papers on 'Iron Oxides' by Prof. Dr. U. Schwertmann, and on 'The Study of Structural Iron in Clay Minerals' by Dr. B. Goodman. Other aspects of clay mineralogy dealt with at the meeting included topics as varied as the form of iron in podzols, structural properties of Al-goethites, the effect of iron oxide crystallinity on hardening and crust formation in soils, formation of kaolinite in an acid sulphate soil weathering environment, a mechanism for the alteration of olivine to smectite and red coloration changes in soils and sediments.

A booklet containing paper abstracts is available from Dr. Jones at the address given above.

A one day field trip dealt with Hawaiian geomorphology and a profile of the famous Hilo soil series, a classical Hydrandept, was described and explained by Dr. H. Ikawa from the University of Hawaii. Breathtaking scenic views were offered of recently active volcanoes and visits were made to a geothermal pilot plant, an anthurium farm, and a macadamia nut plantation. Problems of soil use in a rapidly changing economic climate were fully considered.

I feel that the intimate contact between soil mineralogists and other clay scientists that is documented in this annual meeting of the Clay Mineral Society is very profitable and should be kept alive.

U. Schwertmann, Freising, F.R.G.

Report on a working meeting on
COMPARISON OF METHODOLOGIES FOR COMPUTER-ASSISTED ASSESSMENT OF THE PRODUCTIVE CAPACITY OF LANDS
held at ISM in Wageningen, the Netherlands, 6–7 April 1982.

The future of mankind is closely linked with the world's capacity to meet the ever-growing demand for agricultural produce. It is therefore essential to know this productive capacity as well as the conditions under which it can be reached. During the last decade several studies have been undertaken that involve computer assisted models for quantitative land evaluation to make estimates of the land productive capacity on the basis of soil, climate and crop data under specified technological conditions.

Two organizations that have made considerable progress in this field are the FAO through its Soil Resources Management and Conservation Service and the Centre for World Food Studies (CWFS) in the Netherlands. The FAO has completed a study on the scale of continents that has become known as the Agro Ecological Zones project (see also ISSS bulletin no. 55, 1979/1), followed by the FAO/UNFPA Potential Population Supporting Capacity Project. Currently more detailed studies are being undertaken at country-level in cooperation with the International Institute for Applied Systems Analysis (IIASA).

The CWFS has formulated country models for physical crop production that are linked to an economic model for which it generates anticipated crop production data under specified technological and market conditions.

In view of the similarity of both approaches, the ISM has taken the initiative for convening a working meeting on the comparison of methodologies involved.

At the meeting, the 15 participants compared the respective procedures in relation with the aim of each study and the quantity and quality of available data. Attention was given as to how the models dealt with the variability in time and space of parameters, and how reduction factors were chosen to express losses in yield – either as a preselected figure or generated from basic data by the model itself.

In addition to the FAO and CWFS participation, the Kenya Soil Survey also contributed to this meeting by presenting an agro-climatic zone map, assembled without computer assistance, that can be used together with the exploratory soil map of Kenya to arrive at an assessment of the productive capacity of the country.

A number of conclusions and recommendations were formulated, as follows:

Aims

The aim of FAO/UNFPA/IIASA Project is to assess the potential population supporting capacity of lands (on a sound environmental basis) with different input levels and compare these estimates with data on present and projected populations to identify areas where land resources are insufficient (or in surplus) to meet present and projected food needs; to quantify inputs necessary/feasible to meet levels of food selfsufficiency/production targets within the constraint of land resource potentials.

The aim of CWFS, Wageningen branch is to develop tools that can be used to analyse different agro-ecosystems with a view to assess their production potential, the constraints that determine the actual level of production and the inputs required to bridge the gap between actual and potential production.

The aims are largely comparable; both provide information for use by high level planners and policy makers.

Methodolgies

Differences in approaches are apparent, viz.:

– the CWFS study is based on models describing the interrelationships of the basic processes governing crop production which are applied in studies of selected countries.

The CWFS works from national to global level. The global level linkage is to made through the linked system of national models covering the world, which are being developed by the Food and Agriculture Program of the International Institute for Applied Systems Analysis (IIASA) and its network of collaborating institutions.
– The FAO/UNFPA/IIASA study used regional soil and agro-climatic inventories as a starting point, and employed models to arrive at productivity assessment by application of accumlated knowledge of the relationships between land conditions and agricultural potentials. The FAO/UNFPA/IIASA project has worked from continental to national level.

Both methodologies compute crop specific production potentials after correction of gross, standard crop, biomass production for: crop species and temperature, crop development over time, leaf area, net dry matter production and harvested parts. Differences do however exist in the actual methods of calculation, in assessment of moisture availability, and in application of soil attributes, to arrive at estimates of land prouctivity.

The meeting recommended application of both methodologies to a specific land area to identify the importance of these differences as an aid to further liaison and as a guide for possible improvements.

Need for common terminology

Participants in the two projects agreed to include a glossary of employed terminology in their forthcoming publications, after mutual contacts. Main assumptions made in both approaches will be clearly indicated and summarized in the publications.

Research needs

Emphasis should be given to continuing development and refinement of the CWFS's crop production model, particularly with regard to the synthesis and mode of input of the various land qualities.

Continuing attention should be given, by FAO and other international organisations, to the updating of the published regional inventories of soil and agro-climatic resources.

In view of the lack of data for validation and adaptation of models and for quantification of the limitations of the various land qualities, the meeting recommends that studies be undertaken, in het framework of national and international research programmes, on the basic relationships and processes in the soils-climate-crop performance sphere.

Follow-up

The meeting expressed its appreciation to ISM for its initiative in convening the working meeting and hoped that it would be possible to continue the achieved exchange of ideas, and to compare results at a follow-up session under ISM auspices.

C. A. van Diepen, Wageningen, the Netherlands

For further information apply to:
G. M. Higgins, Project Coordinator, FAO, Via delle Terme di Caracalla, 00100 Roma, Italy, and
J. A. A. Berkhout, Centre for World Food Studies, P.O. Box 37, 6700 AA Wageningen, Netherlands.

SYMPOSIUM ON SOILS, GEOLOGY, LANDFORMS AND LAND USE PLANNING

Bangkok, Thailand, April 1982

The First International Symposium on 'Soil, Geology, and Landforms: Impact on Land Use Planning in Developing Countries' was held at the Ambassador Hotel, Bangkok, Thailand on 1–3 April 1982. The symposium, called LANDPLAN I, was organized by the Kasetsart University Alumni Association, Association of Geoscientists for International Development (AGID), Asian Institute of Technology (AIT), and the Agricultural Science Society of Thailand.

Experts from the fields of soil science, geography, geology and natural resource development were brought together with planners and decision makers to enhance their interaction relative to land use planning. Papers submitted to the symposium were available to the nearly 200 participants in a handsome 1000-page volume at the time of registration. This, in itself, was quite an accomplishment. The fine accommodations and organization were skillfully handled by Dr. Prinya Nutalaya, secretary of the organizing committee, and a dedicated staff.

Six guest lecturers from developed countries discussed land use planning problems and experiences dealing with soil and site evaluations, applications of geological information; terrain evaluation techniques, land use capability methods, land application of water, and benefit-cost analysis of natural system assessments. Fifty-four papers covering a broad spectrum of land use and planning activities were presented in six technical sessions. Soil, climate and agriculture –16 papers; geology and physical environment –7; landforms –4; water –7; engineering works and land use –7; and assessment, evaluation, and planning –13 papers. Throughout the symposium there was a lively and challenging interchange of ideas and experiences.

LANDPLAN I concluded with two panel discussions; one on impact assessment, and the other on planning approaches. The interest and active participation indicated a concern and need for a LANDPLAN II some time in the future.

A well-organized and documented field trip to northern Thailand was held 4–10 April, 1982. This unique opportunity highlighted and reinforced the many ideas expressed at the LANDPLAN I Symposium.

Additional information can be obtained from: Dr. Prinya Nutalaya, LANDPLAN I, P.O. Box 2754, Asian Institute of Technology, Bangkok, Thailand.

R. W. Arnold, Washington DC., USA

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

Norsk Forening for Jordforskning

The Norwegian Society of Soil Science elected its new Board members on 24th March 1982. The Board has now the following members:

Chairman	Eiliv Steinnes
Vice-Chairman	Ole Lie
Secretary	Arne Grønlund
Treasurer	Per Jørgensen
Member	Olav Prestvik

Address of the Secretary: P.O. Box 72, N-1432 As-NLH, Norway.

Japanese Society of Soil Science and Plant Nutrition (JSSSPN)

The Annual Meeting of the Japanese Society (formerly: The Society of the Science of Soil & Manure, Japan) was held at the Kyushu University during April 6 to 8, 1982. At the meeting 611 members participated, 351 papers were presented and 3 symposia were held. A Post-congress tour was arranged to study representative soil profiles on the Okinawa Island and on the Kyushu Island.

At the General Meeting, Dr. Y. Takai of Tokyo University was nominated as the new President of the Society.

Address of the Secretary: Dr. Toshio Kaneko, JSSSPN, 26-10-202, Hongo 6-chome, Bunkyo-ku, Tokyo-113, Japan.

Association Française pour l'Etude du Sol (AFES)

La composition du nouveau bureau de l'Association Française pour l'Etude du Sol, élu pour 3 ans, et tel qu'il découle des travaux de l'Assemblée Générale de l'A.F.E.S. en date du 3 juin 1982, est ensuite:

Président	G. Pedro
1er Vice-Président	J. Boulaine
2e Vice-Président	E. Servat
Secrétaire Général	J. C. Begon
Secrétaire Général adjoint	M. Jamagne
Trésorier	R. Betremieux
Ancien Président	N. Leneuf

Adresse du Secrétaire Général: CNRA-AFES, Route de Saint-Cyr, 78000 Versailles, France.

Australian Society of Soil Science Incorporated

The office-bearers of the Australian Society of Soil Science Inc. Federal Council from 1st July 1982 to 30th June 1974 are as follows:

President	Dr. J. S. Russell, CSIRO Division of Tropical Crops & Pastures, St. Lucia
Secretary	Mr. I. F. Fergus, CSIRO Division of Soils, St. Lucia
Treasurer	Mr. J. A. Mullins, Department of Primary Industries, Indooroopilly

The new Federal President of the Society, Dr. J. S. Russell, will be the Society's representative on the Council of the ISSS.

The J. A. Prescott Medal of Soil Science 1982 has been awarded to Dr. C. H. Williams, recently retired from the Division of Plant Industries, CSIRO.

Address of the Secretary: c/o CSIRO Cunningham Laboratory, 306 Carmody Road, St. Lucia, Queensland, 40067, Australia.

Soil Science Society of America (SSSA)

Dr. Rodney A. Briggs has been named Executive Vice President of the American Society of Agronomy, the Crop Science Society of America and the Soil Science Society of America, as per 1st October 1982. Until that date Dr. Briggs, a forage crops specialist, was President of Eastern Oregon State College at La Grande, Oregon. Among his earlier functions were: Associate Director and Director of Research of the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria.

Dr. Briggs succeeded Dr. Matthias Stelly, who retired as Executive Vice President after many years of dedicated services, including the liaison between SSSA and ISSS.

The editorial board of the *Soil Science Society of America Journal* changed membership effective January 1st, 1982. New appointments to the board for a three-year term (1982–1984) included: B. L. McNeal, Washington State University, Division S-2; K. K. Tanji, University of California-Davis, Division S-2; J. W. Doran, University of Nebraska, Division S-3; J. M. Duxbury, Cornell University, Division S-3; G. W. Randall, Southwest Experiment Station, University of Minnesota-Waseca, Division S-4; J. M. Bigham, Ohio State University, Division S-5 and R. F. Powers, USDA-FS, Pacific Southwest Forest & Range Experiment Station; Redding, California, Division S-7.

Dr. Roscoe Ellis, Jr., Kansas State University, will continue as editor-in-chief.

The 1982 Annual Meeting of the Society – jointly witht the Crop Science Society of America and the American Society of Agronomy – took place in *Anaheim*, the 'pick' of Southern California.

Adress of the Executive Vice President SSSA: 677 South Segoe Road, Madison, WI 53711, USA.

Societatea Nationala Romana Pentru Stiinta Solului

The Romanian National Soil Science Society had its 11th general meeting at the Braila Central Agricultural Research Station from 30 August to 2 September 1982.

The general topic was: 'The rational soil use and soil fertility conservation under irrigated and drained conditions in the North-East Romanian Plain'. About 200 delegates participated in the Conference, which consisted of a plenary session and sessions of the seven commissions of the Society.

On this occasion a new Council of the Romanian National Soil Science Society was elected to serve the term up to the 12th Conference which will take place in 1985. The new officers of the Society are as follows:

President	Prof. Dr. Gr. Obrejanu, Vice-President of the Academy of Agricultural and Forestry Sciences, Bucuresti
Vice-Presidents	Dr. Coneliu Răută, Director, Research Institute for Soil Science and Agrochemistry, Bucuresti
	Dr. Christian Hera, Director, Research Institute for Cereals and Technical Crops, Fundulea
	Dr. Irina Vintilă, Senior Research Soil Scientist, Research Institute for Soil Science and Agrochemistry, Bucuresti
Secreatry	Dr. Dumitru Teaci, Scientific Secretary, Academy of Agricultural and Forestry Sciences, Bucuresti

Address of the Secretary: ASAS, Bd Marasti 61, sector 1, Bucuresti, Romania.

Nederlandse Bodemkundige Vereniging (NBV)

The Dutch Soil Science Society elected new office-bearers at its business meeting of 10th June 1982, as follows:

President	Dr. Ir. J. Bouma
Vice-President	Dr. Ir. N. van Breemen
Secretary	Dr. R. G. Gerritse
New Members	Ir. G. W. W. Elbersen, Ir. J. N. M. Paulusse, Ir. G. J. Flórián, Ir. J. M. Keestra and Ir. J. W. Bakker

The 91th Scientific Meeting of the Society took place in Wageningen, 11th November, 1982, with as topic: 'Nutrient cycles in the tropics'. The 92th Scientific Meeting will be held on 18 and 19th May, 1983 and will discuss 'Water movements in heavy clay soils'.

Address of the Secretary: c/o Institute for Soil Fertility, Postbus 30003, 9750 RA, Haren (Gr), The Netherlands.

APPOINTMENTS, HONOURS - NOMINATIONS, DISTINCTIONS ERNENNUNGEN, AUSZEICHNUNGEN

Dr. **Rudy Dudal,** Director of the Land and Water Development Division of FAO-Rome, and former Secretary-General ISSS, received the Honor Award 1982 of the Soil Conservation Society of America, in recognition of his 30 years-of-distinguished service in soil survey and agricultural development projects around the world.

Dr. **Alain Ruellan,** spécialiste en génèse et classification de sols et jusqu'à présent professeur de la Chaire de science du sol à l'Ecole Nationale Supérieure Agronomique à Rennes, France, fut nominé Directeur Général de l'Office de la Récherche Scientifique et Technique Outre-Mer (ORSTOM) à Paris, France.

Dr. **David E. Smiles**, soil physicist, was appointed Chief of the Division of Soils of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Adelaide, Australia.

Dr. **Juan A. Comerma**, soil classification specialist, was appointed Director of the Centro Nacional de Investigaciones Agropecuarias (CENIAP) in Maracay, Venezuela.

Dr. **M. S. Swaminathan,** plant geneticist and co-patron of the 12th International Congress of Soil Science, was appointed Director-General of the International Rice Research Institute (IRRI) in Los Baños, Philippines.

CONGRATULATIONS! FÉLICITATIONS! GLÜCKWÜNSCHE!

Korrektur: Das neue Ehrenmitglied der IBG **Prof. Dr. H. C. Wolfgang Flaig** (nicht Wilhelm) war zweimal Vorsitzender der Kommission II und zwar in den Perioden 1960–1964 und 1974–1978, jedoch nie Vize-Vorsitzender (cf. IBG Mitteilungsblatt 61, Seite 26).

IN MEMORIAM

Prof. Dr. Julius T. Fink (1918–1981)

Am 2. April 1981, kurz vor Vollendung seines 63. Lebensjahres, verstarb völlig unerwartet und inmitten seiner Forschungs- und Lehrtätigkeit stehend Prof. Dr. Julius Thomas Fink, langjähriger Präsident und Ehrenmitglied der Österreichischen Bodenkundlichen Gesellschaft sowie Vorstandsmitglied seit Begründung derselben, Mitglied der Österreichischen Akademie der Wissenschaften, Leiter bzw. Vorsitzender verschiedenster Kommissionen in weiteren nationalen wie internationalen wissenschaftlichen Organisationen, wie z.B. INQUA, DEUQUA und Ehrenmitglied wissenschaftlicher Vereinigungen des In- und Auslandes, ausgezeichnet mit verscheidenen Orden, u.a. des großen Ehrenzeichens für Verdienste um die Republik Österreich.

Prof. Fink wurde am 18 April 1918 als Sohn einer Wiener Beamtenfamilie geboren und studierte nach Matura 1936 von 1937 bis 1944 Geographie und Geologie an der Universität Wien, unterbrochen durch Kriegseinsätze sowie schwere Verwundungen und Lazarettaufenthalte. Von 1944 bis 1967 arbeitete er als Assistent am Institut für Geologie an der Universität Wien sowie am Institut für Bodenforschung und Geologie der Universität für Bodenkultur in Wien mit Habilitation 1950. 1967 wurde Julius Fink zum Extraordinarius für Geologie am Institut für Bodenforschung und Geologie an der Universität für Bodenkultur ernannt und 1969 zum ordentlichen Universitätsprofessor für Geographie an der Universität Wien.

Mit dem Tode von Prof. Fink verlor die Österreichische Bodenkundliche Gesellschaft nicht nur einen der hervorragendsten Wissenschaftler, der nach dem 2. Weltkrieg die Gesellschaft mitbegründet und an deren Aufbau wesentlich beteiligt war sondern gleichzeitig auch einen der Begründer der derzeitigen österreichischen Bodensystematik sowie wesentlichen Förderer der österreichischen Bodenschätzung und Bodenkartierung.

Prof. Fink hat durch sein großes menschliches Format, seine Ausstrahlung und Überzeugungskraft viele Studentengenerationen und insbesondere Bodenkundler sowie Quartärgeologen geformt. Darüber hinaus hat er durch annähernd hundert Publikationen auf den Gebieten der Geomorphologie, Quartärforschung, Paläopedologie, Bodenkartierung und Bodensystematik wesentliche wissenschaftliche Beiträge in diesen genannten Gebieten geleistet und die wissenschaftlich fachliche Entwicklung der österreichischen Bodenkunde entscheidend mitbestimmt.

Prof. Fink hinterläßt seine Frau Friederike sowie seine Tochter Frieda und seinen Sohn Kurt, denen die Österreichische Bodenkundliche Gesellschaft sowie viele Fachkollegen und Freunde im In- und Ausland in gemeinsamer Anteilnahme eng verbunden sind.

Winfried E. H. Blum, Wien, Austria

FURTHER ECHOS FROM THE 12th CONGRESS' TOURS
D'AUTRES ÉCHOS DES EXCURSIONS DU 12ème CONGRÈS
WEITERE BERICHTE ÜBER STUDIENREISEN DES 12. KONGRESSES

Post-Congress tour no 1, to North and West of New Delhi.

Delhi was never dull, but it was with a sense of relief and relaxation that we left Delhi in our bus for the start of Tour 1. It was good to be out of the big city and in to the rural scence.

This tour, like the others, was a soil science tour rather than a tour of soil profiles. It provided an opportunity to visit the agricultural university of Haryana (HAU) and Punjab (PAU) at Hissar and Ludhiana, respectively, and the Central Soil Salinity Research Institute (CSSRI) at Karnal. Also included were examples of soil and water conservation in the Sivaliks, fertiliser production at Nangal, the irrigation systems of the north-west plains, a progressive farm in the Punjab, and crops and fruit growing in Himachal Pradesh. Five representative soil profiles were studied in detail.

We saw several aspects of the irrigation system of north-west India, including the Bhakra Dam on the Sutlej River. Another aspect was theHarrike Barrage. At Harrike pattan where the Beas meets the Sutlej, a barrage constructed on the latter gives rise to the Rajasthan Canal and Firozpur feeder. The main Rajasthan Canal and its associated lift irrigation systems constitute one of the major irrigation projects in India. The Rajasthan canal and its associated lift irrigation systems cover an area of 3.15 million ha. This gigantic project, while making precious water available to the perpetually drought affected arid parts of Rajasthan, presents problems of water management including prevention of secondary salinisation.

During the Tour we inspected five profiles, four being representative soils of the Indo-Gangetic alluvial plain: a saline soil (USDA: Salic Calciorthid), a potentially saline soil (Typic Ustochrept), a sodic soil (Typic Natrustalf), and a soil in old alluvium overlain by aeolian sand (Psammic Ustorthent). The fifth profile (Cumulic Hapludoll) was located in an apricot and plum-orchard at 1500 m elevation in the foothills of the Himalayas.

All too soon the tour was over. A great success – due in no small way to the planning and charm of our tour leader Dr. Gian Bhargava.

C. Childs, Lower Hutt, New Zealand

Excursion après-congrès No. 3, New-Delhi – Jaipur – Jodhpur – Aurangabad – Bombay

L'excursion a eu lieu par avion entre les différents points d'arrêt. L'objectif essentiel de cette excursion était d'examiner les sols des régions arides et leur utilisation.

Le paysage aride couvrait plusieurs formations géologiques et particulièrement des dunes de sables éoliens, des sédiments variés et une région basaltique qui s'étend de la zone aride en transitions, vers le climat semi-aride.

L'exursion comprenait aussi und visite à l'Institut Central de Recherches dans les zones arides (CAZRI).

Les Sols:

Pédon 1: Emplacement: Station de Recherches Agronomiques à Durgapura. Climat aride, Régime d'humidité Ustique.

Classification (provisoire): Ustipsamment, typic hyperthermic (USDA); Sol peu évolué alluvial, modal (CPCS); Cambic Arenosol (FAO/Unesco)

Pédon 2: Emplacement: Phinch (région de Jodhpur). Climat aride, Classification (provisoire): Camborthid, typic, mixed, hyperthermic (USDA); Sol brun, sub-aride (CPCS); Calcic Yermosol (FAO/Unesco)

Pédon 3: Emplacement: Chikalthana, Climat: Semi-aride.

Classification: (provisoire): Chromustert, typic, fine, montmorillonitic, isothermic (USDA); Vertisol à drainage externe réduit, massive, modal (CPCS); Chromic Vertisol, sodic phase (FAO/Unesco)

Autres sols ont été observés sans êtres classés à cause de manque de données analytiques.

Les stations de Recherches Agronomiques

Le tour 3 comprenait des visites à des stations expérimentales en agricultures dans les zones arides et surtout la station de CAZRI à Jodhpur. Le programme comprenait aussi des visites à des fermiers privés où les participants pouvaient s'informer directement sur le terrain sur les différents problèmes agronomiques rencontrés par l'agriculteur de la région.

Les participants

28 participants ont choisi le Tour 3 représentant la pédologie, la chimie et la physique des sols, et l'agriculture en général. Ils sont repartis sur 9 nationalités différentes. La nationalité chinoise était la plus representée.

Les sites touristiques

Plusieurs sites touristiques étaient visitées en cours du Tour 3, et principalement des temples, des chateauforts et des ruines. Les plus impressionnantes étaient les caves boudhistes d'Ajanta.

Remarques personnelles

Le Tour 3 était très bien organisé et mériterait la félicitation aux organisateurs. Cependant le nombre de profils de sol examiné était limité et les participants auraient souhaités de voir plus de sols.

A. Osman, ACSAD, Damascus, Syria

Post-Congress Tour No. 2, to Roorkee, Dehra Dun, Mussoorie, Haridwar, Nainital and Rantnagar.

Tour no. 2 was a 7-day, 1048 km circuit from Delhi across the Indogangetic plain, along the foothills of the Himalayas, and back to the capital.

Indogangetic Plain

A vast, apparently flat tract of country, mostly intensively used for cropping, but often with trees either scattered or in small clumps. Trees had been planted all along roadsides as an alternative source of fuel to the ubiquitous dung pats, the use of which is depleting the basic alluvial soils (Ustochrepts, Ustifluvents in the US Soil Taxonomy system) of much needed organic matter. At the time of our visit, sugarcane was being harvested from relatively tiny plots and transported by either bullock or buffalo carts to the nearest of a very large number of sugar refineries, of all shapes and sizes. The other inescapable feature of this countryside is the presence of numerous brickworks which are slowly lowering the level of the land. Abandoned excavations are unproductive and there appear to be few attempts to manage them.

Of the many very good research institutes we visited on the tour, those concerned with research on the plains were concentrating on managing irrigation water an nutrients to better advantage as well as improving crop production and diversifying the crops produced.

Himalayan Foothills

Part of our tour was based on the township of Dehra Dun, located in a valley within the first range of Himalayan foothills, the Siwaliks. The slopes would be classed as steep and many of them were long as well. Some areas are still forested, mainly with

a broadleaved tree called sal (*Shorea robusta*) under which there are termite mounds, but large tracts have been stripped for firewood and/or are overgrazed, leading to widespread erosion. Erosion has also resulted from mining activities to extract limestone, and roads have been built in highly improbable places. The problems are well recognised and we saw experiments aimed at stabilisation which appeared successful on a small scale. Control on a large scale seemed to require more drastic action.

During this phase of the tour we visited two of the old British hill stations, Mussoorie (2000 m ASL) and Nainital (2250 m). The former straddles a narrow ridge and the latter surrounds an attractive lake. Next came the Corbett Tiger National Park comprising steep, jungle-clad hills and a large terraced river valley, savannah-like with elephant grass, where tigers, and all other game are protected from shooting.

People

Our main tour leader was Mr H. S. Iyer, head of the Indian Photo-Interpretation Institute, Dehra Dun, quietly spoken, studious and capable. He had his hands full with our group in which a strong streak of individualism was apparent. There were people from Italy, Holland, Japan, Malaysia, Thailand, America, Australia, Scotland, Norway and New Zealand. Dr. S. K. Samra of the Forest Research Institute, Dehra Dun, was a co-leader of our tour and the sheepdog to us sheep. His 'come on now please, we are late' became the watchword of the group, but his smile and constant good humour were major contributions to the tour's success.

Conclusion

It is very difficult to summarise 3 weeks of intensive cultural experience. It is also a banal truism to say that India is a vast and diverse country. People are everywhere in all their variety of coloured costumes, living out patterns of existence mostly very different from our own, some little changed for literally centuries and some highly attuned to the age of the neutron bomb. Food does not appear as short as one might imagine it might have been, in the areas I travelled in. Trapping of what we call 'western' technology, such as transistor radios, are in most places although not necessarily in large numbers. Many manufactured goods are Indian, and they often function very well indeed. Extremes of wealth and poverty do exist. There is evidence of widespread national participation in plans that are working out. Many aspects of organisation, even with its undefinable eastern essence, are efficient.

G. Mew, Nelson, New Zealand

Nach-Kongreß-Tour No. 3 nach Rajasthan und Maharashtra

Die (statt 8-nur) 6-tägige Exkursion führte per Flugzeug von Neu-Delhi über Jaipur, Jodhpur, (Bombay) und Aurangabad nach Bombay. Auf Busfahrten wurden die Sehenswürdigkeiten in und nahe diesen Städten (außer Bombay) besichtigt, nämlich Fort Amber bei und Pink City in Jaipur (je 1/2 Tag), Fort Jodhpur sowie Ellora (1/2) Tag) und Ajanta Caves (1 Tag) bei Aurangabad, Farmen bei Jaipur und Jodhpur (je 1/2 Tag) sowie das Central Arid Zone Research Institute (CAZRI) in Jodhpur (1/2 Tag) besucht und an 2 × 1/2 und 1 Tag 4 Bodenprofile demonstriert. Obschon das touristische Programm sehr eindrucksvoll war (besonders die in Basalt gehauenen Höhlen um Aurangabad), soll hier nur über den bodenkundlichen Inhalt der Exkursion berichtet werden; denn ihm galt das Hauptinteresse der meisten Teilnehmer.

Vom Flugzeug aus war ein guter Überblick über die nur wenig (z.B. in den Aravalli-Bergen, einem der ältesten Gebirge der Welt) tektonisch verformte und bis auf einige Härtlinge weitgehend pediplainierte und quartär mit fluviatilen und äolischen Sedimenten überdeckte Indische Masse zu gewinnen. Das semi-aride NE-Rajasthan ist

stärker fluviatil als äolisch geformt. Neben eutric Cambisols, untergeordnet calcaric Fluvisols und orthic Solonchaks, herrschen cambic Arenosols (Profil 1). Geringes Alter und starke sommerliche Durchfeuchtung machen geringe Lessivierung, Soloni- und Salinisierung verständlich. Ertragsbegrenzend sind $P < Mg < K < N < H_2O$. Bei intensiver Bewirtschaftung werden ansehnliche Erträge erzielt.

Das aride SW-Rajasthan ist stärker äolisch als fluviatil geformt. Neben luvic Yermosols und orthic Solonchaks herrschen auf altalluvialen, schwach zertalten und regelmäßig übersandeten Flächen calcic Yermosols (Profil 2), die bis auf eine höhere Wasserkapazität den cambic Arenosols entsprechen und bei Bewässerung ähnlich genutzt werden. Übernutzung ist die wesentliche Ursache für die rezente Desertifizierung unter Erosion des etwas humoseren Oberbodens und Übersandung von Äckern bis zum Begraben unter mächtigen Dünen (wovon die Exkursionsteilnehmer 'dank' einsetzenden Sandsturmes einen tiefen Eindruck bekamen). Hier herrschen albic Arenosols, die trotz starken N- und Wassermangels noch bzw. schon 'ackerbaulich' genutzt werden. Die Folgen der Erosion versucht man durch Aufforstung, die Ursachen durch Bewässerung zu beheben. Wesentlichen Anteil an der Einführung neuer Industrie-, Futter- und Nahrungspflanzen hat das CAZRI.

Der zum Gebiet der Trapp-Basalte im Deccan-Plateau (größtes Basaltgebiet der Welt) gehörende W-Teil von Maharashtra war unter tropisch-semi-humiden Klima von Wald bedeckt, von dem aber nur noch Spuren vorhanden sind. Die Catenen bestehen aus Lithosols – chromic Cambisols – chromic Vertisols – pellic Vertisols. Vorherrschend sind in den Ebenen chromic Vertisols (Profil 4), die arm an K sowie an verfügbarem N und P, wechselnaß und -dürr sowie schwer bearbeitbar sind, gleichwohl aber relativ intensiv genutzt werden (bei Bewässerung Baumwolle und Zuckerrohr).

Profile und Nutzungsprobleme wurden von den Herren Kolarkar, Dhir (Rajasthan) und Landey (Maharashtra) so eingehend erläutert, wie das Programm ihnen dafür Zeit ließ. Dafür dankten ihnen die Teilnehmer und dankt ihnen nochmals der Unterzeichnende.

E. Schlichting, Stuttgart-Hohenheim, BRD

Post-Congress Tour No. 5, to Maharashtra, Andhra Pradesh, Orissa and West Bengal

Tour 5 covered that part of India that is situated between 12°14' and 27°16' N latitude, and 72°06' and 89°55' E longitude. The excursion concentrated on soils and land use in the surroundings of some key areas: Nagpur (Maharashtra), Hyderabad (Andhra Pradesh), Bhubaneswar and Puri (Orissa) and Calcutta (West Bengal). Travel between these stations was by plane. Our group consisted of near 30 participants.

In this tour Vertisols received much attention. Black soils cover approximately 60,000 hectares in India. Two of the main centres for the study of Vertisols are Nagpur and Hyderabad. Red soils – mainly Luvisols (Alfisols) – were observed in the Hyderabad region. Soils of an alluvial delta, shallow soils on laterite, coastal sand dunes and saline coastal soils were studied in Orissa and West Bengal.

Nagpur is in the heart of India's black soil region. At the Futala farm of the Central Institute of Cotton Research and the Agricultural University the main crops grown are cotton, maize, sorghum, wheat and pulses. There is both rainfed and irrigated agriculture. Three pedons were shown that were members of a catena; from highest to lowest landscape position: a Lithosol (Typic Ustorthent) on residuum from basalt, a Lepto-Vertic Cambisol (Vertic Ustochrept) on weathered basalt, and a Vertic Cambisol (Vertic Ustochrept) on basalt outwash. In the Nagpur College Farm a Chromic Vertisol (Typic Chromustert), developed in basaltic alluvium, was shown. The manner

in which slickensides were aligned, suggested the potential of this soil to form a gilgai microrelief. Cultivation prevented the development of gilgai microrelief at this site. Gilgai was distinct, however, in a public grassfield in Nagpur. We arrived there at the time that classes ended, and our perusal of the uneven surface evoked much curiosity by the Nagpur boys and girls.

Nagpur is the seat of the National Bureau of Soil Survey and Land Use Planning (NBSSLUP), and of one of the Regional Centres of the Bureau. The Director, Dr. R. S. Murthy, gave an introduction, a press conference was laid on and a short visit was made to the main divisions of the Bureau.

The second and last day at Nagpur was devoted to a study of geology and soils of the region, a visit to the Mansar manganese mines, and a visit to Mr. Chinaya's farm at Khandala. In this farm modern technology has been applied. The farm has 2000 organe trees, irrigated rice, and some other crops like wheat and potatoes. There is an extensive irrigation system, a brick factory and a gas plant that uses cattle dung. The Tour Guide Book quotes Mr. Chinaya's rice yields as 20 to 22 quintals per hectare, whereas nearby farmers obtain only 10 to 12 quintals/hectare; why yields are so greatly different between farmers in the same region is not explained. Our party was received with great hospitality; we ate lots of oranges and enjoyed a beautiful lunch.

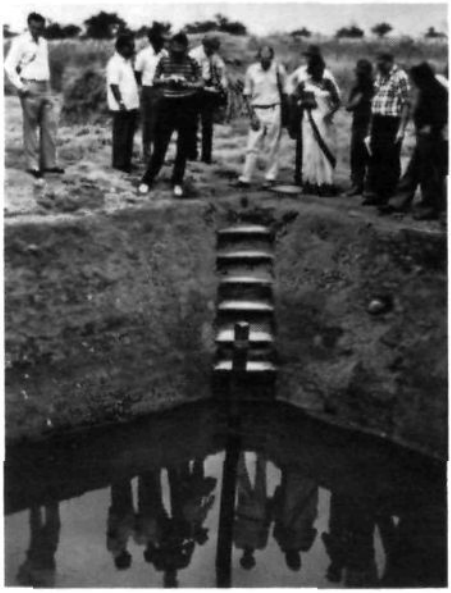
ICRISAT at Hyderabad lodged us for three days. The ICRISAT staff demonstrated their research on watershed-based farming systems, aiming at an optimum use of the low and erratic rainfall, prevention of surface soil losses, and the production of two crops annually. The extensive ICRISAT farm comprises both Luvisols (Alfisols) and Vertisols, but most of the research work is on Vertisols. The farming systems research at ICRISAT has been presented at the Vertisols Symposium of the Delhi Congress by Dr. Virmani (J. S. Kanwar, J. Kampen and S. Virmani: Management of Vertisols for maximising crop production), while Dr. A. S. Juo, from IITA, Ibadan, has reported on the visit of Tour 6 to ICRISAT (ISSS Bulletin no. 61, 1982/1). The reader is referred to these reports.

Dr. J. R. Burford took the participants on an excursion to the Shankarpalli plateau and showed the main landscape features. Granites and gneisses of Archaean age have formed an undulating landscape with rocky hills and tors, piedmont slopes and valleys. Alfisols cover the lower slopes. Lower Eocene to Upper Cretaceous Deccan Trap (plateau basalts) overlie the Basement Complex rocks over large areas. The basaltic landscape has long, gentle slopes, and is covered by shallow and medium deep black soils. Deep black soil covers the alluvial plains of mixed granitic and basaltic origin. The absence of residual black soils of sufficient depth to be classified as Vertisols, was attributed to soil erosion during centuries of cultivation.

On Sunday morning 21st February the participants were received by the Director and staff of the National Remote Sensing Agency at Hyderabad/Secunderabad. The impressive equipment available includes a receptor for data from Landsat satellite.

The All India Coordinated Research Project for Dryland Agriculture focuses its attention on Alfisols. We visited the experimental fields at Hayatnagar and were given an introductory talk on the work of the Project, that also includes 23 regional centres. It was stressed that with the existing technology and with no increase in the general level of costs the production on farmers fields could be doubled and that on experimental fields increased by 100 to 300%. It was found that when the soil has a moisture storage capacity of over 20 cm, the rainfall is 800 mm or above, and the growing season is at least 30 weeks, intercropping and doublecropping are possible.

The experiments at Hayatnagar, conducted on coarse-textured Alfisols, were on soil and water conservation by contour bunding, by the use of grassed waterways, and by collecting excess runoff water in tanks (soil crusting is a serious problem, leading to considerable runoff!). Tanks were of different type: asphalt lining, plastic sheet overlaid with bricks, and brick work with cement plastering.



Not a soil profile pit ..., but a tank for collecting excess run-off water from an experimental plot of the All-India Coordinated Research Project for Dryland Agriculture, Hyderabad.

In the free afternoon there was an opportunity to see the impressive Charminar Monument, the curious Salarjung Museum and other historic places.

On the last day at Hyderabad a visit was made to the All India Coordinated Rice Improvement Project at Rajendranagar, that carries out research on upland, paddy and flooded rice. The soils of the experimental farm contain over 50% smectite clays. Water losses through seepage are in the order of 1–2 mm/day, those through evapotranspiration 15 mm/day. Various fertiliser experiments on paddy rice were shown.

Before leaving for Bhubaneswar we were received at the Andhra Pradesh Agricultural University, one of the three agricultural campusses of the State, that, taken together, have a student population of about 3000 and an annual output of 400 graduates. The University operates on a land-grant system and has teaching, research and extension as objectives.

The coastal plains of Orissa appeared moist-tropical after the dry heat of Nagpur and Hyderabad. The extensive delta of the Mahanadi and Devi Rivers, with paddy rice and villages shaded by palm trees, covers most of this region, but there are also exposed laterite crusts and a wide belt of sand dunes along the Bengal coast.

The Vice-Chancellor of the Orissa University of Agriculture and Technology at Bhubaneswar received the participants. Earlier we had visited the experimental fields. The typical soil of the farm, the Bhubaneswar series, is a yellowish-red sandy loam to sandy clay loam, overlying vesicular laterite. The pedon shown was a Plinthic Acrisol (Typic Haplustult).

Extensive areas are capped by laterite, sometimes under a shallow soil cover. These eroded soils can not produce food crops, but cashew nut appears to be very profitable. Next to cashew there are extensive plantations of *Eucalyptus*. In a nearby quarry laterite was cut into blocks for building.

Cuttack is, with half a million inhabitants, the largest town in Orissa. It is situated in the apex of the delta, that stretches 60 km towards the coast. After the development of the Mahanadi canal system cultivation has both intensified and widened. Rice is now grown three times a year at places, and crops like pulses, oil seeds and jute are grown in alternation with rice. Cuttack is also the seat of the Central Rice Research Institute that serves the whole country. It has eight divisions of which Soil Science and Microbiology is one of the largest. One of the research projects shown was on the use of *Azolla* as a biofertiliser. In another experiment water movement through the soil was studied in connection with rice cultivation. Moisture stress was measured in tensiometers connected with ceramic cells at depths of 10, 20, 30 and 40 cm.

In the coastal region of Puri and Konarak the Forest Department and the Soil Conservation Department of Orissa have planted 11.000 hectares of sand dunes. Initially, moving sand is stabilised by *Casuarina* trees. *Casuarina* adds organic matter to the soil and acts as a shelter for other species like coconut, cashew and mango. The plantations not only fix the sand dunes but give valuable produce as well: fire wood from *Casuarina*, and cashew nuts for export. The typical profile shown was an Eutric Arenosol (Typic Ustipsamment). The surprising success of tree plantations on these excessively drained soils is at least partly due to a high ground water table – at less than 1 m depth – during the rainy season.

Orissa has an abundance of Hindu temples. We visited, in a tremendous speed, a few of the many beautiful temples in and around Bhubaneswar. Fortunately, there was more time to observe Hindu pilgrimage at the Jagannath temple in Puri, and to marvel at the sculptures of the Sun Temple or Black Pagoda of Konarak. At Puri our party was lodged in the oldfashioned South Eastern Railway Hotel, close to the beach, and for once there was no air-conditioning but a fresh breeze from the sea.

From Calcutta, the final station of our trip, a visit was made to the Central Soil Salinity Research Institute, at Canning, a representative site of coastal saline soils. Such soils cover an estimated 2 million hectares of a total 7 million hectares of salt-affected soils in India. The Institute has 12 hectare farm where the highly saline ground water fluctuates between 0 and 100 cm depth. Three salt-resistant rice varieties have been screened out; they have a growing season of 120 days. Two soil series occur on the farm; one of these, the Canning series, is a Gleyic Solonchak (Typic Halaquept) of which a pedon was demonstrated: a hydromorphic soil with a strongly saline surface horizon.

With a lavish lunch in Calcutta, and a visit to the large and interesting Geology Section of the National Museum, the tour came to an end.

Tour no. 5 was a stimulating experience; it acquainted us with soil science and agriculture in some widely different parts of India. One does not easily forget the hospitality and care with which we were everywhere received. Often one felt embarrassed because so little time could be spent on experiments, presentations and exhibits so carefully prepared for this excursion. Many or our Indian colleagues must have worked very hard to make this tour asuccess. Naturally, every excursion leaves some wishes unfulfilled. I would have preferred more visits to farmers fields and fewer to experimental fields, but this remark is placed in the margin of a very successful tour.

Special thanks are due to all Indian colleagues that received us, showed their work to us, and offered hospitality. Our two companions throughout the trip deserve to be mentioned separately: Dr. J. C. Bhattacharjee, our 'distinguished leader', in the words of one of the participants, whose patience and good temper were never ending, and Mr. Sen, our tourist guide, who with great precision watched over our well-being, and who solved many complicated travel arrangements.

W. A. Blokhuis, Wageningen, The Netherlands

Fifty-five years ago:

THE TRANSCONTINENTAL EXCURSION FOLLOWING THE FIRST INTERNATIONAL CONGRESS OF SOIL SCIENCE

(Washington-DC, USA, June 13–22, 1927)

The very first soils excursion organised under the auspices of ISSS was an organisational feat of the first order. The 30-days tour, organised by J. G. Lipman, O. Schreiner, C. F. Marbut and A. G. McCall ('the big four') crossed all of the USA and parts of Canada (see maplet).

The mode of transport was a special train, made up of 14 sleeping cars, two dining cars and a conference cum administration car. There were about 300 participants, including well-known soil scientists like Sir E. J. Russell of the U.K., K. D. Glinka of the USSR, T. Saidal of Romania, D. J. Hissink of Holland (the then Secretary-General of ISSS), A. Penck of Germany, A. A. J. de Sigmond of Hungary, A. Reifenberg of Jerusalem, E. Truog and S. A. Waksman of the USA.

Here are some photographs and newspaper clippings of this memorable event, by courtesy of Dr. J. C. F. Tedrow of Rudgers University (*address:* P.O. Box 231, New Brunswick, N.J. 08903, USA).

Route of the American Transcontinental Excursion.

Dr. C. F. Marbut lecturing on the soils of the Lake Agassiz Basin.

THE PUEBLO STAR-JOURNAL, PUEBLO, COLORADO — Wednesday, June 29, 1927

SOIL EXPERTS INSPECTING VALLEY REGIONS THURSDAY

Scientists of World Wide Fame Visitors At Farms Near Rocky Ford

ROCKY FORD, June 29.—The coming to the Arkansas ... of delegates from the International Congress of Soil ... for the first time, brought to general attention ... of the entire Arkansas valley from Canon ...

Greensboro Daily Record

AFTERNOON EDITION

PROGRESSIVE—PUBLISHED AFTERNOONS AND SUNDAY MORNINGS—CONSTRUCTIVE

GREENSBORO, N. C., THURSDAY EVENING, JUNE 23, 1927

SOIL SCIENTISTS OF WORLD VISIT CITY

Some 275 Strong They Arrive For Inspection Trip

Experts From 27 Countries Are In Greensboro and Guilford County Today To Study Soil Of This Section.

Visiting a farm machinery plant in Illinois.

Edmonton Journal

LAST EDITION

EDMONTON, ALBERTA, WEDNESDAY, JULY 13, 1927

WORLD SCIENTISTS DIG IN EDMONTON LOAM

SOIL PROFILES ARE EXAMINED BY SCIENTISTS

The Des Moines Register

The Newspaper Iowa Depends Upon

DES MOINES, IOWA, TUESDAY MORNING, JULY 19, 1927—SIXTEEN PAGES

PRICE [illegible] CENTS

SOIL EXPERTS OF 27 NATIONS BANQUET HERE

Host of Tongues Await Ex... of Cosmopolitan Assemblage.

Some participants of the excursion enjoying the waters of Great Salt Lake, Utah.

THE WORLD SOIL CHARTER

The 1974 World Food Conference in Rome recommended that the Food and Agriculture Organisation of the United Nations prepare a World Soil Charter, setting out the principles for the optimization of the land use on a global basis. At the 21st Session of the FAO Conference, held in November 1981 in Rome, such a World Soil Charter was formally adopted. A copy of the Charter was presented to the Executive Committee of ISSS at its 12th General Congress in New Delhi, February 1982, by the Director of the Land and Water Development Division of FAO Dr. R. Dudal.

The Principles that form the core of the Charter are as follows:

1. Among the major resources available to man is land, comprising soil, water and associated plants and animals: the use of these resources should not cause their degradation or destruction because man's existence depends on their continued productivity.

2. Recognizing the paramount importance of land resources for the survival and welfare of people and economic independence of countries, and also the rapidly increasing need for more food production, it is imperative to give high priority to promoting optimum land use, to maintaining and improving soil productivity and conserving soil resources.

3. Soil degradation means partial or total loss of productivity from the soil, either quantitatively, qualitatively, or both, as a result of such processes as soil erosion by water or wind, salinization, waterlogging, depletion of plant nutrients, deterioration of soil structure, desertification and pollution. In addition, significant areas of soil are lost daily to non-agricultural uses. These developments are alarming in the light of the urgent need for increasing production of food, fibres and wood.

4. Soil degradation directly affects agriculture and forestry by diminishing yields and upsetting water regimes, but other sectors of the economy and the environment as a whole, including industry and commerce, are often seriously affected as well, through, for example, floods, or the silting up of rivers, dams and ports.

5. It is a major responsibility of governments that land use programmes include measures towards the best possible use of the land, ensuring long-terms maintenance and improvement of its productivity, and avoiding losses of productive soil. The land users themselves should be involved, thereby ensuring that all resources available are utilized in the most rational way.

6. The provision of proper incentives at farm level and a sound institutional and legal framework are basic conditions to achieve good land use.

7. Assistance given to farmers and other land users should be of a practical service-oriented nature and should encourage the adoption of measures of good land husbandry.

8. Certain land tenure structures may constitute an obstacle to the adoption of sound soil management and conservation measures on farms. Ways and means should be pursued to overcome such obstacles with respect to the rights, duties and responsibilities of land owners, tenants and land users alike.

9. Land users and the broad public should be well informed to the need and the means of improving soil productivity and conservation. Particular emphasis should be placed on education and extension programme and training of agricultural staff at all levels.

10. In order to ensure optimum land use it is important that a country's land resources be assessed in terms of their suitability at different levels of inputs for different types of land use, including agriculture, grazing and forestry.

11. Land having the potential for a wide range of uses should be kept in flexible forms of use so that future options for other potential uses are not denied for a long period of time or forever. The use of land for non-agricultural purposes should be organized in such a way as to avoid, as much as possible, the occupation or permanent degradation of good quality soils.

12. Decisions about the use and management of land and its resources should favour the long-term advantage rather than the short-term expedience that may lead to exploitation, degradation and possible destruction of soil resources.

13. Land conservation measures should be included in land development at the planning stage and the costs included in development planning budgets.

PLAN OF ACTION TO IMPLEMENT A WORLD SOILS POLICY

The United Nations Environment Programme (UNEP) convened a third expert meeting on a World Soils Policy in Geneva, March 15–19, 1982 (see ISSS Bulletins no. 57, page 14 and no. 59, page 25 for reports on the first two meetings). This time the purpose was to propose specific programmes for implementation of the Policy, hence the composition of the group* was more soil conservation-oriented.

The group reaffirmed the definition, objectives and orientation of the World Soils Policy, emphasising that it forms an integral part of the IUCN World Conservation Strategy which has its main aim to conserve living resources for sustained development. Also, the principles and guidelines set forth in the draft World Charter for Nature and FAO's World Soil Charter (see above) were taken into account.

A total of 22 programmes for implementation were identified and elaborated at the meeting, ranging from the systematic inventory and assessment of land and soil resources to the launching of information campaigns on soil conservation issues. The recommendations of the expert group were subsequently endorsed by the Governing Council of UNEP, during its tenth session in May 1982 in Nairobi. The financial plan for the implementation of the various programmes will be submitted to the same

*Prof. Dr. M. Anaya-Garduño (Mexico), Prof. Dr. A. M. Balba (Egypt), Dr. G. M. Cunningham (Australia), Dr. K. Flach (U.S.A., rapporteur), Dr. F. Fournier (Unesco), Dr. N. A. Greckor-Kove (Ghana), Dr. D. J. Greenland (IRRI, rapporteur), Dr. B. T. Kang (IITA), Dr. L. D. Longworth (Australia, Vice Chairman), Dr. C. Miaczynski (Argentina), Dr. S. Miranda (India), Dr. G. Naumov (USSR), Dr. A. Osman (ACSAD), Dr. A. Pécrot (FAO), Dr. W. B. Peters (IBRD), Dr. W. G. Sombroek (ISSS and ISM, Chairman), Dr. V. Targulian (USSR), Dr. K. Tejwani (India), Dr. B. B. Vohra (India), and Dr. R. J. Olembo and Dr. I. P. Garbouchev of the UNEP Secretariat.

Council in May 1983, after which execution can start, partly through the UN System-Wide Medium Term Environmental Programme (SWIMTEP) for the period 1983 to 1989. For the information of ISSS members the proposed programmes for World Soil Policy implementation are listed below.

For further details on the implementation of the World Soils Policy please *contact:* Dr. I. P. Garbouchev, Chairman, Soils and Water Task Force, UNEP, P.O. Box 30552, Nairobi Kenya. General information on the objectives and scope of the Policy, and its application in several regions, is given in the volume 'Symposium Papers III. Desertification and Soils Policy' of the Transactions of the 12th International Congress of Soil Science.

1 LAND AND SOIL INVENTORY AND ASSESSMENT

1.1 International Reference Base for Soil Classification

Objectives

- To prepare an International Reference Base for Soil Classification that will help to identify and assess global soil resources.
- To prepare a list of major soil types which need to be recognized.
- To determine and quantify the diagnostic criteria to be used in the definitions of the various classes of soils.
- To prepare the definitions of the categories and classes which are recognized, and prepare a key of their classification.
- To define the criteria for a further sub-division of the major soil types into more specialized categories.

Output

An International Reference Base for soil correlation, classification and assessment, useable also at national levels.

1.2 Updating of FAO/Unesco Soil Map of the World

Objectives

- To provide assistance for permanent updating of the FAO/UNESCO Soil Map of the World.
- To establish an international information base relating to global soil resources.
- To revise the legend of the Soil Map of the World, using as a base the proposed International Reference Base for Soil Classification.

Output

A continuously updated Soil Map of the World based on new soil soil inventory information.

1.3 International Methodology for Land Evaluation

Objectives

- To produce guidelines for land suitability assessment for rainfed agriculture, irrigated agriculture, forestry, ranching and other land uses, and to test the relevant criteria in a number of different environments.

Output

Guidelines on land suitability assessment and assistance as well as training in using such guidelines in specific areas at project, regional or national level.

1.4 Methodology for Assessing the Land Bearing Capacity for Future Populations

Objectives

- Assessment of inter-relationships between estimated food production potentials and population projections.
- Development of an inter-disciplinary environmental planning methodology to take into account optional land use and food production.

Output

Further development of methodology and land-bearing capacity estimation for selected areas by direct measurement as well as interpolation.

1.5 Development and Testing of Methods for the Assessment of Erodibility, Erosivity and Soil Degradation

Objectives
- Establishment of criteria for quantifying soil erodibility and erosivity under different environments.
- Quantification of relative effectiveness of various conservation practices, land uses and cover conditions in preventing or minimising soil erosion.
- Development of management systems for land/soil conservation.
- Testing and acceptance internationally of a standardized method for assessing and monitoring soil degradation.

Output
Guidelines for land/soil conservation practices in different environments. A standard method of assessing and monitoring soil degradation and a quantitative assessment of the extent of decreases in productivity in critical areas.

1.6 Criteria and Methodology for Global Soil and Land Resource Monitoring

Objectives
- To identify soil and land characteristics that are critical for food and fibre production and which reflect the various processes of degradation.
- To devise methods for measuring such changes in these characteristics objectively and inexpensively.
- To devise statistically valid sampling schemes that allow the detection of change with the required accuracy. Such schemes may combine ground observation and remote-sensing technology.
- To devise a computerized information system which is capable of interpreting data from a wide variety of sources, is compatible with other monitoring systems, will allow sophisticated statistical analysis, and which will produce relevant information for decision-makers rapidly and accurately.
- To determine an optimal time frame within which monitoring systems should operate (a 10-year sampling interval is suggested).

Output
Criteria and methodology for a global computerized land and soil monitoring system as part of GEMS.*

1.7 Centre for the Collection, Storage and Dissemination of Information on Soil Resources and their Management and Conservation

Objectives
- To develop a centre where information on soil characterization, classification, management and conservation, especially in relation to crop performance, is collated and stored in such a way that it can be readily made available to all.
- To stimulate active co-operation between those involved in management and conservation of soil resources through exchange of information.

Output
A centre would be established for efficient transfer of information relating to soil resources, their management and conservation, and for stimulation of collaboration between various national and international organizations.

1.8 International Soil Reference Collection

Objectives
- To establish a soil collection representative of the major soils of the world, and to collect and store information relating to their characteristics.
- To establish a data storage and retrieval system so that information relating to the soils in the collection can be easily obtained, and comparison with properties of other soils is facilitated.

Output
Information relating to the characteristics of all major soils of the world, their classification and relationships, within the principal systems in use, their geographic occurrence, and probable changes likely to occur under different management systems.

1.9 Development and Testing of Methods for the Assessment of the Impact of Erosion on Productivity

Objectives
- To determine quantitatively the influence of soil properties that may be modified by erosion or degradation on the productivity of soils in given environments.
- To determine the influence that the loss or degradation of certain soil horizons may have on the productivity of various soil types in given environments.

*Global Environmental Monitoring System, an existing UNEP programme.

– To develop models that integrate the impacts of such changes on soil productivity. Such models should, as far as possible, use soil parameters that are being routinely incorporated in soil classification and mapping.

Output

Mathematical models and other systematic procedures that allow prediction of the impact of soil erosion and other forms of soil degradation on the productivity of individual soil types.

1.10 Establishment of a Theoretical Framework for Evaluating the Long-Term Effects of the Influence of Man on Soil

Objectives

– To assemble and assess available information relating to the influence of man on the soil both in the past and at the present time.
– To develop a general theory of anthropogenic (man-stimulated) soil-forming, soil-improving, and soil-degrading processes, which can describe, explain and predict the changes in the major soil types likely to arise form man's activities in different environments.
– To assess the dynamics of these processes in the major soil types and to predict rates of change likely to arise from their use by man.
– To formulate criteria relating to the establishment of desirable equilibria between the soil, the environment and man's activities.
– To develop the pedology of anthropogenic soil processes as an important and necessary part of general pedology, and to provide a fundamental basis for World and National Soil Policies.

Output

A general theoretical framework for understanding the relation between man and the soil ('soil anthropogenics')

2 ASSISTANCE TO GOVERNMENTS FOR THE FORMULATION OF NATIONAL SOILS POLICY

The implementation of the World Soils Policy will necessarily be the responsibility of national governments. It is, therefore, necessary to consider what advice can be given to member states, particularly the developing countries, to facilitate an improvement in their land and soil resources.

2.1 Missions to Countries

Objectives

– Recommendations for the formulation of the framework and the various consituent elements of a national soils policy in individual countries including details of institutional, research, education, extension service and legislative aspects.

Output

Report to the country's policy makers on the establishment and implementation of a national soil policy.

2.2 Field Projects on Soil Inventory, Mapping, Monitoring, Classification

Objectives

– To carry out bench-mark surveys and studies in selected geographical regions and individual countries.

Output

Provision of examples of technical approach applicable within individual countries and to provide for personnel training in key regions of the world.

2.3 Regional Seminars, Symposia, Workshops for the Exchange of Technology and Experience on Implementation of National Soils Policies

Objectives

– The organization of regional seminars, symposia and workshops in the various climatic and socio-economic regions of the world to stimulate exchange of knowledge and experience.

Output

More rapid development and implementation of effective National Soils Policies.

2.4 Integration of National Soils Policy with Policies Relating to Use of Other Natural Resources

Objectives

– To develop in individual countries or within regions fully integrated policies relating to the proper and sustained use of soils and other natural resources.

Output

Achievement of sustained use of each nation's and region's soils in harmony with the use and development of other natural resources.

3 PROMOTION OF CONSERVATION-ORIENTATED LAND MANAGEMENT SYSTEMS FOR DIFFERENT ENVIRONMENTS

3.1 Identify and Promote Improved Farming Systems for Fragile Ecosystems

Objectives
- To collate the results of research on farming systems appropriate for identified fragile ecosystems.
- To promote the adoption and extension of appropriate farming systems.

Output
Recommendations and guidelines for the management of fragile ecosystems.

3.2 Promote Sound Planning of Projects for Profitable Sustained Productivity Commensurate with Maintaining a Favourable Environment

Objectives
- To assist in developing and promulgating information, techniques and procedures for use in the planning processes to enable project success.
- To develop guidelines and checklists for quantification of the environmental impact of land development projects.
- To assist in convincing people at all levels of involvement of the dire need for soil survey, land evaluation and land classification, as a key element in identifying possible projects and appraising, implementing, and maintaining development.

Output
Relevant and environmentally sound land use and the acceptance of suitability surveys (for example, classification of land for irrigation suitability) in assessing project feasibility and plan development.

3.3 Survey of Failures and Successes of Existing Pilot Projects for Rehabilitation of Degraded Lands and Major Land Development Projects in Different Environments

Objectives
- To survey the various existing projects related to land development and land rehabilitation and to catalogue and analyse the aspects of their planning and implementation which have contributed to the success or failure of the project.
- To make available the results of the surveys as packages for ready use to national governments through agencies such as FAO/UNEP/UNESCO.
- To seek to co-operation of national and international organisations in making available data on evaluation of existing projects.

Output
Guidelines for project planning, implementation and evaluation with respect to land development and rehabilitation of degraded land.

3.4 Promotion of the Technology of Biological N-fixation

Objectives
- To assemble and disseminate of research results relating to biological N-fixation, particularly in improved multiple cropping systems.
- To promote assistance in the creation of a suitable network of national institutions capable of helping other nations in development of programmes designed to encourage use of techniques of biological N-fixation.
- To assist in training national staff in technology application.

Output
Guidelines for the utilization of biological N-fixation at practical levels.

3.5 Promotion of Integrated Watershed Management Systems

Objectives
- To further develop and promote small watershed management systems (FAO, other UN agencies and international organizations and programmes have incorporated the concept in many land development projects).
- To further develop the network of institutions dealing with research and development of watershed management systems which at present exists within the framework of IHP and MAB.

Output
Provision of improved technology in watershed management systems and an increase in the rate of implementation of schemes.

3.6 Evaluation of the Suitability of Existing Soil Conservation Practices in Various Environments and Preparation of Appropriate Handbooks

Objectives

– To define areas in which given practices may be applicable based on the FAO Soil Map of the World and Agroecological zones.
– To test practices for their applicability co-operatively between FAO, UNEP and national governments. To prepare handbooks for defined environments and farming systems and distribute these to interested countries in such areas.

Output

Tested conservation practices for defined soil and climatic environments and farming systems and the distribution of appropriate handbooks to interested countries.

4 IMPROVED INTERNATIONAL AWARENESS AT ALL LEVELS OF LAND DEGRADATION AND SOIL CONSERVATION ISSUES

4.1 Information Campaign to Launch and Encourage Implementation of a World Soils Policy

Output

Organised meetings and seminars at international, regional and national levels. Preparation of audio-visual and printed information material designed to publicise the aims of the World Soils Policy.

4.2 Promotion of Awareness of the Value of Managing and Utilizing Land and Soil Resources productively on a Sustained Basis

Objectives

– To create international awareness at all levels (including the highest) of the need for sustained productive use of soil and land resources.
– To upgrade the status of environmental education, training and information in the field of land and soil resource management.
– To disseminate information using alle communication channels related with management and utilisation of land and soil resource on a sustained productive basis.

Output

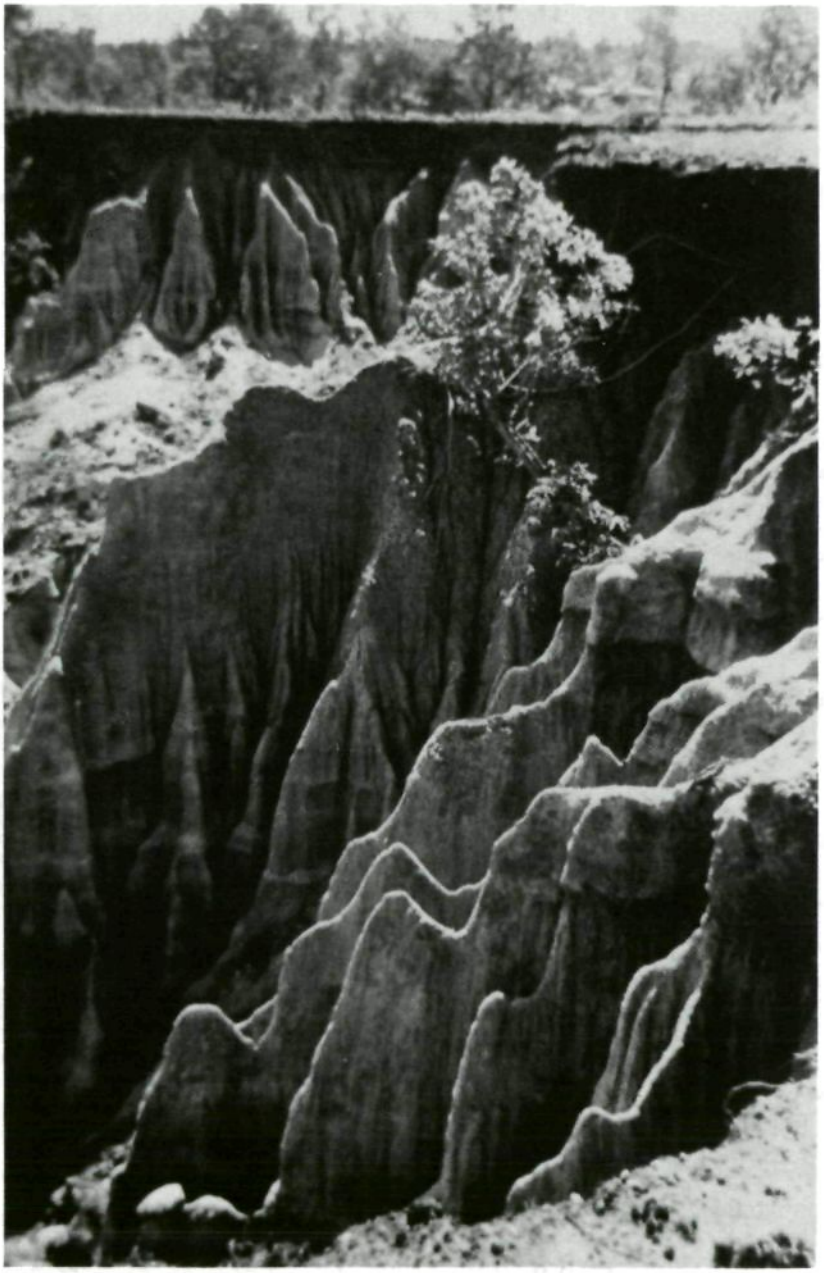
Production and dissemination of appropriate information material aimed at national policy making and administrative levels. Updated materials for training, for public information and school curriculum use outlining sound land and soil management and utilisation. Definite projects implemented following this increased awareness.

Identification of Projects and Priorities

Following consideration of all issues raised at the meeting, the expert group decided that the following must be accorded the highest priority for attention:
– The need to increase the awareness of policy-makers on land use issues and of the public at large on the importance of the issues addressed by the elements of a world soil policy.
– The need for assistance in the implementation of a world soil policy through the dissemination of knowledge, through publications, missions, training courses and related means in individual countries.
– The need to assist countries in the development of policy, regulations, and institutions that will enable them to implement a national soil policy.

At the same time, it is recognized that serious gaps exist in our knowledge of the extent, the mechanisms and economic consequences of soil degradation, as well as in our knowledge of cost-effective means for controlling erosion and other forms of soil degradation. Consequently, there is an equally urgent need for a long-term commitment of international organizations and national governments to support research on mechanisms and effects of soil degradation; on the development of improved practices; and on farming systems for combating soil erosion – as well as for the identification of critical areas and for the uniform assessment of soil resources and of the seriousness of soil degradation, through surveys and inventories.

Finally, there is a serious shortage of scientists and technicians who are skilled in developing methods and in implementing programmes related to soil conservation. Hence, the long-term need to educate and train specialists and to develop soil conservation programmes at universities and other institutions must be given adequate attention.



Already too late for a Plan-of-Action...!

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

Meeting 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 unterstütz von der IBG.

1983

***4th International Meeting on Soil Information Systems,** Oslo, Norway, February 28 – March 4, 1983 (ISSS Working Group DP)
Information: Dr. Stein W. Bie, Norwegian Computing Centre, P.O. Box 335, Blindern, Oslo-3, Norway.

Symposium on Soil Erosion and Crop Productivity, Denver, Colorado, USA, March 1–3, 1983.
Information: Dr. Keith Schlesiger, Soil Science Society of America, 677 South Segoe Road, Madison, Wisconsin 53711, USA.

3rd Symposium for Environmental Sciences in Developing Countries; Environmental Considerations for Rural Development, Cairo, Egypt, April 16–21, 1983.
Information: Dr. Samir I. Ghabbour, Egyptian National SCOPE Committee, c/o Dept. of Natural Resources, Cairo University, Giza (Cairo), Egypt.

International Symposium on Isotope and Radiation Techniques in Soil Physics and Irrigation Studies, Aix-en-Provence, France, April 18–22, 1983.
Information: International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna, Austria.

***International Symposium on Peat and Peat Soils,** Israel, April 24–30, 1983.
Information: Dr. K. M. Schallinger, Volcani Centre, P.O. Box 6, Bet-Dagan 20–500, Israel.

International Symposium on Methods and Instruments for the Investigation of Groundwater Systems, Noordwijkerhout, Netherlands, May 2–6, 1983.
Information: Congress Bureau of the Corporate Communication Dept. TNO, P.O. Box 297, 2501 BD The Hague, Netherlands.

9th World Meteorological Congress, Genève, Switzerland, May 2–27, 1983.
Information: Dr. A. C. Wiin-Nielsen, Secretary-General, WMO, Case postale no. 5, CH-1211 Genève 20, Switzerland.

17th International Symposium on Remote Sensing of Environment, Ann Arbor, Michigan, USA, May 9–13, 1983.
Information: Remote Sensing Center, Environmental Research Institute of Michigan, P.O. Box 8618, Ann Arbor, Michigan 48107, USA.

Symposium on the Integration of Ecological Aspects in Coastal Engineering Projects, Rotterdam, the Netherlands, June 6-10, 1983.
Information: Mr. R. de Vlugt, Delft Hydraulics Laboratory, P.O. Box 177, 2600 MH Delft, the Netherlands.

9th World Fertilizer Congress of the International Centre of Fertilizers (C.I.E.C.), Uppsala, Sweden, June 14–18, 1983.
Information: Organizing Committee, Dept. of Soil Science, Univ. of Agric. Sci., P.O. Box 7014, S-750 07 Uppsala, Sweden.

6th North American Forest Soils Conference, University of Tennessee, Knoxville, USA, June 19–23, 1983.
Information: Prof. Dr. G. Schneider, Dept. of Forestry, Wildlife and Fisheries, University of Tennessee, P.O. Box 1071, Knoxville TN 37901-1071, USA.

9th International Symposium on Machine Processing of Remotely Sensed Data, Purdue University, West Lafayette, Indiana, USA, June 21–23, 1983.
Information: Dr. D. B. Morrison, Purdue University/LARS, 1220 Potter Drive, West Lafayette, IN 47906, USA.

International Colloquium CNRS on Petrology of Weathering and Soils, Paris, France, July 4–7, 1983.
Information: Prof. Daniel Nahon, Universitè de Poitiers, Labo. de Pétrologie de la Surface, 40-Avenue Recteur Pineau, 86022 Poitiers cedex, France.

***Meeting on Biological Processes and Soil Fertility,** Reading, England, July 4–9, 1983. (Joint meeting of ISSS Commissions III and IV).
Information: Dr. D. S. Jenkinson, Rothamsted Exp. Station, Harpenden, Herts, AL5 2JQ, England.

6th International Zeolite Conference, Reno, Nevada, USA, July 10–15, 1983.
Information: Dr. John W. Ward, c/o Union Oil Company of California, P.O. Box 76, Brea, CA 92621, USA.

4th International Permafrost Conference, Fairbanks, Alaska, USA, July 18–22, 1983.
Information: L. De Goes, Polar Research Board, Nat. Ac. of Sci., 2101 Constitution Av., N.W., Washington DC 20418, USA.

19th Brazilian Soil Science Congress, Curitiba, Paraná, Brazil, July 18–25, 1983.
Information: Dr. Delcio Peres Hochmüller, Rua Prof. Arthur Loyola 96, 80.000-Curitiba, PR, Brazil.

2nd International Symposium on Iron Nutrition in Plants, Logan, Utah, USA, August 2–5, 1983.
Information: D. W. James, Dept. of Soil Sci. and Biometeorology, Utah State Univ., Logan, Utah 84322, USA.

3rd International Symposium on Microbial Ecology, East Lansing, Michigan, USA, August 7–12, 1983.
Information: The Kellogg Center for Continuing Education, Michigan State Univ., East Lansing, MI 48824, USA.

Annual Meeting of the Soil Science Society of America, Washington, DC, USA, August 14–18, 1983.
Information: Mr. Keith Schlesinger, Soil Science Society of America, 677 South Segoe Road, Madison, Wisconsin 53711, USA.

18th General Assembly of Intern. Union of Geodesy and Geophysics (IUGG), Hamburg, Fed. Rep. of Germany, August 15–26, 1983. (With Symposia and Workshops on Remote sensing and data transmission; Groundwater; Hydrology of humid tropical regions with particular reference to the hydrological effects of agriculture and forestry practices).
Information: J. C. Rodda, Water Data Unit, Reading Bridge House, Reading, Berks, RGI 8PS, England.

International Meeting on Geochemistry, Preparation and Characterisation of Humic Substances, Estes park, Colorado, USA, August 17–24, 1983.
Information: Dr. L. Malcolm, IHSS,US Geological Survey, MS 407, Box 25046, Federal Center, Denver CO 80225, USA.

9th International Symposium on Microchemical Techniques and Trace Analysis, Amsterdam, the Netherlands, August 20 – September 2, 1983.
Information: Dr. G. den Boef, c/o Municipal Congress Bureau, Oudezijds Achterburgwal 199, 1012 DK Amsterdam, the Netherlands.

***8th International Symposium 'Humus et Planta',** Prague, Czechoslovakia, August 28-September 3, 1983 (ISSS Commission II).
Information: Dr. J. Damaska, Secretary Organising Committee, c/o Research Institute for Amelioration of Agricultural Soils (VUZZP), 16106 Prague 6 – Ruzyně, Czechoslovakia.

Geomaterials: Rocks, Concretes, Soils, Evanston, Illinois, USA, September 1983.
Information: Secretary-General IUTAM, Chalmers Univ. of Techology, Fack, S-40220 Gothenburg 5, Sweden.

6th International Symposium on Environmental Biochemistry, Santa Fe, New Mexico, USA, October 9–14, 1983.
Information: Dr. D. E. Caldwell, Dept. of Biology, Univ. of New Mexico, Albuquerque, NM 87131, USA.

***International Workshop on Salt-affected Soils of Latin America,** Maracai, Venezuela, October 23–30, 1983 (ISSS Subcommission A).
Information: Prof. A. Florentino, Apartado 1208, Santa Rosa, Maracay, Venezuela.
N.B. Original date was February 1983!

International Conference on Environmental Hazards of Agrochemicals in Developing Countries, University of Alexandria, Research Center, Alexandria, Egypt, November 8–12, 1983 (cooperation UNEP-Unesco/MAB).
Information: Dr. A. H. El Sebae, Associate Director UNARC, P.O. Box 832, Alexandria, Egypt.

***International Workshop on Land Evaluation for Range Management and Nomadic Grazing,** ILCA, Addis Abeda, Ethiopia, November 1983 (ISSS Working Group LE).
Information: P. J. Brumby, ILCA, P.O. Box 5689, Addis Abeda, Ethiopia. *or:* Prof. Dr. I. S. Zonneveld, ITC, P.O. Box 6, 7500 AA, Enschede, Netherlands.

***4th Symposium on Remote Sensing for Soil Survey,** Dakar, Senegal, end 1983 (ISSS Working Group RS).
Information: F. Hilwig, Projet USAID/RSI, BP 6267, Dakar-Etoile, Senegal.

Centennial Commemoration of the Mount Krakatau Explosion, Indonesia.
Information: Committee on 100th Anniversary of Mt. Krakatau Explosion, Lipi, Jl. Tenku Chik Ditiro 43, Jakarta, Indonesia.

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. Coucil, Farm Gate, New Airport Road, Dacca-15, Bangladesh.

3rd 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.

2nd International Rangeland Congress, Adelaide, Australia, May 13–18, 1984.
Information: Mr. P. J. Joss, CSIRO, Denilquin, NSW 2710, Australia.

International Panel on Volcanic Soils, Tenerife, Canary Islands, Spain, July 1984.
Information: M. E. Fernandez Caldas, Dpto. de Edafologiá, Univ. de la Laguna, Tenerife, Islas Canarias, Spain.

***International Symposium on Water Movement in Heavy-clay Soils,** Wageningen, the Netherlands, August 27–31, 1984 (ISSS Commissions I and V and Workiing Group MV).
Information: Dr. J. Bouma, c/o Dutch Soil Survey Institute STIBOKA, P.O. Box 98, 6700 AB Wageningen, the Netherlands.

***International Symposium on the Mapping of the Soil-Water Balance,** Budapest, Hungary, September 3-8-1984 (ISSS Commission I, V and VI, and Working Group MV). Part of the 10th International Congress of Engineering (see below).
Information: Dr. G. Várallyay, Research Inst. Of Soil Science & Agric. Chemistry, Herman Otto út 15, Budapest 11, Hungary.

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.

12th International Congress on Irrigation and Drainage, Fort Collins, Denver, Colorado, USA, October 3–10, 1984.
Information: Secr. ICID, 48 Nyaya Marg. Chanakyapuri, New Delhi 110012, India.

***International Workshop on Land Evaluation for Soil Erosion Hazard Assessment,** Enschede, Netherlands, end 1984 (ISSS Working Group LE and Subcommission C).
Information: Prof. Dr. K. J. Beek, ITC, P.O. Box 6, 7500 AA Enschede, Netherlands.

1985

***3rd International Symposium on Acid Sulphate Soils,** Dakar, Senegal, January, 1985 (ISSS Working Group AS).
Information: Prof. Dr. L. Pons, Dept. of Soil Sci. and Geology, Agric. Univ., P.O. Box 37, 6700 AA Wageningen, Netherlands.

***International Conference on Characterization and Management of Soils originally under Tropical Savannah Vegetation,** Brasilia, Brazil, March 1985. (ISSS Commissions IV, V and VI)
Information: Dr. W. L. Goedert, EMBRAPA-CPAC. Caixa Postal 70/0023, CEP 73300 Planaltina, DF, Brazil.

***7th International Meeting on Soil Micromorphology,** Paris, France, May 1985 (ISSS Subcommission B).
Information: Association française pour l'étude du sol, c/o CNRA, Route de Saint-Cyr, 78.000 Versailles, France.
N.B. Venue earlier indicated erroneously as Reims, France!

10th Conference of the International Soil Tillage Research Organisation (ISTRO), Guelph, Canada, July 1985.
Information: Prof. Dr. J. K. Ketcheson, University of Guelph, Ontario Agric. College, Dept. of Land Resource Science, Guelph, Ont. N1G-2W1, Canada.

1986

***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.

(*with next page*) **Short Course on Soil Physics, Miramare - Trieste, Italy.**

The International Centre for Theoretical Physics organizes a short course on 'Soil Physics' from 19 September to 7 October 1983. It will be directed by Dr. D. Gabriels (State University, Ghent, Belgium) and Dr. E. L. Skidmore (U.S. Department of Agriculture, Manhattan, Kansas, USA), and co-sponsored by the Italian Dipartimento per la Cooperazione allo Sviluppo.

The following topics will be covered: General properties of the soil; Soil water; Soil temperature; Flow of heat and gas in the soil; Soil-water-plant-atmosphere continuum; Soil erosion (wind and water).
The closing date for requesting participation is 31 March 1983.

Information: International Centre for Theoretical Physics, College on Soil Physics, P.O. Box 586, I-34100 Trieste, Italy.

INTERNATIONAL TRAINING COURSES/COURS INTERNATIONAUX DE FORMATION/INTERNATIONALE FORTBILDUNGSKURSE

Post-graduate Courses in the Application of Aerial Photography and other Remote Sensing Data in Natural Resources Surveys, ITC, Enschede, The Netherlands.

One-year courses, starting in September/October or January in several fields of earth sciences, e.g. soil survey (with specialisation possibilities in soil erosion and conservation, land evaluation and remote sensing), geology, geography and geomorphology, forestry, rural survey and multi-disciplinary investigations for development planning. Possibility of follow-up to 1–1½ year MSc course. The ITC also offers courses in Cartography at technician, technologists and post-graduate level.

Some of the courses may be followed at the ITC sister institutes in Bogotá, Colombia or Dehra Dun, India.

Information: ITC Office of Student Affairs, P.O. Box 6, 7500 AA Enschede, The Netherlands.

M.Sc Course in Soil Science and Water Management, Wageningen, The Netherlands.

This 2-year course, leading to a M.Sc – degree, is designed for yong B.Sc – graduates from developing countries and intends to provide an academic training directed towards subjects which are of direct importance for agricultural development. One of the following three programmes may be chosen: Land evaluation and agropedology; Soil fertility; Soil and plant analysis; Water management (irrigation, agrohydrology, drainage).

Information: Director of Studies of the M.Sc Course in Soil Science and Water Management, P.O. Box 37, 6700 AA Wageningen, The Netherlands.

Post-graduate Training Course in Soil Science, Ghent, Belgium.

This 2-year course, open for candidates mainly from developing countries, with a B.Sc. B.A. degree of comparable education, consists of an introductory part in the first year, and specialization in the second year with the following orientation: (1) soil genesis and classification; (2) soil physics and chemistry. Languages of the course are English and French.

Information: The International Training Centre for Post – Graduate Soil Scientists, 44, Rozier, B-9000 Ghent, Belgium.

Post-graduate Training Courses in Soil Science and Plant Biology, Granada/Sevilla, Spain.

This 7-month course, starting in January each year and open for non-european post graduate students, intends to provide the participants with an in-depth knowledge in the cultivation of agricultural crops. Language of the course is Spanish.

Information: Dr. M. L. Garrido, Estacion Experimental del Zaidin, Avenida de Cervantes, Apdo, 419, Granada, Spain.

International Post-graduate Course in Natural Resources Research and Land Evaluation, Sheffield, England.

This course, starting mid-September and with a duration of 12 months, provides instruction in modern methods and techniques of field and laboratory study in natural resources research. Land evaluation and development planning are the chief concern ultimately and training is organized to direct specialists to view their work in the context of environmental relationships.

Information: The Registrar, University of Sheffield, Sheffield S10 2TN, England.

Postgraduate Courses in Soil Science, University of Reading, Department of Soil Science, England.

1. M.Sc Course in Soil Chemistry

Programme: A 1-year course intended primarily for graduates in science or applied science, covering the chemistry of soil constituents, soil processes and plant nutrition, and including extensive practical work in soil sampling and analysis, and in various aspects of soil fertility.

2. *M.Sc. Course in Pedology and Soil Survey*

Programme: A 1-year course based on the principles of pedology, with special emphasis on soil genesis, and the conduct of soil surveys, and including case studies from a wide range of countries and environments.

3. M.Agr.Sc. Course in Soil Science.

Programme: A 2-year course intended primarily for graduates in agricultural science who have not previously specialised in soil science, and covering pedology, soil chemistry and physics, soil biology, and the principles of crop production and soil management.

The courses start about 1st October.

Information: The Secretary, Department of Soil Science, University of Reading, London Road, Reading, Berkshire RG1 5AQ, U.K.

M.Sc. Courses in Soil and Water Engineering and in Land Resource management, Silsoe, England.

The course in Soil and Water Engineering is designed to meet the needs of civil engineers and agriculturists who are involved in agricultural development work, mainly overseas. The Course takes two years, but candidates with a good honours degree in a relevant subject may complete the course in one year.

The Course in Land Resource Management is designed to meet the needs of those working or intending to work in land resources and survey and evaluation, rural and agricultural planning, as planning or land use officers or in projects teams. The course has a duration of one year.

Both courses start in October each year and lead to a M.Sc. in Agricultural Engineering.

Information: The Careers and Recruitment Officer, National College of Agricultural Engineering, Silsoe, Bedford MK45 4DT, England.

M.Sc. Course in Resource Assessment for Development Planning, University of East Anglia, Norwich, England.

A one-year course combining instruction in the techniques of soil survey, land evaluation and land use planning with a study of the application of natural resource information in development planning.

Information: Dr. David Dent, School of Environmental Sciences, University of East Anglia, Norwich, NR4-7TJ, England.

Short Course in Soil and Plant Analysis, University of Reading, England.

This six-weeks course is aimed at giving experienced, practised analysts in soil science and plant nutrition greater understanding of the management of a modern agricultural analytical laboratory. The course is offered jointly by the Department of Soil Science, Reading University and the Tropical Soils Analysis Unit of the Land Resource Development Centre. It is held June–July each year.

Information: Prof. A. Wild, Department of Soil Science, University of Reading, London Road, Reading, RG1-5AQ, England.

Cours de D.E.A. Fédéral en Pédologie et Aménagement des Sols, Paris, France.

Le cours annuel D.E.A. de Pédologie et Aménagement des Sols est destiné à former des étudiants, en Pédologie Générale ou en Pédologie Tropicale, et dans les domaines de la Recherche ou bien de l'Application. Il vise a les entraîner à l'analyse des formations pédologiques aux différentes échelles, à l'étude des processus et des mécanismes de la pédogenèse appuyés sur les méthodes modernes de la chimie et de la minéralogie, au diagnostic du comportement des sols en vue de leur utilisation et de leur aménagement.

Information: Institut National Agronomique, 16, rue Claude Bernard, 75005 Paris, France.

Cours post-universitaire des études intégrées et de l'utilisation rationelle des ressources naturelles, Paris/Montpellier/Toulouse, France.

Le cours qui dure une année comprend l'enseignement des matières qui sont indispensables pour l'exécution des études intégrées comme la statistique, la climatologie, l'hydrologie, la géomorphologie, la pédologie, l'écologie des animaux et des plantes, la géographie humaine et la sociologie. La langue des cours est le français.

Information: Commission française pour l'Unesco, rue la Perouse, 75116 Paris, France.

International Course on Land Drainage, IAC, Wageningen, The Netherlands.

The annual international course on Land Drainage (1982: 21st course), given from August to December, has the objective to provide the physical and agricultural backgrounds of drainage and to present the main aspects of design, construction and maintenance of field drainage systems. The course is offered jointly by the International Agricultural Centre and the International Institute for Land Reclamation and Improvement (ILRI).

Other annual courses at IAC are: International Course on Applied Plant Breeding (March-June), International Potato Course (April-July), International Course on Rural Extension (Juni-July), International Course on Plant Protection (July-November), International Course on Vegetable Growing (August-November), and the International Course for development oriented Research in Agriculture (ICRA; January-September).

Information: The Director, International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen, The Netherlands.

International Courses in Hydraulic Engineering, in Hydrology and in Environment Science and Technology, Delft, The Netherlands.

These courses are intended to promote the transfer of experience and know-how in the field of science and technology related to water and the environment to professionals, especially from developing countries. The 11-mounth study programme offers lectures, laboratory work, workshops, project work and field studies.

Information: The Registrar, Netherlands Universities Foundation for International Co-operation, P.O. Box 90734, 2509 LS The Hague, The Netherlands.

International Course on Land and Water Development, Cairo, Egypt.

This 5-month course is designed to cover the theoretical and practical aspects of land and water development with a wide range of subjects, such as fundamentals of soil science, land reclamation, planning and execution, irrigation principles and development, etc.

Information: The Director, The Foreign Agricultural Relations Department, Ministry of Agriculture, Dokki, Cairo, Egypt.

Curso Internacional de Fertilidad de Suelos y Nutrición Vegetal, Madrid, Spain.

The Course has the objective to train the participants in the problems of soil fertility and plant nutrition.

During the course the following subjects are given: The fertility of soils; The nutrition of plants; The soil-plant relation; Cultivation techniques; Production and use of fertilizers; Special crops.

Language of the course is Spanish and its duration five months.

Information: Secretaria del Curso International de Fertilidad de Suelos y Nutrición Vegetal, Serrano, 115 bis, Madrid-6, Spain.

Cursos de Postgrado Desarrollo de Recursos de Aguas y Tierras, Merida, Venezuela.

The objective of the course, leading to a M.Sc. degree, is to train the participants in developing the land and water resources within the social economical and cultural conditions of Latin-America and the Caribbean. The following courses are given; 'Suelos y Riego', 'Riego y Drenage', 'Ingeniería Hidráulica', 'Hidrologia', 'Planificación de Recursos Hidráulicos'. The duration of the courses is six trimesters and the language Spanish.

Information: CIDIAT, Apartado 219, Merida, Venezuela.

Graduate and Post-graduate Courses on Soils and Related Sciences, Los Baños, Philippines.

The Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA) offers regular M.Sc. and Ph.D. degree courses and shortterm training programmes, a.o. in 'Soil and Water Management'.

Information: Dr. J. D. Drilon Jr., Director SEARCA, Los Baños, Laguna 3720, Philippines.

M.Sc. Course in Arid Land Studies, Lubbock, Texas, U.S.A.

The course provides training in land use planning in arid regions, environmental studies and social and cultural aspects of various fields dealing with arid lands. The programme gives broad-based interdisciplinary courses and specializations on sciences or engineering of arid lands or social sciences and humanities of arid lands.

Information: Dr. I. R. Taylor, International Center for Arid and Semi-arid Land Studies, Texas Technical University, Lubbock, Texas 79409, U.S.A.

Postgraduate Training Courses in Irrigation and Soil Conservation, Nairobi, Kenya.

The University of Nairobi offers annually four-term courses, leading to a Postgraduate Diploma in Irrigation/Soil Conservation. The courses include hydrology, plant-water relations, soil-water relations, water resources, survey, irrigation technology, soil erosion, soil conservation, land reclamation, drainage, economics of irrigated agriculture and land use planning.

Information: The Chairman, Department of Agricultural Engineering, University of Nairobi, Box 30197, Nairobi, Kenya.

International Course on Soil Reference Collections, ISM, Wageningen, the Netherlands.

This six-weeks course is organized by the International Soil Museum in cooperation with Unesco. It responds to requests by organizations planning to set up national soil reference collections. The training includes taking and impregnating soils; the display of soil monoliths; the presentation of data and information in an exhibition; the use of the material for purposes of soil correlation, education, and rural planning.

The course is held in April-May each year.

Information: the Director, International Soil Museum, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

International Irrigation Course, Bari, Italy.

This 1-year course provides training in the field of planning, development and use of irrigation and drainage systems and methods, oriented to the Mediterranean area and developing countries. The courses are given in English and Italian.

Information: The Director, International Centre for Advanced Mediterranean Agronomic Studies (ICAMAS), Instituto di Bari, Str. Prov. Ceglie, Valenzano, Italy.

Course in Irrigation and Soil Management, Bet Dagan, Israël.

This 3-month post-graduate course focusses on the basic problems of water and soil properties, plant-soil-water relationship, irrigation technology, crop water requirements, salinity problems in irrigation and economic considerations in irrigation designs.

Information: Dr. K. M. Schallinger, Scientific Coordinator, The Volcani International Courses, P.O. Box 6, 50250 Bet Dagan, Israël.

Cours de Formation Spécialisée sur les Aménagements de Terrain, Le Havre, France.

Ce cours de formation est designé pour les étudiants qui désirent s'orienter vers les Sociétés de Développement intégré, les plantations, la mise en place d'opérations de terrain, les Instituts de Recherche appliquée et tout le secteur agro-commercial de l'irrigation. Il consiste en les études de microbiologie générale et microbiologie du sol, de géologie, de pédologie, de topographie et de hydrologie et irrigation.

Information: ISTOM, 4 Quai Guillaume le Testu, 76600 Le Havre, France.

Courses in Project Planning, Bradford, England.

These 3-month courses are designed for overseas participants who have responsibility for the identification, preparation, appraisal and implementation of projects. The course programme includes: Planning and appraisal of rural development projects; Investment planning and appraisal for development banks and financial institutions; The planning and appraisal of agro-industrial projects.

Information: The Assistant Director Project, Planning Centre for Developing Countries, University of Bradford, Bradford, West Yorkshire DB7 1DP, England.

Information: The Division of Environmental Management, United Nations Environment Programme, P.O. Box 30552, Nairobi, Kenya.

International Courses on Sand Dune Fixation, Management of Irrigated Land and Arid Pastures, Moscow/Ashkhabad, U.S.S.R.

These courses, organized in cooperation with the United Nations Environment Programme (UNEP), are intended to train experts and technicians from developing countries in the field of various sand dune fixation techniques and in management and use of arid lands.

Summer Courses in Agricultural Production and Technology for Foreign Agriculturists by the USDA and US Universities.

- Irrigation Problems and Practices. This 8-week course intends to train the participants in the agronomic and engineering aspects of irrigation water management.
- Resource Development of Watershed Lands. This 6-week course focusses on effective use and development of water, soil and human resources of watershed lands.
- Soil Fertility Relationships Affecting Food Production. This 10-week course concentrates on the interrelationships among soil morphology, fertilizers and crop fertility requirements.

Information: Dr. R. I, Ayling, Deputy Director for International Training, USDA/OICD, Room 3529 – South Building, Washington, D.C. 20250, U.S.A.

International Centre for Soil Conservation Information

It is planned to set up an International Centre for Soil Conservation Information as an independent, non-profit-making, educational organisation based at the National College of Agricultural Engineering, (NCAE), at Silsoe, Bedford, England.

The activities of the Centre will be to collect information on soil conservation using bibliographic sources and a world network of correspondents. The information will be disseminated through a bulletin, bibliographies, and other publications. There will be an answering service for technical enquiries.

The Centre will work closely with NCAE in offering training, research, and consultancy services.

Information: Anyone interested is invited to write to: ICSCI, NCAE, Silsoe, Bedford *MK45 4DT, England.*

Funds for training in the Sahelian region

The Swiss Government has contributed $ 1,525,000 under a trust fund arrangement toward the financing of a FAO programme for training in the preparation, execution and evaluation of agricultural and rural investment projects in the Sahelian region.

FAO organized short-term training activities in the region starting in 1976, sponspored by FAO's Technical Cooperation Programme in Mali and Senegal, UNDP and Norway in Niger and Italy in Upper Volta.

The programme aims at increasing the countries' capacity in project formulation and execution, at supporting national training institutes and ultimately at establishing such training on a permanent basis in the countries themselves. It will emphasize in-service training for staff at the central and regional levels in Niger, Mali, Upper Volta. Senegal and Cape Verde.

The Swiss contribution will enable FAO to extend the programme over the long term for the progressive institutionalization of the training in each country.

Information: Dr. R. Dudal, Director Land and Water Development Division, FAO. Via delle Terme di Caracalla, 00100 Roma, Italia.

World Bank Fellowships

The World Bank has established the Robert S. McNarmara Fellowships to honor its former president. A limited number of fellowships will be awarded for 12-month periods, beginning in the 1983 academic year, for full-time study or research at the postgraduate level in fields related to development.

The program is not intended to support work leading to an advanced degree. Candidates must be nationals of a Bank member country and normally not over 35 years of age. A master's degree or equivalent is also required. The innovative or imaginative character of the work to be undertaken will be a major factor in selection. The work cannot be conducted in the candidate's own country.

Information: J. Price Gittinger, Coordinator; McNamara Fellowships Program; Economic Development Institute; World Bank; 1818 H Street, NW; Washington, DC 20433.

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

Soil Survey for Engineering. A.B.A. Brink, T. C. Partridge and A. A. B. Williams. Oxford University Press, 1981, 380 p. ISBN 0-19-854537-1.

This book in the OUP series Monographs on Soil Survey discusses basic procedures for soil survey for engineering projects as an aid to engineers, planners, geologists, and other earth scientists. The emphasis is strictly practical although brief consideration is given to the theory of relevant aspects of soil mechanics (or geotechnics) and geology. The authors' approach will be of particular benefit to practitioners in developing countries where speed and economy are of foremost importance. The book will also be useful to students throughout the world who need to be familiar with soil survey procedures for engineering.

In an introduction to the principles of geology and engineering soil science, special emphasis is placed on the systematic and accurate description of the soil profile, including identification of soil origin. Succeeding chapters deal with soil survey procedures for major structures occupying sites of limited area, for the planning of urban development, and for the selection and investigation of transportation routes. The chapters thus advance from theory to practice and from intensive (and correspondingly expensive) procedures to survey techniques of progressively smaller cost per unit area where progressively smaller risks are involved. Methods for soil mapping and for the storage and dissemination of geotechnical data by means of terrain classification are discussed.

This monograph has many drawings, diagrams and plates.

Price: in U.K. £ 26.00

Orders to: Oxford University Press Showroom, 116 High Street, Oxford OX1 4BZ, England.

Croutes calcaires, micromorphologie et geómorphologie. Recherches Geógraphiques a Strasbourg No. 12. T. Vogt, responsable. Association Géographique d'Alsace, Strasbourg, 1981, 91 p. ISSN 0396-9657.

This publication contains eight papers on calcretes occurring in the mediterranean region and Namibia. The research carried out shows that besides differences in geological, geomorphological and paleoclimatic conditions, also a number of resemblances exist.

This volume is well-illustrated with photographs and drawings. The papers are in French, but carry abstracts in English and German.

Price: FF 30 in France, FF 35 elsewhere, postage included, prepayment required.

Orders to: Association Géographique d'Alsace, 43 Rue Goethe, 67083 Strasbourg Cedex, France.

Problems of Soil Science. Soviet pedologists to the Twelfth International Congress of Soil Science. Publ. House Nauka, Moscow, 1981, 264 p.

This book, edited by V. A. Kovda and M. A. Glazovskaya, presents the major results obtained during the last 4–5 years by Soviet soil scientists in soil physics, chemistry, biology, mineralogy, genesis and geography, as well as in the assessment, rating and improvement of soil resources. Results of comprehensive studies of pedogenetic processes are given. A number of papers describes man's impact on soils, their microflora and fauna, physical, chemical and other soil properties. There are also data on soil genesis, taxonomy, age of soils, on the nutrition elements balance estimation, forecast and management of soil fertility.

This book will be useful for many soil scientists outside the USSR to get acquainted with new developments in all aspects of Soviet soil science. All papers are in English, the translation was made by M. K. Victorova.

Requests to: Soviet Society of Soil Scienctists, Dokuchaev Soil Institute, Pyjevski 7, 109 017 Moscow, U.S.S.R.

Natural Resources and the Environment Series. M. R. Biswas and A. K. Biswas, series directors. Tycooly International Publishing Ltd., Dun Laoghaire, Ireland.

This new important series takes a multidisciplinary approach to the environmental sciences and management, and contains both research work and applications.

The series will be of interest to all those involved in and with natural resources and the environment: specialists; researchers; decision-makers; administrators and planners. Some texts cover a wide subject spectrum whilst others will have a tighter focus. Texts will approach problems from the point of view of the development process, and will therefore be of interest to all professionals concerned by these fields, universities, libraries and those involved in development aid.

Volume 5. Economic Approaches to Natural Resource and Environmental Quality Analysis. M. M. Hufschmidt and E. L. Hyman, editors. Published for East-West Center, 1982, 256 p.

Major economic development activities rely on the use of natural resources and usually have significant effects on the environment. Experience demonstrates the need to ensure that significant natural systems concerned are adequately reflected in economic analyses of alternative strategies, plants and projects. This volume contains the proceedings of an extended benefit/cost analysis conference and covers four main objectives: the main outlines for the new natural resource and environmental economic terms for use in decision making; and to identify the changes in policy organisation, administration and programme content necessary to use the approaches effectively.

Hardback: ISBN 0-907-567-04-5, US$ 40.00, £ 22.00
Softcover: ISBN 0-907-567-09-6, US$ 28.50, £ 15.00

Volume 6. Renewable Sources of Energy and the Environment. E. El-Hinnawi and A. K. Biswas, editors, 1981, 232 p.

After a general examination of the potential of renewable sources of energy, different scientists treat the various areas in which new and renewable sources of energy are, or may become available, with particular emphasis on the environmental impacts of the use of such sources of energy. It contains chapters on solar energy, wind energy, energy from the sea, hydroelectric energy, energy storage systems, and biomass.

Hardback: ISBN 0-907-567-05-3, US$ 32.50, £ 21.00;
Softcover: ISBN 0-907-567-10-X, US$ 25.50, £ 13.50

Volume 7. Global Environmental Issues. E. El-Hinnawi, editor. Published for UNEP, 1982, 256 p.

UNEP is mandated each year by its governing body to examine and assess important isssues of environmental concern. The present volume contains a synthesis of the major studies untertaken since 1975, developed and completed by case studies of incidents and events which have taken place in the world during this period and relating to subjects treated. The work concludes with a chapter on trends and perspectives of major environmental issues in the 1980's.

Hardback: ISBN 0-907-567-13-4, US$ 40.00, £ 20.00;
Softcover: ISBN 0-907-567-14-2, US$ 28.50, £ 15.

Volume 8. The World Environment. 1972–1982. M. Holdgate, M. Kassas and G. White, editors. 1982, 672 p.

This comprehensive review of the state of the world environment in the decade after Stockholm will be essential reading for all individuals involved in environmental issues. Although not a formal inter-governmental report, there are few countries or inter-governmental bodies that have not participated at some stage in this truly international effort. The main focus has been on the changes both positive and negative in the different components of the environment, with particular attention to the interacting processes between these components, and the study gives a balanced assessment of the world environmental situation as viewed by the United Nations Organisation responsible for the safety of the environment at the global level.

Hardback: 0-907-567-11-8, US$ 95.00, £ 50.00
Softcover: 0-907-567-12-6, US$ 45.00, £ 25.00
All orders to: Tycooly International Publishing Limited, 6 Crofton Terrace, Dun Laoghaire, Co. Dublin, Ireland. Individuals and institutions in developing countries have concessional rates for all publications.

Gleboznawstwo (Soil Science, in Polish). B. Dobrzański, S. Zawadzki, editors. State Agricultural and Forestry Publishers. Warsaw, 1981, 614 p. ISBN 83-09-00083-9.

This text book is written in Polish by 10 scientists for undergraduate students in agriculture. It will also be useful for research workers and professional staff involved in soil science and agriculture. This book deals with the principles of pedology and has also chapters on the soils of Poland and on world soils.

It contains the following chapters: soil forming processes; parent rocks and soil minerals; morphological, physical and chemical properties of soils; organic matter; soil organisms; soil fertility; the Polish soil and land use classification; and soils of the world.

This book is richly illustrated with 167 figures, 150 tables, 12 colour photos of soil profiles and 2 coloured maps of soils and parent rocks of Poland.

Price: Zloty Polski 92.
Orders to: Ars Polona, Krakowskie Przedmieście 7, 00-068 Warsaw, Poland.

L. Królikowski, Warsaw.

Fertilizers and Fertilization – Introduction and Practical Guide to Crop Fertilization. A. Finck. Verlag Chemie, Weinheim, Deerfield Beach (Florida), Basel, 1982, 438 p, ISBN 3-527-25891-4 (Weinheim), ISBN 0-89573-052-9 (Deerfield Beach).

This book is the English translation of 'Dünger und Düngung' published in 1979. It aims at supplying information on both the theoretical background and the practical application of fertilizers. Much emphasis is placed on fertilizing techniques with which yield increases can be obtained without any concomitant decline in quality of the produce. In nine chapters the author deals with the following topics: introduction, mineral single-nutrient fertilizers, micro-nutrient- and multiple-nutrient fertilizers, fertilizers for soil improvement and general growth support, optimal amounts of fertilizers, special fertilization problems, fertilization of agricultural crops, fertilization in horticulture, forestry and special crops, fertilization and quality of vegetal food.

For the benefit of teachers and students the book contains numerous synopses and illustrations.

Price: DM 68,– (about $ 27,–)

Orders to: Verlag Chemie, D-6940 Weinheim, Postfach 1260/1280, Federal Republic of Germany.

A. van Diest, Wageningen

Gefügeeigenschaften von Tonböden. Volker Schweikle. Hohenheimer Arbeiten 117. Verlag Eugen Ulmer, Stuttgart, 1982, 79 p. ISBN 3-8001-8175-4.

In his study, Dr. Schweikle describes swelling and shrinkage phenomena as determined in samples from 13 clay soils in Germany. He applied a wide variety of physical and clay-mineralogical methods which allowed him to formulate some new theories on particle orientation during swelling, on mechanisms of water infiltration and movement into aggregates and on formation of slickensides and gilgai microrelief.

Adsorption and immobilization of water on negatively charged soil particles results in very low flow velocities through fineporous peds. These are much lower than flow velocities measured with air or with an apolar liquid under comparable conditions. Moreover, the immobile zone of water near the walls of the fine pores increases in thickness as the hydraulic gradient increases. Thus, the flux is not independant of the hydraulic gradient and this complicates the theoretical interpretation of the flow system.

His studies of shrinkage in aggregates indicates an increase of anisotropy which results in mixing of cutants through the soil matrix and formation of new aggregates. Flow of water along macropores is necessary to allow infiltration and movement of water in the soil. The pore size distribution of aggregates is very important for determining the swelling process. Occurrence of many very fine pores allows little penetration of water into the peds and, as a consequence, little swelling. Drainage of the soil is then maintained because the macropores remain open. This mechanism may explain why certain clay soils ('Pelosols') can be used to grow arable crops while others, with more porous aggregates, are unsuitable becase of waterlogging due to strong swelling. A thorough analysis of the swelling process in Vertisols results in a new explanation for gilgai formation.

Occurrence of preferential flow of water along macropores in clay soils in mentioned but only briefly as emphasis is being placed on the physical behaviour of the aggregates, which is in agreement with the title of the study. However, this comprehensive study would have gained in value if recent theories and techniques characterizing water flow along macropores would have been considered in more detail.

Dr. Schweikle's study is of major interest to all soil scientists who are interested in the complex processes which govern the dynamic behavior of clay soils.

Price; DM 15.00 plus postage

Orders to: Verlag Eugen Ulmer, Postfach 700561, D-7000 Stuttgart, Fed. Rep. of Germany.

J. Bouma, Wageningen

Environmental Science Methods. R. Hayes, editor. Chapman and Hall, London, New York, 1982, x + 404 p. ISBN 0-412-23280-4 (cased), 0-412-23290-1 (paperback).

Interest in the environment has grown dramatically in recent years. Many courses in environmental sciences have developed in universities, colleges and polytechnics and the emphasis in more conventional geography, geology and biology courses is increasingly on the interdependence of environemental factors and their significance for human society.

This book introduces a selection of methods and techniques used in the scientific study of the environment. It has been written for students beginning degree courses in environmental sciences and related subjects such as geography, geology, soil science, hydrology and ecology. The topics covered include mathematical and statistical methods of analysis, laboratory and field techniques and methods for assessing the social and economic impact of environmental change. Each topic is explained from basic principles up to a level from which the reader can progress into the specialist literature. Students may make their own choice of topics which range from differential equations and significance tests to microscope techniques, theodolite surveying, satellite photography, cost benefit analysis and many more. The book provides a concise and comprehensible introduction to subjects that may later be taken in greater depth as the student's interest and specialization develops.

Price: £ 9.95 in U.K.

Orders to: Chapman and Hall, 11 New Fetter Lane, London EC4P 4EE, England, or: 733 Third Avenue, New York, NY10017, U.S.A.

Primera Reunion de Especialistas en Suelos Volcanicos, Universidad de Chile, Santiago, Abril 1982, 202 p.

In recent years a considerable amount of new scientific information on volcanic soils in Chile has become available. The present publication contains 9 papers presented at this First Meeting of Specialists in Volcanic Soils, held in Santiago, Chile, April 1982. It discusses the geology and geomorphology of volcanic deposits, the physical, chemical, mineralogical properties of the soils and aspects of soil fertility, fertilizer use and soil management.

Requests to: Departamento de Ingenieria y Suelos, Facultad de Ciencias Agrarias, Universidad de Chile, Santiago, Chile.

Proceedings of the South-East Asian Regional Symposium on Problems of Erosion and Sedimentation, Bangkok, January 1981. T. Tingsanchali and H. Eggers, editors. Asian Institute of Technology, Bangkok, 1981, 547 p.

The impact of population growth, changes of land use, deforestation, control of flow regimes and numerous other factors which are related to the socio-economic development of the developing countries in the South East Asian region may lead to increased soil erosion and sedimentation problems. The physical and climatic conditions of the region also play a significant role in compounding these problems which produce many undesirable effects.

A symposium was organized in Bangkok in 1981 with the aim of bringing in various experts from the region to share their knowledge and experiences and to participate in contributing various new ideas and concepts, as well as techniques of implementation to combat these problems.

These Proceedings contain 42 papers, including special lectures, contributed by authors from 16 countries mostly from the South-East Asian region. The papers are classified into eight sessions under seven topics relevant to the problems of soil erosion and sedimentation. These topics are: Processes of Erosion and Regional Studies, Sediment Yield of Catchments, Influence of Landuse on Erosion, Influence of Vegetation on Erosion, Soil Conservation Measures, Sedimentation in Reservoirs and Sedimentations of Rivers and Canals.

Price: US$ 20.– plus postage $ 5.– surface mail or $ 10.– airmail.

Orders to: Asian Institute of Technology, P.O. Box 2754, Bangkok, Thailand.

Land Evaluation. S. G. McRae and C. P. Burnham. Clarendon Press, Oxford, 1981, 239 p. ISBN *0-19-854518-5.*

This title appeared in the well-known series of Monographs on Soil Survey by the Oxford University Press. It presents a wide variety of land evaluation systems from which the most suitable for a particular purpose can be chosen. Chapters 2 and 3 cover the collection and processing of crop-yield data, the collection of the data required for indirect land evaluation, and the general strategy of data use, particularly procedures for using soil survey information. Chapters 4–7 deal with land evaluation for agriculture, including the assessment of land suitability for crops and agricultural practices, land capability for general agriculture using either categoric systems or parametric systems, and the evaluation of land for irrigation. Chapters 8–10 cover forestry; the suitability of land for building, waste disposal, or recreation; natural resource surveys; and the use of land evaluations in land-use planning.

Price: £ 20.00 in U.K.

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

Flow-diagram Keys for 'Soil Taxonomy'. E. Oxisols and Vertisols. R. F. Thomas, L. C. Blakemore and D. I. Kinloch. New Zealand Soil Bureau Scientific Report 39E. Soil Bureau, Lower Hutt, 1981, xvii and 70 p. Series ISSN 03404-1735.

Flow-diagram Keys for 'Soil Taxonomy'. F. Aridisols. R. F. Thomas, L. C. Blakemore and D. I. Kinloch, New Zealand Soil Bureau Scientific Paper 39F. Soil Bureau, Lower Hutt, 1981, xv and 63 p. Series ISSN 03404-1735.

These are the fifth and sixth volume in a series which seeks to explain, in flow-diagram form, the definitions and keys given in the USDA Agriculture Handbook 'Soil Taxonomy'. In these volumes flow diagrams are presented which permit determiniation, down to subgroup level, of the taxonomic classes of soils in the Oxisols, Vertisols and Aridisol soil order. They are derived from the relevant keys and definitions in 'Soil Taxonomy', and incorporate USDA-approved amendments dated 5 May 1978.

The flow diagrams are intended to permit easy stepwise interpretation of the keys and definitions, thereby helping to clarify the logic that is implicit in the text. They are likely to be useful in a variety of ways to persons working with 'Soil Taxonomy', whether in assisting initial familiarisation or in facilitating evaluation of proposed changes to the taxonomy. They are not, however, intended to replace the original formal text.

Earlier volumes were flow diagrams for diagnostic horizons and properties of mineral soils (vol. A), for soil moisture and soil temperate regimes and diagnostic horizons and properties of organic soils (vol. B), for the key to soil orders (vol. C), and for the soil orders Histosols and Spodosols (vol. D).

Price: NZ$ 3.– per volume + NZ$ 1.50 for postage.

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

Principles of Soil Chemistry. K. H. Tan. Marcel Dekker, New York and Basel, 1982, 267 p. ISBN 0-8247-1336-2.

This book appears in the series 'Books on Soils and the Environment', edited by E. A. Paul. This volume adapts pure chemistry for use in the scientific study of soils and plants. The text features comprehensive coverage of the fundamentals and current concepts in soil chemistry and is given in easy-to-understand terms. It includes information on soil forming processes and tables for the interpretation of analytical results. The book presents chemical reactions in soil solutions and plant cells as they occur in situ, and mentions a wide variety of methods necessary for identifying both organic and inorganic soil constituents. This textbook bridges the gap between pure chemistry and soil science and presents soil as a basic entity in a wide range of disciplines. It is not only written for students in soil chemistry, analysis, fertility, mineralogy, physics and microbiology, but is also of interest to those engaged in agriculture, irrigation, forestry, conservation, land use, ecology, and others who have an interest in soil chemistry.
Price: Sfr. 104,–
Orders to: Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, U.S.A.

Polders of the World – Papers International Symposium, Lelystad, October 1982. Three volumes. ILRI, Wageningen, 1982, 719, 739 and 82 p.

The aims of this international symposium were to provide a comprehensive view of the various aspects of polder development and to give scientists, engineers, decision makers and managers a forum for discussing common problems. The large amount of papers are bundled in three volumes. The 140 contributions have been arranged in the following subjects: polder projects (28 papers), land and water management (37 papers), construction aspects (24 papers), agricultural aspects (14 papers), socio-economy (19 papers) and environmental aspects (12 papers). The organizers and the publishers should be complimented with bringing out these volumes timely.
Price: set of three volumes Dfl. 180.–, including postage if prepaid.
Orders to: ILRI, P.O. Box 45, 6700 AA Wageningen, The Netherlands.

Proceedings of the South Pacific Regional Forum on Soil Taxonomy, Suva, November 1981. R. J. Morrison and D. M. Leslie, editors. Institute of Natural Resources, Suva, 1982, 445 p.

This two-weeks forum, attended by 21 participants, was organized to familiarize soil scientists in the region with Soil Taxonomy as a system of soil classification.

The proceedings contain the papers presented at the forum. After an introduction on the history of the development of Soil Taxonomy and the role of the Soil Management Support Services and the internationalization of this soil classification system, the basic concepts and diagnostic criteria are outlined. It appears that 7 soil orders are of importance in the South Pacific region and their characteristics are mentioned. After a chapter on Soil Taxonomy in relation to other classification systems such as the FAO-Unesco Soil map of the World legend and the French soil classification system CPCS, the publication has parts on the application of Soil Taxonomy in soil survey, correlation, agronomy and land use and on on-going regional activities in soil resources inventories and assessments. In the appendix details on the sites and soils visited during the field trip and a bibliography of South Pacific soils information.
Prices: US $ 10.– including surface mail charges.
Orders to: Institute of Natural Resources, University of the South Pacific, G.P.O. Box 1168, Suva, Fiji.

Crop Production in Salt-affected Soils. K. S. Dargan, O. P. Singh and I. C. Gupta. Oxford and IBH Publ. Comp., Calcutta, 1982, 276 .

Reclamation of salt-affected soils is essential as not only do these soils occupy vast areas, but they are potentially fertile. The crop production of these soils can lead to increased agricultural production and help to cope with the increasing requirements of the rapidly growing population.

This book is a critical evaluation of the present knowledge about reclamation and crop production in salt-affected soils. It is hoped that bringing information together in one volume will not only contribute to the knowledge but also help to solve the food problem of India and of other countries with comparable problem soils.

The book begins with the historical background of the problem and general characteristics of salt-affected soils and then goes on to discuss the principles of reclamation and practices of crop production.
Price: Rs. 72.– in India.
Orders to: Oxford and IBH Publishing Company, 17, Park Street, Calcutta 16, India.

Vegetation map of South America, Explanatory Notes. Unesco, Paris, 1981, 189 p. ISBN 92-3-001933-X. (Trilingual edition in English, French and Spanish).

These explanatory notes accompany the vegetation map of South America, presented in two sheets at a scale of 1 to 5 million. It covers all countries south of Panama and presents real limits of the chief spontaneous vegetation formations of this continent. Each vegetation type is characterized by its physiognomy and its phenology. The extensive bibliography covers biogeography and ecology of South America. This map has the same scale as the FAO-Unesco Soil Map of the World.
Price: FF 180.– in France.
Orders to: Unesco National Distributors around the world, or, in case of difficulties, Unesco Press, 7 Place de Fontenoy, 75700 Paris, France.

Food, Nutrition and Climate. Sir Kenneth Blaxter and L. Fowden, editors. Applied Science Publishers, London and New Jersey, 1982, ix and 422 p. ISBN 0-85334-107-9.

This volume contains the proceedings of an international symposium held at Ferndown, Dorset, England, in April 1981.

The effects of climate on the nutrition and well-being of man, and ability of man to adapt himself, his crops and animals to his environement, are thoroughly investigated in this interdisciplinary series of papers. Topics of discussion range from exploration of the limitations on crop growth on dynamic combinations of climate and soil characteristics, to climatic effects on pests and diseases, animals and fish as food, and the impact of man himself on climate. The consideration of effects of climate on the nutrient composition of food and of the nutritional needs of populations in different environments strikes a consistently topical note, and emphasises the importance of the possibilities of improving the quantity and nutritional value of the world's food. The contributors to this book represent a wide variety of specialist fields, and come from thirteen countries.

All 15 papers are followed by the gist of the discussions.

Price: £ 36.–, plus £ 1.50 postage for outside U.K.

Orders to: Applied Science Publishers, 22 Rippleside Commercial Estate, Ripple Road, Barking, Essex IG11 OSA, England.

Humus Chemistry: Genesis, Composition, Reactions. F. J. Stevenson. John Wiley & Sons, New York, Chichester, 1982, 443 p. ISBN 0-471-09299-1.

Humus is a key component of soils, sediments, and natural waters. The reactions mediated or governed by organic constituents are many and varied, and include ion-exchange, buffering, oxidation-reduction, complexation of metal ions, and sorption of pesticides and other organic chemicals. Humus also plays a major role in soil fertility. A knowledge of the nature and chemical composition of humus is fundamental to an understanding of the basic processes that take place in terrestrial and aquatic systems.

This reference text is a comprehensive, single-volume treatment of humus chemistry. It covers all major aspects of the origin, composition and reactions of naturally occurring organic substances in soils, sediments, lakes and streams. Environmental issues are integrated into the classical investigation of humus chemistry. The material is organized into four general areas. The first covers organic matter transformations (with emphasis on carbon-14 studies) and methods of extraction and fractionation. The second section deals primarily with the chemistry and distribution of known classes of organic compounds in soil. The basic organic chemistry of the so-called humic substances is presented in the book's third part. The concluding section examines organic matter associations and interactions, such as combinations with polyvalent cations, clay minerals, and herbicides. A broad range of topics are treated here, including: carbon transformations; chemistry and fate of nitrogen; carbohydrates, lipids, and constituents containing phosphorus and sulfur; clay-organic complexes; and the role of organic matter in soil-forming processes. Supplementing *the discussions are 138 figures and 87 tables.*

This textbook serves graduate and advanced undergraduate students as an outstanding text in soil organic matter chemistry and soil biochemistry. Its emphasis on the basic organic chemistry and reactions of naturally occurring organic substances in the environment also makes it a valuable reference for researchers in soil science, geochemistry, sanitary engineering, environmental science, and related disciplines. This informative and stimulating book will be a standard work in the topics discussed for many years to come.

Price: $ 50.– or £ 27.75

Orders to: John Wiley & Sons, 605 Third Avenue, New York, NY 10016, U.S.A., or: Baffins Lane, Chichester P019 1UD, England.

Soil and Plant Testing and Analysis. FAO Soils Bulletin 38/1. Report of an expert consultation held in Rome, 1977. FAO, Rome, 1980, 247 p. ISBN 92-5-100961-9.

Knowledge gained from scientific research over the years and its successful application have made a tremendous impact on agricultural production in recent times. The introduction of high yielding varieties has resulted in greater demands on plant nutrients which cannot be met by the inherent soil fertility. Expensive inputs, such as fertilizers, must be introduced if the required yield levels are to be achieved. Rational use of these inputs is imperative, particularly in developing countries. Even in the developed countries, one cannot overlook the rational and economic use of such inputs as fertilizers.

Methods for evaluating nutrient status in order to obtain better plant growth and increased yields are constantly being developed and improved. New analytical techniques and procedures for soil and plant analysis have been invented and tested in many countries and laboratories. There have been innovations in data processing leading to the preparation of more refined and specific fertilizer recommendations.

The purposes of the Consultation were: (a) to review advances in methodologies for soil and plant chemical analysis, and interpretation of the results obtained and the preparation of fertilizer recommendations based on these results (FAO Soils Bulletin 38/2), and (b) to identify progress made and areas requiring further attention with regard to the organization of soil testing services in general and, in particular, in developing countries.

The present Bulletin 38/1 contains 23 technical papers on methods and equipment for soil and plant testing analysis, evaluation, training needs and institutional and organizational problems of soil testing services in developing countries. An extensive list of recommendations has been drawn up as well.

Soil and Plant Testing as a Basis of Fertilizer Recommendations. A. Cottenie. FAO Soils Bulletin 38/2. FAO, Rome, 1980, 112 p. ISBN 92-5-100956-2.

The author, professor of soil chemistry at Ghent University, Belgium, has a wide experience in soil testing and plant analysis, especially in (sub)tropical regions.

Based on the discussions at the Consultation mentioned above, the present Bulletin 38/2 was written. After chapters on the determination of soil nutrients, recording, representation and interpretation of results, and the calibration of soil tests, sampling and analysis of plant tissue are considered. The first part of this Bulletin gives details on setting up soil and plant testing services at different levels of sophistication. Part 2 contains the methods and procedures of chemical soil and plant analysis.

Equipment and reagents are mentioned. The appendix consists of a series of form models.

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

Selected Papers from the Symposium on the Microscopy of Clays and Soils. Reprint from Journal of Microscopy, Vol. 120, part 3, p. 235–336. Published for the Royal Microscopical Society by Blackwell, Oxford, 1980. ISBN 0-632-00792-3.

The structural characteristics and variation of clays and soils have been studied in many disciplines by optical, and more recently transmission and scanning electron microscopy, and this multi-disciplinary activity has led to complex, diverse and frequently confusing terminology and systems of classification. It was for this reason that the UK Royal Microscopical Society organized a Symposium in September 1979 in Edinburgh in order to bring together those scientists, technologists and engineers who have a common interest in the analysis, description and classification of the structures of clays and soils by means of optical and electron microscopical techniques. In addition to such a wide range of scientific and technological backgrounds, speakers were drawn from North America, Europe and the USSR and the interdisciplinary nature of the topics discussed was emphasized by the fact that the differences of approach were characterized more by the speakers' background than by their country of origin.

Of the papers read at the Symposium, those included in this Special Issue have been selected on the basis of their contribution towards the development and applications of microscopical techniques in the problems involved in the characterization, classification, quantification and analysis of clay and soil structure. This publication will help to promote the use of microscopical techniques in research in these fields.

Price: £ 10, incl. of packing and postage.

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

Proceedings Third International Soil Classification Workshop, Syria and Lebanon, 1980. F. H. Beinroth and A. Osman, editors. ACSAD, Damascus, 1981, 388 p.

This workshop forms part of a comprehensive international effort to better adapt the USDA/SCS Soil Taxonomy to edaphic factors in the tropics and subtropics.

The proceedings contain the papers presented at the workshop and complete descriptive and analytical data for the soils studies in the field and constitute a reference publication on the taxonomy and characteristics of arid and seasonally dry soils of the subtropics.

The publication has the following subjects: climate in soil classification systems (3 papers), regional studies (4 papers), national reports (6 papers), special properties of dry soils (3 papers), characterization methodology (5 papers), utilization and management of dry soils (4 papers), international activiteis in Soil Taxonomy (5 papers). It also contains a report on a subsequent short meeting in Athens, Greece to discuss further activities, and the resolutions and recommendations drawn up at the workshop.

Copies are free of charge.

Requests to: Dr. A. Osman, Soil Science Division, ACSAD, P.O. Box 2440, Damascus, Syria, or: Dr. H. Eswaran, Soil Management Support Services, SCS, P.O. Box 2890, Washington, DC 20013, U.S.A.

Proceedings Australian Forest Nutrition Workshop Productivity in Perpetuity, Canberra, August 1981. CSIRO, Melbourne, 1981, 366 p. ISBN 0-643-00405-X.

This workshop has been organized under the auspices of Research Working Group 3 (Soils and Nutrition) of the Australian Forestry Council. The theme addressed throughout these Proceedings, namely 'Productivity in perpetuity', reflects two major areas of concern: the forest managers' concern is for continued wood supply for forest-based industries; the forest researchers' concern is for conserving the integrity of the soil resource as the basis for maintained productivity over increasingly intensive and shorter planted forest rotations, and increased levels of wood utilization in native forests.

The invited papers in this Workshop have reviewed the current knowledge of forest nutrition and the current strategies for management; from this basis of understanding many of the key problems facing forest researchers and managers have been identified.

Abstracts of contributed papers and of posters presented at the workshop have also been given.

Price: $A 10.–.

Orders to: CSIRO Central Information, Library and Editorial Section, P.O. Box 89, East Melbourne, Victoria, Australia 3002.

Surface Water and Ground Water Interaction. Studies and Reports in Hydrology No. 29. C. E. Wright, editor. Unesco, Paris, 1980, 123 p. ISBN 92-3-10182-0.

The importance of understanding the interactions between surface water and ground water and the techniques of its analysis are emphasized. Detailed consideration is confined to that aspect of the hydrological cycle. Emphasis is given to arid zones, in which the interaction can be quite different from temperate zones.

The publication is divided into five sections, three of which, following the Introduction discuss analytical methodology: (1) Definition of the interaction; (2) Methods of assessing the interaction; and (3) Accuracy of methods of assessment. The last section consists of four case studies, two in temperate zones and two in arid zones.

Price: FF 45.– in France.

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

Soil and Permafrost Surveys in the Arctic. K. A. Linell and J. C. F. Tedrow. Clarendon Press, Oxford, 1981. 279 p. ISBN 0-19-857557-2.

The problems of arctic soil and permafrost surveys are particularly important because arctic lands have a number of characteristics usually not found in other parts of the globe: widespread distribution of permafrost, unusual terrain conditions, and extreme climate, among others.

For centuries there was little interest in the arctic and accordingly there was little apparent need for accumulating data. There is now need for modern science and technology in site selection and in the construction and maintenance of airfields, roadways, pipeline corridors, buildings, and related structures. Futher, in considering such questions as the northern extension of agriculture, land use, conservation, and wildlife, soil and permafrost conditions become critical. Most books on soil mechanics and pedology give little space to frozen soil conditions. The aim of this volume is to focus on the special problems associated with surveying arctic soils and permafrost. In so doing, the authors have not attempted to cover the arctic literature completely. This already has been done in a number of other volumes. It is focused on field problems and procedures together with a multiplicity of unique situations associated with arctic terrain.

Price: £ 25.– in U.K.

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

Soils: Process & Response. I. M. Fenwick and B. J. Knapp. Duckworth, London, 1982, 213 p. ISBN 0-7156-1394-4.

This book offers a thorough analysis of the basic processes of soil formation and soil response – processes which are fundamental not only to soil geography but to much biogeographical and ecological work. The area covered ranges widely, from the arctic to the tropics, but the discussion is always of sufficient depth to allow the reader to make sound value judgments. Diagrams and photographs (including eight colour plates) support the argument throughout. A concluding chapter is devoted to simple analytical techniques, to enable students to investigate processes in their local region.

The book is intended primarily for anyone undertaking a first course in pedology at a university, polytechnic or similar institution. It would be of value to geographers, environmental scientists, soil experts, botanists and agriculturalists. It will also serve as a reference book at advanced school level.

Price: £ 12.50 in U.K.

Orders to: Duckworth, The Old Piano Factory, 43 Gloucester Crescent, London NW1, England.

Modifying the Root Environment to Reduce Crop Stress. G. F. Arkin and H. M. Taylor, editors. American Society of Agricultural Engineers, 1981, 420 p. ISBN 0-916150-40-2.

It is the editor's intent to provide a monograph that will be used by engineers, agronomists and farmers for selecting soil treatments that likely will reduce soil stresses on plant roots and thereby increase crop yields. Procedures for diagnosing adverse soil environments and methods for correcting them are set forth in almost handbook fashion, when possible. When no particular corrective treatment can be specified, the authors discuss the available information in sufficient detail for the reader to infer an appropriate treatment for the local condition.

A quantitative understanding of the plant's response to its subterranean environment is required if the maximum effectiveness is to be derived from each soil treatment. The root environment is complex and rapidly changing, causing difficulty in making diagnoses and in predicting consequences of soil treatments. The editors attempted to assemble a monograph based on a systems approach and tried to weave this approach throughout the monograph. The consequences of any single corrective action is often mediated by other factors, such as the weather, insect infestations, or other plant or soil stresses. Mathematical simulation models, soundly based on physical, chemical and physiological principles, can account for the effects of these interactions with those of the actions taken to correct the soil stresses. Knowledge about the soil-root system is much more fragmentary and more expensive to obtain than that about the plant aerial environment system, but knowledge is accumulating rapidly.

Price: $ 34.50.

Orders to: American Society of Agricultural Engineers, 2950 Niles Road, Box 410, St. Joseph, MI49085, U.S.A.

The Nitrogen Cycle. A Royal Society Discussion held on 17 and 18 June 1981, organized by W. D. P. Stewart and T. Rosswall. The Royal Society, London, 1982. 273 p. ISBN 0-85403-183-9.

The last decade has seen substantial advances in our knowledge of the nitrogen cycle, a cycle dominated by the activities of microorganisms that shuttle and interconvert nitrogen species by a series of intricate biochemical steps. The advances have resulted mainly from improved methods of measuring the various processes involved, such as nitrogen fixation, denitrification and nitrification, coupled with a better understanding of the ecology, physiology and biochemistry of the responsible organisms and of plant and animal production. In countries such as the United Kingdom, high crop yields are often taken for granted; it is not always appreciated how essential large additions of chemical nitrogen fertilizer are to achieve such yields.

The present volume presents the current state of knowledge and research on the nitrogen cycle. Most often papers relate to U.K. studies, but some contributions are from continental Europa and the U.S. Papers were presented in the follwing sessions: agriculture and the nitrogen cycle (11 papers), forestry and the nitrogen cycle (3 papers), nitrogen cycling in aquatic ecosystems (4 papers), the nitrogen cyle: some manmade perturbations (2 papers), and regional nitrogen cycles. The book ends with a general discussion.

This well-produced volume should be of value worldwide to those with an interest in the nitrogen cycle.
Price: £ 29.80 in U.K., £ 31.30 elsewhere.
Orders to: Publications Sales Officer, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG, England.

Principles of Plant Nutrition. Third edition. K. Mengel and E. A. Kirkby. International Potash Institute, Worblaufen-Bern, 1982, 656 p.

This completely revised third edition has in common with the first edition that it evaluates the importance of advances in crop physiology and soil science for crop production and fertilizer application. Written for students, the book treats nutrient relationships in the soil, nutrient uptake and assimilation by plants and nutrient functions in plant metabolism with particular reference to crop production.

In this new edition the sections dealing with root systems and root growth, the importance of mycorrhizae in nutrient uptake have been extended and more prominence has been given to growth regulators and plant hormones.

The book covers the modern theories and concepts of the subjects mentioned above, and considers their significance to practical crop production. Nutrient availability in the soil, nutrient cycles and fertilizer application are all treated in relation to practical plant nutrition. The book quotes about 1600 references from research workers throughout the world and thus not only provides an up to date text-book for students on agriculture, horticulture, forestry and applied biology but also serves as a guide to plant nutrition for specialists in other branches of plant sciences.

The book is well-produced and reasonably priced.
Price: Sfr. 48.–, US $ 26.70, £ 14.55 plus mailing charges.
Orders to: International Potash Institute, P.O. Box 121, CH-3048 Worblaufen-Bern, Switzerland.

Micromorphogical analysis and characterization of 70 Benchmark soils of India. A basic reference set. M. J. Kooistra. Soil Survey Institute, Wageningen, 1982, 778 p. ISBN 90-327-0164-9.

This reference set contains the full documentation of the micromorphology of 70 Benchmark soils of India. The micromorphological documentation consists of: a standard description of each thin section, short micromorphological descriptions per pedon and an interpretation of the data. This information is presented together with information about the site, a detailed profile description, land use information and analytical data of the Benchmark soils studied. The reference set consists of 4 parts: I. General information, II. Soils of the Kashmir Valley, the Himalayan and Northern Mountains, the Indo-Gangetic Plains, Brahmaputra Valley and Tarai, III. Soils of the Desert Region and Black Soil Region and IV. Soils of the Red and Laterite Soil Region and the Coastal and Deltaic Region. It is a useful addition to Benchmark Soils of India, edited by Murthy, Hirekerus, Deshpande and Venkanta Rao, published by the National Bureau of Soil Survey and Land Use Planning (ICAR). See ISSS Bulletin 61, page 63.
Price: Dfl. 95,– for set; no separate volumes available.
Orders to: Netherlands Soil Survey Institute, P.O. Box 98, 6700 AB Wageningen, The Netherlands.

The Flat Wetlands of the World, their distribution and their agricultural potential. A. J. van Dam and C. A. van Diepen. Int. Soil Museum, Wageningen, 1982, 47 p., with a world map at scale 1:50 million.

This booklet has been prepared for the international symposium Polders of the World, held in Lelystad, The Netherlands, October 1982. The paper describes the methodology used for the inventory of the world's flat soils with impeded drainage, presented on a scale of 1:5 million at the symposium. This inventory is mainly based on the FAO-Unesco Soil Map of the World and more recent soil maps for South America. Ratings are given for suitability of the soils for agricultural development, based on land qualities and climatic conditions. The area extent of the 45 soil units are presented in tables, broken down by (sub) continent and by climatic zone.
Price: Dfl. 10.– or $ 5.–, including mailing charges if pre-paid.
Orders to: International Soil Museum, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

Electron Microscopy of Soils and Sediments: Techniques. P. Smart and N. K. Tovey. Oxford University Press, Oxford, 1982, xiii + 264 p. ISBN 0-19-857574-2.

During the last two decades, considerable interest has arisen in the examination of the 'electron microstructure' of fine grained soils and sediments and similar materials. To a certain extent, this was inevitable, because there had already been studies of the optical microstructure of these materials and electron-microscopic studies of their constituent particles. The development of the subject was influenced by two stimuli: attempts to explain the mechanical properties of soils, etc., in terms of physico-chemical theories which involved hypothetical models of soil structure; and the development of the scanning (reflection) electron microscope.

By now, both scanning and transmission electron microscopes are being used to investigate a wide range of problems, which includes metamorphic, weathering, and soil forming processes in both the geological and pedological contexts, thesurface texture of sand grains, the texture of solid rocks, clay minerals in the pores of less solid rocks, the interactions between subterranean bacteria and their environment, and root growth, in addition to the engineering applications.

Much of this account is concerned with the structure of the soil, the objects of electron microscopy being to observe the relationships between adjacent particles and small groups of particles.

The aim of this volume is to describe the techniques of electron microscopy (SEM, STEM, TEM and other methods), the companion volume shows some examples of the applications of these techniques. The present volume has also chapters on soil drying and impregnation methods, and on quantitative analysis.
Price: £ 45.– in U.K.
Orders to: see below.

Electron Microscopy of Soils and Sediments: Examples. P. Smart and N. K. Tovey. Oxford University Press, Oxford, 1981, viii + 178 p. ISBN 0-19-854515-0.

This collection of micrographs illustrates the structures of a variety of soils and sediments as seen in scanning and transmission electron microscopes. For the work illustrated here, a wide variety of techniques was used; these are fully explained in the companion volume: Techniques.

The volume contains micrographs of clay minerals, inter-particle and domain structures, consolidation, deformation, failure, organic matter, inorganic cements, authigenic features, weathering, erosion, sand grains, cathodoluminence and artefacts. Captions of the micrographs give type of sample, preparation, discussion, supplier of micrograph and sample. The reproduction of the micrographs is of a high standard.
Price: £ 30.– in U.K.
Orders to: Oxford University Press, Walton Street, Oxford OX2 6DP, England.

Phosphorus in tropical soils: assessing deficiency levels and phosphorus requirements. World Phosphate Institute, Paris, 1980, 48 p.

This brochure is the outcome of a 5-year study on the assessment of deficiency levels and on the economic methods of correcting such deficiencies. The present study is only concerned with tropical regions. It was based on 500 unfertilized soil samples with known phosphate response, collected in 42 countries. All soils were analyzed. After the assessment of the deficiency levels proposals for the use of phosphate fertilizers are given.

All soils were classified in the legend of the FAO-Unesco Soil Map of the World, and results are given per main unit.

The brochure, also available in French and Spanish and Portuguese, is available free of charge.
Requests to: World Phosphate Institute, 8 Rue de Penthièvre, 75008 Paris, France.

Saline and Sodic Soils: Principles-Dynamics-Modeling. Springer Advanced Series in Agricultural Sciences, volume 10. E. Brester, B. L. McNeal and D. L. Carter. Springer Verlag, Berlin, Heidelberg and New York, 1982, × + 236 p., ISBN 3-540-11120-4 (Fed. Rep. Germany); 0-387-11120-4 (U.S.A.).

This book treats in a comprehensive way most of the current research areas being used to characterize, describe and manage saline and sodic soils. The coverage includes critical interpretations of models characterizing the physical and chemical interactions of salt concentration and composition, their effects on soils and plants, and suggestions for the control of soil salinity to improve economic potential of croplands.

Part 1, Diagnosis and Properties, has chapters on the sources of salts, water quality and soil solution parameters, soil surface phenomena, salt dissolution and precipitation, and diagnosis of salinity problems.

In Part 2, Transportation and Distribution of Salts, the following is discussed: water movement processes, salt transport in soils, and the mathematical and numerical modeling of salt-flow phenomena.

Part 3, Management, treats crop tolerance, irrigation practices, reclamation methods, and solute flow models applied to irrigation management optimalization.

Each topic in this volume is explained in sufficient detail to be readily accessible for students and professionals in hydrology and the agricultural and environmental sciences who have a general background in mathematics, physics, chemistry and biology.
Price: DM 98.–; approx. £ 44.–.
Orders to: Springer-Verlag, Heidelberger Platz 3, D-1000 Berlin 33, Fed. Rep. Germany; or: 175 Fifth Avenue, New York, NY 10010, U.S.A.

Handbook of Soils and Climate in Agriculture. V. J. Kilmer, editor. CRC Press, Boca Raton, 1982, 445 p. ISBN 0-8493-3811-7.

This volume is one of a series within the CRC Series in Agriculture, Editor-in-Chief A. A. Hanson. The aim throughout has been to present in condensed form reliable information on soil science and climate as it relates to crop production. Convenience in form and the possibility of wide use and distribution have been kept uppermost in mind during the preparation of this volume. The tables and figures have been compiled especially for this Handbook by scientists who are recognized authorities in their respective fields of specialization.

An attempt has been made to include material pertaining to all major branches of soil science. However, a decision was made to exclude types of data of use only in highly specialized lines of work. The final product is not intended as a guide to agricultural practices, because specific recommendations are constantly changing on the basis of new research findings.

Soils are systems of extreme complexity and variability. Consequently, soils tend to defy accurate characterization on a broad scale by means of absolute constants and fixed values. Soils systems invariably exhibit ranges in particular properties and characteristics. The difficulties involved in attempting to quantify long range climatic trends are well known to both professional meteorologists and laymen. In spite of these obstacles, it is hoped that the Handbook will be of significant value to all who seek and use information concerning soils and climate.

After a 100-page long chapter on the climate in the United States, there are contributions on soil classification, soil physics, soil chemistry, soil microbiology, soil organic matter, chapters on soil fertility, fertilizers and other soil amendments. After contributions on soil and water management and conservation and on wind erosion this well-produced book finishes with a glossary.

Price: $ 94.– in the U.S.A., elsewhere $ 108.–.

Orders to: CRC Press, 2000 Corporate Boulevard (NW 24 St.), Boca Raton, FL 33431, U.S.A.

Trace Elements in Indian Agriculture. An Annotated Bibliography 1941–1982. L. L. Somani. Agricole Publishing Academy, New Delhi, 1982, 276 p.

India is facing a menacing problem of trace elements deficiencies in various parts of the country and responses to applications of micronutrients have been remarkable. The increasing literature on this important subject, makes this bibliography a very welcome searching tool for scientists associated with trace elements research and studies in plant nutrition. The book contains abstracts of 709 references from 101 periodicals. It has author, source and subject indexes to facilitate a quick retrieval of the desired references.

Price: Rs 150.00 in India, US $ 30.– elsewhere.

Orders to: Agricole Publishing Academy, D-76 Panchsheel Enclave, New Delhi 110 017, India.

Erosion and Environment. M. Holý. Environmental Sciences and Applications, volume 9. Pergamom Press, Oxford, New York, 1980, reprint 1982, 225 p. ISBN 0-08-024466-1.

This publication examines the theoretical and practical aspects of water and wind erosion processes and their impact on the environment, in an attempt to establish environmental control methods for the protection of water and soil. The publication gives a detailed analyses of the basic factors which affect the occurrence and intensity of erosion processes and numerous photographs and graphs especially illustrate the design and implementation of erosion control projects. Most examples are drawn form Czechoslovakia. The translation was made by J. Ondráčková.

Price: $ 62.–.

Orders to: Pergamon Press, Headington Hill Hall, Oxford OX3 OBW, England, or: Fairview Park, Elmsford, NY 10523, U.S.A.

Micronutrients and the nutrient status of soils: a global study. FAO Soils Bulletin 48. M. Sillanpää. FAO, Rome, 1982, 444 p. ISBN 92-5-101193-1.

During the last two decades, the increasing use of mineral fertilizers and organic manures of different types has led to impressive yield increases in developing countries. Major emphasis was given to the supply of the main macronutrients, nitrogen, phosphate and potash. For a long time it was felt that under the existing farming systems and fertilizing practices the level of micronutrients was adequate and that the problem of micronutrient deficiencies was not a serious one. However, indications from developing countries show that micronutrient problems are becoming more and more frequent.

In the early 1970s the Government of Finland, through its Institute of Soil Science and FAO embarked on a system of investigation of microelement deficiencies in developing countries. In 1974, the Trace Element Study Project started under the direction of Prof. M. Sillanpää. This involved a worldwide study on micronutrients, in cooperation with 30 countries in Europa, Latin America, Asia and Africa.

The study, which is presented in this bulletin, shows that the undertaking was very timely. It appears that micronutrients are becoming deficient in developing countries and that remedial measures will need to be taken to ensure full soil and plant productivity. The study also gives guidance for the investigation of micronutrient deficiencies, which should be dealt with at the country level.

Price: US $ 25.–

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

General Agriculture and Soils. E. A. Aduayi and E. E. Ekong. Cassell's Tropical Agriculture Series Book 1. Cassell, London, 1981, 102 p. ISBN 0-304-30207-4.

This series, of which this book is the first, is aimed at providing at little more depth in the teaching of agriculture than has hitherto been the case with most general texts on the subject. It is intended for use by secondary schools, teacher training colleges, schools of agriculture, advanced teacher's colleges, and by farmers and other interested persons.

In the first part of this book, the reader is introduced to the subject of agriculture and its problems and prospects in West Africa, while in the second the soil is discussed as vital factor in agriculture. This publication is well illustrated.

Price: £ 4.95 in U.K., paperback.

Orders to: Cassell Ltd., 35 Red Lion Square, London, WCIR 4SG, England.

Plant Nutrition 1982. Proceedings of the Ninth International Plant Nutrition Colloquium, Warwick, August 1982. A. Scaife, editor. Commonwealth Agricultural Bureaux, 1982, 2 vol., 750 p. ISBN 0-85198-505-X.

The book consists of papers presented at the Ninth International Plant Nutrition Colloquium, held at Warwick University, England in August 1982. The Colloquium which was formerly known as 'Plant Analysis and Fertilizer Problems' is held every four years, always in a different country.

The 137 papers cover a wide range of subjects related to plant mineral nutrition, such as diagnostic techniques; novel analytical methods; crop responses to stresses such as salinity; water logging; and drought; prediction of fertilizer requirements; hydroponics, nutrient film technique, functions of elements in plants; and genetic approaches to nutrient stress.

Price: £ 20.– in U.K. plus £ 2.– for postage and packing.

Orders to: Commonwealth Agricultural Bureaux, Farnham House, Farnham Royal, Slough SL2 3BN, England.

Constituents and Properties of Soils. M. Bonneau and B. Souchier. Translation from the French edition, 1979. V. C. Farmer, translation editor. Academic Press, London, New York, 1982, 496 p. ISBN 0-12-114550-6.

It should be welcomed that an English translation of this well known French textbook is now available. It is a companion volume to Pedogenesis and Classification by Ph. Duchaufour, which will be published in translation by Allen & Unwin, London.

The present volume is concerned with soil constituents and with those properties that are of particular importance for agriculture and forestry. After a review of the various soil constituents, both inorganic and organic, and emphasizing their interactions, the second part deals with the physical and chemical properties of soil in an integrated manner and with cartography of soil. Quoting the translator's preface: 'France has both a strong tradition and a high level of current activity in soil research, neither of which are perhaps as well known by English-speaking pedologists as they deserve', the present volume and its companion now provide an excellent overview of French approaches to soil science and of soil research activities. These volumes will prove to be an invaluable publication with stimulating contents for English-speaking soil scientists.

Price: £ 36.20 or $ 74.50.

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

Proceedings Second International Conference on Physical Properties of Agricultural Materials and their Influence on Technological Processes, Gödöllö, August 1980. Compiled by Z. Balássy, Gödöllö, 1980, 4 volumes, various pagings.

This conference was organized by several Hungarian institutions under the auspices of the Hungarian National Committee of the Commission International du Génie Rural, at the University of Agricultural Sciences in Gödöllö, August 1980. The proceedings contain the texts or abstracts of the 164 papers presented. From these about a quarter deal with a variety of soil aspects.

Requests to: Prof. Dr. J. Pecznik, University of Agricultural Sciences, Gödöllö, Hungary.

Soil Classification. Benchmark Papers in Soil Science, volume 1. C. W. Finkl, Jnr., editor. Hutchinson Ross Publ. Company, Stroudsburg, 1982, 391 p. ISBN 0-87933-399-5.

This first volume in a series of important papers on soil science contains a wide selection on soil classification. Examples of different systems are reproduced in facsimile form, accompanied by editorial commentary that considers various classificatory efforts in relation to changing methods and viewpoints in soil taxonomy. Pertinent sections of the soil classification systems are included.

This unique book with 27 papers covers many advances in soil classification and will be of great interest to soil scientists and others interested in the development of soil classification. The reviewer regrets, however, that no attention is given to the FAO-Unesco Soil Map of the World legend. Since more volumes are planned, it is suggested to give more attention to international developments.

Price: $ 45.–.

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

J. van Baren, Wageningen

Proceedings of the 1981 International Peat Symposium. C. H. Fuchsman, editor. Bemidji State University, Bemidji, 1982, 613 p. ISBN 0-943090-00-8.

The proceedings consist of 34 papers, or abstracts of papers, presented at the International Peat Symposium at Bemidji State University, Bemidji, Minnesota, U.S.A. in October 1981. The symposium was organized to promote an active interchange of new chemical, engineering, and microbiological information among peat scientists, with the emphasis on non-fuel aspects.

About half of the papers come from the U.S.A., one-fourth from Canada, one-fourth from Europe. Most papers have abstracts in German, some in French, Finnish and Russian.

Price: $ 25.–

Orders to: Center for Environmental Studies, Bemidji State University, Bemidji, Minnesota 56601, U.S.A.

Monitoring and Evaluation of Agricultural Change. J. Murphy and L. Sprey. ILRI, Wageningen, 1982, 360 p. ISBN 90-70260-74-3.

In many countries where agriculture is the major source of income, efforts are now under way to increase agricultural production by improving farming practices and conditions. Information about existing farming conditions and about the impact of development activities as they are occurring are necessary tools. This book, providing a system of data gathering, analysis, and feedback of farm information during the life of a project, can assist development efforts in two ways: to allow project managers to adjust their activities to the farmers' needs and constraints and to provide planners and policy-makers with up-to-date information on agricultural change.

In this book the authors have elaborated a program for monitoring and evaluation that fits the conditions in the semi-arid tropics. It is not a review of existing methodologies, but it is a tool that can help the reader to select a course of action appropriate to his situation. The book is presented in two parts. Part I, General Principles, describes, step by step, how to organize a monitoring and evaluation unit. Part II, Methodologies, is a detailed elaboration of the activites described in part I. It is illustrated with many designs and graphs.

Price: Dlf. 55.–, including postage if pre-paid.

Orders to: ILRI, P.O. Box 45, 6700 AA Wageningen.

Organic materials and Soil Productivity in the Near East. FAO Soils Bulletin 45. FAO, Rome, 1982, 279 p. with Arabic summary, 48 p. ISBN 92-5-001217-9.

This Bulletin contains the papers and proceedings of the Workshop on Organic Materials and Soil Productivity in the Near East, which was held at Alexandria University, Egypt, in October 1978.

In view of the important complementary effect of organic materials to mineral fertilizers and their role in improving the soil's physical properties, the Workshop has dealt with a wide variety of items on techniques and uses of the organic materials and wastes including composting, bio-fertilizers and biogas, the environmental and health aspects, and action guidelines for follow-up activities in the Near East countries.

The Bulletin has 28 papers and 6 country reports. The proceedings of the Workshop present also conclusions and sound recommendations, the implementation of which would assist in improving the soil productivity, raising crop production levels and producing a better quality of life. The Bulletin has an Arabic summary of the English text.

Le recyclage des résidus agricoles organiques en Afrique. Bulletin Pédologique de la FAO 47. FAO, Rome, 1982, 262 p. ISBN 92-5-201220-6.

Le séminaire sur le recyclage des matière organiques, organisé pour les pays francophones d'Afrique du 24 au 29 novembre 1980 à Lomé, Togo, faisait suite à celui organisé au Cameroun deux ans auparavant pour les pays anglophones. (Soils Bulletin 43). Il s'inscrivait dans une série d'activités en cours en Asie, au Proche-Orient et en Amérique latine, dans le but de porter à la connaissance des participants les avantages non négligeables de l'utilisation dans l'agriculture de ce qu'on considère généralement dans le continent comme des déchets inutilisables.

Sous le concept de 'recyclage des matières organiques' on regroupe un certain nombre de techniques qui sont de plus en plus appliquées selon les conditions locales. Par exemple: l'emploi du compost, des résidus ménagères, des déjections animales et humaines et des déchets végétaux; fixation biologique de l'azote, y comprise la fixation symbiotique par les légumineuses et les rhizobiums et la fixation non-symbiotique, par exemple par les algues bleu-vertes ou les azolla; biogaz, qui permet d'obtenir méthane, et des engrais organiques; et mulching.

Mais pour promouvoir le recyclage des matières organiques, il faut un effort d'éducation et de vulgarisation à l'intention tant du personnel de terrain que des paysans eux-mêmes. D'après l'expérience que la FAO a acquise en cours de divers programmes de recyclage des matières organiques, les paysans s'y intéressent beaucoup dès qu'ils ont pu en constater l'intérêt dans l'accroissement des rendements. Le Bulletin contient les 16 documents techniques et des rapports de 9 pays de l'Afrique francophone. Une annexe contient les recommandations et conclusions des groupes de travail sur la recherche sur la fixation biologique de l'azote, et sur la vulgarisation et formation.

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

Commandes à: Agents officiels de vente de la FAO, ou en cas de difficultés, à la Section distribution et vente, FAO, Via delle Terme di Caracalla, 00100 Rome, Italie.

Organic Recycling in Africa. FAO Soils Bulletin 43. FAO, Rome, 1980, 304 p. ISBN 92-5-100945-7.

In December 1974, FAO organized an Expert Consultation on the use of organic materials as fertilizers. The conclusions of this Consultation were published in FAO Soils Bulletin 27 'Organic materials as fertilizers' (FAO, Rome, 1975).

Attention was drawn in that publication to the lack of interest in agronomic research into the utilization of organic materials as fertilizers. This was attributed to the adequate supply of mineral fertilizers at relatively modest prices before 1973/74. However, since that time, the situation has greatly changed and it was soon realized that the world's raw materials are not unlimited and that their rational use is a prime necessity. This has been even more important in recent times with the rising cost of energy and greater deficit in food production in most developing countries. Policy makers as well as scientists have started to acquire an honest appreciation of the possibilities of reducing the wastage of materials which could be profitably utilized for improving or maintaining soil productivity. In addition, the great opportunities offered by making more efficient use of the potentials of biological nitrogen fixation in farming systems are now fully recognized.

Four Regional Workshops in Asia, Africa, the Near East and Latin America were organized, primarily to motivate agriculturalists and scientists to take a fresh look at the problems of Organic Recycling in Agriculture and to develop action oriented programmes. The present publication is the proceedings of the second Regional Workshop, held in Buea, Cameroon in December 1977.

A number of recommendations and suggested guidelines were made. These covered: cropping systems and crop residue management, biological N-fixation and research, traing and extension. The Bulletin contains the texts of the 21 papers presented at the workshop.

See also the announcement on Bulletin Pédologique de la FAO 47, in this issue (page 61).

Migrations Organo-Minérales des Sols Tempérés. Colloques Internationales du CNRS, Nancy, septembre 1979. CNRS, Paris, 1981, 500 p. ISBN 2-222-02681-4.

L'ensemble des travaux regroupés dans cet ouvrage (49 communications, 3 tables rondet et 10 posters) fait le point des progrès récent dans la connaissance des mécanismes physico-chimiques et biologiques, qui participent aux transports de matière à travers les sols et les écosystèmes terrestres.

Les communications sont regroupées en quatre thèmes:

Thème I: Ecologie des phénomènes de migrations organo-minérales. Sont évoqués dans ce thème, les milieux drainés ou hydromorphes soumis à une pédogéochimie organique acide.

Thème II: Composés biologiques intervenant dans les migrations organo-minérales. Sont pris en compte, dans ce thème, le rôle des microorganismes et le rôle de la faune du sol dans les phénomènes d'interactions organo-minérales et de transport de matière.

Thème III: Chimie des combinaisons organo-minérales, c'est-à-dire étude interdisciplinaire des mécanismes d'insolubilisation et de désorption des colloïdes humiques à l'interface 'minéraux-gels minéraux' et 'gels minéraux-solution'.

Thème IV: Mécanismes et incidences des migrations organo-minérales, avec notamment, le rôle des agents de migration et des conditions du milieu dans les phénomènes d'appauvrissement ou d'enrichissement des sols à partir des matériaux transportés.

Cet ouvrage présente également un compte-rendu des réflexions suscitées à l'occasion de tables rondes.

Prix: FF 270,–.

Commandes à: Librairie des Editions du CNRS, 15 quai Anatole France, 75700 Paris, France.

Structure and Function of Plant Roots. R. Brouwer, O. Gasparikova, J. Kolek and B. G. Loughman. Martinus Nijhoff/Dr. W. Junk Publishers, The Hague, Hingham, 1981, xix + 413 p. ISBN 90-247-2510-0.

This fourth volume in the series Developments in Plant and Soil Sciences contains the proceedings of the Second International Symposium on Structure and Function of Roots, held in Bratislava in September 1980. Part of the chapters were reprinted from Plant and Soil volume 63, no. 1, of 1981.

The book debates recent advances in the structure of root in relation to the transport phenomena and growth. The first chapters deal with the growth processes in the root, mainly in relation to its stuctural characteristics. Several papers are devoted to the metabolism of root, e.g. nitrogen metabolism, enzyme systems along the primary root axis, etc. The main topics in the third chapter are water and ion transport. The fourth chapter contains contributions dealing with the functional integrity of the root system including the correlation phenomena between root and shoot as well as within the root itself. Different aspects of roots under stress conditions are summarized in the last chapter. Discussed here are the influences of water stress on the structure and functioning of roots, physiological consequences of flooding, chilling temperature and responses to stress situations caused by high salinity or toxicity of specific ions. A deeper understanding of root physiology is very important for basic science, agronomy, soil science and forestry. The book should appeal to anyone interested in the biological or practical aspects of plant roots.

Price: Dfl. 150.–; $ 65.–.

Orders to: U.S.A. and Canada: Kluwer, 190 Old Derby Street, Hingham, MA 02043, U.S.A., elsewhere: Kluwer, Distribution Centre, P.O. Box 322, 3300 AH Dordrecht, The Netherlands.

Soil Microbiology: a Model of Decomposition and Nutrient Cycling. O. L. Smith. CRC Press, Boca Raton, 1982, 274 p. ISBN 0-8493-5952-X.

This volume is one of a series within the CRS Series in Mathematical Models in Microbiology, Editor-in-Chief M. J. Bazin.

The series will contain a selection of authoritative articles on the application of mathematical models to microbiology. Each volume will be devoted to a specialized area of microbiology and topics will be presented in sufficient detail to be of practical value to working scientists.

The objectives of the series will be to introduce microbiologists familiar with the modeling approach to new models, methods of model construction, and analytical techniques, and to encourage those with limited mathematical backgrounds to incorporate modeling as an integral part of their research programs.

The present volume focuses on a specific area of soil microbiology and the author has developed a quantitative description of the interrelated activities of nitrogen, phosphorus, potassium and carbon in the soil and in the soil-plant system. The large-scale mathematical model which results provides an example of how this type of quantitative approach can be used in applied microbiology. However, this volume is not just a set of mathematical equations. In constructing his model, Dr. Smith has had to dig deeply into the literature of soil microbiology, and in a strong sense he has written a text on nitrogen transformations in the soil which should serve as an introduction to the subject for nonspecialists with a fundamental knowledge of mathematics and provide a rigorous basis for describing, classifying, and understanding nitrogen activity for specialists in this area.

Price: $ 79.50 in U.S.A., elsewhere $ 90.00.

Orders to: CRC Press, 2000 Corporate Boulevard (NW 24 St.), Boca Raton, FL 33431, U.S.A.

La productivité des pâturages sahéliens. Une étude des sols, des végétations et de l'exploitation de cette ressource naturelle. F. W. T. Penning de Vries et M. A. Djitèye, éditeurs. Pudoc, Wageningen, 1982, xxiii + 525 p. ISBN 90-220-0806-1.

Le bilan d'eau, les cycles d'azote et de phosphore, la production actuelle et potentielle et l'écologie des pâturages sahéliens ont été examinés systématiquement afin de comprendre et de quantifier le potentiel de cette ressource. L'étude a été analytique plutôt que descriptive, et de ce fait ses résultats seront souvent valables pour l'ensemble de la zone. La simulation avec des modèles dynamiques a été employée dans plusiers cas.

La pauvreté du sol, notamment le déficit d'azote et de phosphore, est souvent un facteur plus limitatif qua la pluviosité faible et irrégulière. C'est pour cela que le bilan d'azote des pâturages à long terme est considéré pour faire comprendre le niveau de la production actuelle des pâturages et pour estimer l'efficacité des mesures et des interventions éventuelles d'aménagement et de gestion.

La disponibilité d'azote et de phosphore du sol pour les plantes reste au même niveau en traversant le Sahel du Nord au Sud, tandis que la disponibilité d'eau augmente. Ceci fait que la productivité des pâturages augmente en général dans ce sens, mais la qualité du fourrage – son taux d'azote et de phosphore – diminue fortement. C'est ainsi que la carence de fourrage d'une qualité acceptable est le problème clef de l'élevage. L'élevage traditionnel est une adaptation rationnelle et efficace à cette situation. Mais la croissance démographique exige une telle intensité d'exploitation des pâturages, que leur fertilité et productivité diminue progressivement, ce qui provoque leur dégradation.

Des options techniques existent pour augmenter la disponibilité de fourrage et sa qualité. Pourtant, elles ne sont pas rentables, peut-être à l'exception de l'intégration croissante de l'élevage et de l'agriculture en intensifiant cette dernière simultanément.

Prix: Dlf. 55.–.

Demandes à: Pudoc, B.P. 4, 6700 AJ Wageningen, Pays-Bas.

Agriculture and Rural Development in India. A case study on the dignity of labour. M. L. Dewan. Concept Publ. Company, New Delhi, 1982, 219 p.

This case study provides a fascinating experience of Dignity of Labour Camps organized in Maharashtra, where agricultural universities, colleges and schools were involved in agricultural development programmes. While a good deal of emphasis is given to soil, water and other natural resources development, India's uniquely human energy experiences are used for soils and land resources evaluation, irrigation, drainage and reclamation, rural and urban composting and in social and farm forestry as well as other allied programmes.

Part II of the study deals with the project approach to agriculture and general development in India. It proposes certain plans of operation in a novel and unorthodox format and advocates a further increase in agricultural production, an increase in the use of renewable energy resources, national character building and improving national institutions. The book in short is a plea for quality in every aspect of the nation's development goals.

The author, soil scientist with FAO and visiting professor of Cornell University, has a wide experience in developing countries. His work in these areas has grown out of his deep sense of involvement and commitment to rural uplift and development and resulted in an interesting, practical treatise on agricultural and rural development.

Price: Rs. 75 in India, US$ 15 plus postage elsewhere.

Orders to: Concept Publ. Company, H-13 Bali Nagar, New Delhi 110 015, India.

Modern Irrigated Soils. D. W. James, R. J. Hanks and J. J. Jurinak. John Wiley & Sons, New York, Chichester, 1982, 235 p. ISBN 0-471-06351-7.

This comprehensive reference/text provides an easily understandable introduction to the theory and practice of managing irrigated soils by controlling soil moisture, salinity, and fertility. It integrates all the factors of irrigated crop production into one package including coverage of soil moisture infiltration, flow, storage capacity and availability to plants. The book also explains how soils and waters of marginal quality can be effectively managed to create sustained crop production in areas where this would not be normally feasible.

After giving a brief overview of the history of irrigation, the book goes on to detail such topics as: moisture availability and factors affecting evaporative demand, methods for characterizing salinity-sodicity, salted soil prevention and reclamation, soil fertility factors and methods for scheduling irrigation. Other subjects covered include the scheduling of irrigation, the presence of nitrogen in irrigated soils, the effect on irrigated crops of phosphorus, potassium, sulfur, boron, zinc, iron and manganese, and how to control these at optimum levels. This text includes many graphs and illustrations as well as study guides at the end of each chapter. It is written for irrigation agronomists and engineers, irrigation farmers, professors and students of agronomy, and all those concerned with the topic of irrigated soils.

Price: £ 23.25

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

Approved Practices in Soil Conservation, fifth edition. D. A. Bosworth and A. B. Foster. The Interstate Printers and Publishers, Danville, 1982, xviii + 470 p. ISBN 0-8134-2170-5.

This book is a practical how-to-do-it handbook in conservation practices for the student and the farmer in the United States. Various methods of conservation tillage (minimum tillage, no-till, reduced tillage) have been updated and explained in this new edition. Good conservation tillage techniques promise to reduce soil erosion and maintain crop yields. A 26-page glossary of terms is also provided. The book is well-illustrated with many drawings and photographs.

Price: $ 16.65 plus $ 1.50 on orders from outside U.S.

Orders to: The Interstate Printers & Publishers, Jackson at Van Buren, Danville, Illinois 61832, U.S.A.

Evalution of Fertility by Plant and Soil Analysis. D. and V. Davidescu. Editura Academici, Bucharest and Abacus Press, Tunbridge Wells, 1982, 560 p. ISBN 0-85626-123-8.

This is a revised and updated version of a book with the same title, which appeared in Romania in 1972. The present book was translated by Skaw Loren Kent. It attempts to put field and laboratory resources and methods for estimating fertility at the disposal of specialists, with the aim of elaborating better systems of fertilization and soil treatment. The book contains the following main chapters: evaluation of fertility, factors that modify nutrition conditions and recommendations regarding fertilizers and soil treatment, the practice of fertility control for the efficient use of fertilizers, fertility testing through chemical analyses of plant tissues, and fertility testing through chemical analysis of the soil. In addition, a number of analytical techniques are given. The book finishes with instructions for the preparation of principal reagents.

Price: £ 27.95.

Orders to: Abacus Press Division, Abacus House, Speldhurst Road, Tunbridge Wells, Kent TN4 OHU, England.

Intercropping. Proceedings of the Second Symposium on Intercropping in Semi-Arid Areas, Morogoro, Tanzania, 4-7 August 1980. C. L. Keswani and B. J. Ndunguru, editors. International Development Research Centre, Ottawa, 1982, 168 p. IDRC Publ. 186e. ISBN 0-88936-318-8.

Intercropping has been defined as the mixing or interplanting of a number of different crops on the same piece of land at the same time. This farming practice is commonly used by subsistence farmers in the semi-arid areas of Africa. It provides the farmer with a variety of returns from land and labour, often increases the efficiency with which scarce resources are used, and reduces the risk of dependence upon a single crop that is susceptible to environmental and economic fluctuations.

The reasons for practicing intercropping are rational; however, despite this logic, few research resources have been allocated in the past for investigating the complex interaction between crops growing on the same piece of land.

The present proceedings contain the papers presented at the Morogoro symposium, where various approaches to farming systems research that have been developed and used in Africa and Asia were discussed. Despite variations in methodology, a general consensus evolved that highlighted the following approach: analyzing constraints farmers face; identifying possible technological solutions; testing and evaluating these options in experimental designs with farmers; and, as a result, modifying the technology and experiments in a continuous and dynamic process, whereby farmers and scientists interact to develop optimal solutions for increasing productivity.

Papers were presented in the following fields: agronomy (19 papers), plant breeding (3 papers), plant protection (6 papers), and farming systems (19 papers).

Price: $ 6.–.

Orders to: In U.S.A.: Unipub, Box 433, Murray Hill Stn., New York, NY 10016, U.S.A. Outside U.S.A. and Canada: IDRC Communications Division, P.O. Box 8500, Ottawa, Canada K1G 3HG.

Nitrogen Fixation. Volume 1; Ecology. W. J. Broughton, editor. Oxford University Press, Oxford, 1982, 320 p. ISBN 0-19-854540-1.

Nitrogen fixation is of fundamental importance to plant life and ecology. This volume presents contributions on various aspects of the subject: photosynthetic microorganisms, heterotrophic microorganisms, non-leguminous root-nodule symbioses with actinomycetes and Rhizobium, environmental physiology of the legume-Rhizobium symbiosis, nitrogen fixation in some terrestrial environments, nitrogen fixation in waters, paddy fields, and forage legumes. The authorship is international and the book will be of interest to a wide variety of readers: those concerned with agriculture and forestry; ecologists interested in communities and their management; environmentalists, especially those concerned with eutrophication and pollution; planners, especially those concerned with agriculture, food production, and wildlife resources management; and students at both undergraduate and postgraduate level.

Price: £ 22.– in U.K.

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

Nitrogen Fixation. Volume 2: Rhizobium. W. J. Broughton, editor. Oxford University Press, Oxford, 1982, 400 p. ISBN 0-19-854552-5.

The microorganism Rhizobium is of special importance in nitrogen fixation, and it is an essential associate in legume production. This volume presents contributions from specialists throughout the world on various aspects of Rhizobium and its association with leguminosae.

Price: £ 25,– in the U.K.

Orders to: see above.

Nitrogen Fixation. Volume 3: Legumes. W. J. Broughton, editor. Oxford University Press, 1982, 400 p. ISBN 0-19-854555-X.

The legumes are a large and diverse family and their nitrogen metabolism is different from that of other plants. There is an increasing awareness of their importance as sources of nitrogen in cropping systems. This volume brings together information on nitrogen fixation in legumes and relates it to practical questions. It will therefore be of interest to those working in agricultural science as well as to botanists and plant biochemists.

Price: £ 35.– in U.K.

Orders to: see above.

Geomicrobiology. H. L. Ehrlich. Marcel Dekker, New York and Basel, 1981, 393 p. ISBN 0-8247-1183-1.

This textbook summarizes in one volume the widely scattered reports on important geomicrobial phenomena and, thereby, provides an introduction to the field of geomicrobiology. It enables students to gain a thorough understanding of microorganisms as geologic agents by emphasizing the role that microbes play in promoting specific geochemical reactions. The book contains sufficient introductory material on rocks and soils and marine and fresh waters as microbial habitats, as well as a review of pertinent physiological principles, to make it accessible to students without a basic course in geology or microbiology. Following these basic discussions, the focus of the book turns to the role of microbes in the formation and degradation of a wide range of geologically important classes of substances and elements. All transformations are illustrated in a geologic context with an emphasis on principles of microbial physiology. The book also contains a chapter on widely used geomicrobial methods and concludes with an extensive bibliography.

From the breadth of coverage contained in this textbook, students on both the undergraduate and graduate level in microbiology and geology have the opportunity to become fully acquainted with this field. It is an important addition to the textbook literature and fills a need for a book whose comprehensiveness can serve microbiologists, geologists, limnologists, soil scientists, oceanographers, ecologists, and environmental engineers equally well.

Price: SFr. 84.–.

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

Geotechnical Engineering. I. K. Lee, W. White and O. G. Ingles. Pitman, Boston, London, Melbourne, Toronto, 1983, xxviii + 508 p. ISBN 0-273-01756-X (paperback), and 0-273-01755-1 (cased).

Geotechnical engineering is now a widely accepted term to describe the range of disciplines which have direct application to the solution of problems in soil and rock engineering. It is not appropriate to attempt to provide a treatise on all the relevant topics, but it is considered appropriate to develop a book which provides a framework aimed at explaining the principles and practice of geotechnical engineering for the benefit of undergraduates, graduate students, and professional engineers. This book provides a succinct and logical treatment of the nature, origin, structure and chemistry of soils, the effective stress concept, and the mathematical modelling involved in seepage, stability and settlement calculations. Examples and case studies throughout the text illustrate practical applications. References to important papers and publications are provided, also enabling self-study in a specific area.

The book is well-illustrated with many figures and the paperback edition is reasonably priced.

Price: paperback £ 10.95; hardback £ 19.95.

Order to: Pitman, 1020 Plain Street, Marshfield, MA 02050, U.S.A., or 128 Long Acre, London WC2E 9AN, England.

Cycling of Carbon, Nitrogen, Sulfur and Phosphorus in Terrestrial and Aquatic Ecosystems. J. R. Freney and I. E. Galbally. Springer Verlag, Berlin, Heidelberg and New York, 1982, 153 p. ISBN 3-540-11272-3.

Increasing stress in being placed on the environment by man's activities including those of changing land usage for increased food production and the release of carbon dioxide due to fossil fuel combustion. Further stresses may occur if agricultural practice is modified by using plant products for liquid fuels. Rational management of these activities can only occur if there is a thorough understanding of the biogeochemical cycles of the major plant nutrients, carbon, nitrogen, sulfur and phosphorus. A vital part of this understanding concerns the interactions between these cycles, where in various limiting processes the cycle on one element exerts a controlling influence over the cycle of one or more of the other elements.

A well known example of this interaction is the role of sulfur, nitrogen and phosphorus as limiting factors in plant growth i.e. carbon uptake by the biosphere. A related effect is the suggested increase in nitrogen fixation by legumes due to CO_2 enrichment in the atmosphere. Other interactions occur during the mineralisation of nitrogen, sulfur and phosphorus associated with the release of organic carbon during the decay of plant material and between the carbon substrate and mineral forms of nitrogen and sulfur during denitrification and bacterial sulfate reduction. Increased sulfur dioxide and nitrogen oxide emissions to the atmosphere in some areas are causing acid rain which appears to be affecting the productivity of some land and aqatic ecosystems.

The early studies on biogeochemical cycling concentrated on the reactions of the individual cycles in isolation and it was apparent that for further progress to be made the interactions between the cycles should be considered. Consequently, the National Committee for the Environment of the Australian Academy of Science sponsored a workshop to consider those processes where there is a physical linkage between the biogeochemical cycles of carbon, nitrogen, sulfur and phosphorus. The papers published in this volume were presented to that workshop which was held in Canberra in 1981. Sixteen formal papers were presented; six dealt with aquatic systems, one with the atmosphere, and the remainder with terrestrial systems with particular bias towards agriculture. A pervasive theme in the papers is the influence of nutrient supply on not only carbon fixation (primary productivity, crop yield) but also the elemental composition of produce. Five of the papers dealing with oceans, sediments, the atmosphere and forests cite specific examples of the control between one elemental cycle and another. Other papers contain new and interesting information about the individual biogeochemical cycles of carbon, nitrogen, sulfur and phosphorus and the coupling between these cycles, e.g. a construction of the changing continental inventory of C, N, S and P in soil organic matter due to land use changes during the last 120 years.

Price: DM 59, approx. US $ 26.–.

Orders to: Springer Verlag, Heidelberger Platz 3, D-1000 Berlin 33, F.R.G., or: 175 Fifth Avenue, New York, NY 10010, U.S.A. For Australia: Australian Academy of Science, P.O. Box 783, Canberra City 2601, Australia.

Soil and Water Conservation Engineering, Third Edition. G. O. Schwab, R. K. Frevert, T. W. Edminster and K. K. Barnes. J. Wiley & Sons, 1981, 704 p.

A comprehensive engineering guide to theory and design practices for the control, utilization, and management of water in agriculture, with emphasis on scientific principles. It integrates into a single volume engineering practices for solving problems relating to erosion control, flood control, drainage, and irrigation. Information is presented on precipitation, infiltration, evapotranspiration, and runoff, in addition to providing the entire design data for the U.S., plus a wide range of its applications. It contains conversion tables from English units to SI, and SI to English units, as well as numerous example problems, illustrations, and appendix.

Price: cloth; ISBN 0-471-03078-3, $ 43.85 or £ 24.50. Wiley Int. Edition (WIE); ISBN 0-471-09423-4, $ 13.25 or £ 7.35.

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

Plantation Forestry in the Tropics. J. Evans. Oxford University Press, Oxford, 1982, 480 p. ISBN 0-19-859464-X.

Plantations in the tropics are expanding now more rapidly than ever before. This is essentially a book about silviculture – all aspects of planting and growing forest plantations. Many of the influences on plantation development are considered: why plantations are needed, their development historically, problems with land and land-use, some social and economic aspects, planning factors, and very importantly, ways in which plantation forestry can and should be integrated with other land uses – agroforestry and protection forestry.

The book is not intended to be a manual of practice but more a comprehensive introduction to plantation forestry for the university or advanced diploma student, especially in developing countries. It also provides an overview of plantation forestry for the practitioner, perhaps coming to the tropics for the first time, and for those working in other disciplines who seek a broad coverage of the subject.

Price: £ 35.–.

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

European Research Centres, 5th edition. T. I. Williams, consulting editor, Longman, 1982, approx. 1800 p. ISBN 0-582-90012-3.

This comprehensive guide contains the research centres and organizations in E. and W. Europe carrying out or funding scientific, technical, agricultural and medical research. It lists the organizational details and names of senior staff at over 3000 main organizations controlling more than 20.000 departments and laboratories in 32 countries.

Price: £ 155.– plus £ 5 for postage outside U.K.

Orders to: Longman Group, Fourth Avenue, Harlow, Essex CM19 5AA, England.

Kapillarität in porösen Feststoffsystemen. H. Schubert. Springer Verlag, Berlin, Heidelberg, New York, 1982, 375 S. ISBN 3-540-11835-7.

Kapillaritätseffekte spielen in den verschiedensten Fachgebieten eine grosse Rolle, sei es in den Ingenieurwissenschaften, in der Geologie oder in der Biologie. Obwohl die grundlegenden Vorgänge in alle Fällen die gleichen sind, findet selten ein Erfahrungsaustausch statt.

Dies Werk stellt die Grundlagen der Kapillarität in enheitlicher Form dar, unabhängig von der späteren Anwendung. Es schlägt damit eine Brücke zwischen so unterschiedlichen Disziplinen wie: Mechanische Verfahrenstechnik, Trocknungstechnik, Druck- und Imprägniertechnik, Bodenmechanik, Hydrologie, Erdölgewinnung, Bodenkunde usw.

Einen besonderen Schwerpunkt bilden die Ausführungen zum 'Kapillardruck in porösen Systemen'. Auf die Ableitung und Diskussion komplizierter Gleichungen wurden verzichtet, jedoch werden die für die Praxis wichtigen Ergebnisse in Form von Arbeitsdiagrammen wiedergegeben, die die Daten zur Lösung konkreter Probleme liefern.

Das Buch wendet sich zunächst an Ingenieure, die sich über die Grundlagen der Kapillarität informieren möchten, aber auch an Studenten, Wissenschaftler und Praktiker in den genannten Fachgebieten.

Preis: DM 94,–, approx. $ 40.–.

Bestellung: Springer-Verlag, Heidelberger Platz 3, D-1000 Berlin 33, Bundesrepublik Deutschland, oder: 175 Fifth Avenue, New York, NY 10010, U.S.A.

Pesticide Analysis. K. G. Das, editor. Marcel Dekker, New York and Basel, 1981, 467 p. ISBN 0-8247-1087-8.

This is a comprehensive, authoritative, and up-to-date reference book on modern chromatographic, polarographic, spectral, and confirmatory pesticide analytical methodologies. The contributors to this book are all well-known experts in the field and they provide an in-depth and multifaceted approach to pesticide analysis in industry, agriculture, public health, and medicine. This book contains state-of-the-art reporting on the most useful and versatile methods in pesticide analysis and on those methods which are on the leading edge of new developments in the field. These include: thinlayer chromatographic techniques; ultraviolet and infrared spectrophotometric methods; as well as mass spectrometric methods. Each technique's basic principles, instrumentation, and applications to all the major pesticide groups are covered in detail. The last chapter, on confirmatory tests, gives alternative methods for verifying the results of an initial analysis. By emphasizing the limitations and merits of the methodologies presented in this book, researchers can select and adopt the most suitable methods for their particular analytical problems. This publication is a reference source available to analytical chemists working on the analysis of pesticide formulations and residues in industry, agriculture, public health, and medicine.

Price: SFr. 148.

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

Aquifer Contamination and Protection. Studies and Reports in Hydrology No. 30. R. E. Jackson, editor. Unesco, Paris, 1980, 440 p. ISBN 92-3-101886-8.

The book is divided into two parts, the first of which treats theoretical and practical aspects, and the second being a series of twenty well-documented case histories.

Part I is in reality a text-book of approximately 250 pages on the theory, problems and solutions of the subject called contaminant hydrogeology. It provides an excellent review for professionals already familiar with the processes, and in an easily assimilated fashion for those who may be considering the topic seriously for the first time.

In the portion of Part I dealing with methods and techniques of contaminant hydrogeology the reader is taken from theory to practicality. This is not simply a 'how-to-do-it' section, for the level of presentation is clearly at the professional level. In the section on ground-water management, for example, one is led carefully from determining the potential vulnerability of an aquifer to contamination, through legal and economic considerations.

Part II is a series of twenty case histories of aquifer contamination in which the problems, analyses and solutions are discussed. They form an excellent concluding package to the report.

Price: FF 125,– in France.

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

Iron Clogging in Soils and Pipes, Analysis and Treatment. H. Kuntze. DVWK Bulletin 10. Verlag Paul Parey, Hamburg/Berlin (ISBN 3-490-01000-6) and Pitman, Boston/London/Melbourne (ISBN 0-273-08561-1), 1982, 123 p.

Iron clogging is a world-wide problem of functional disturbances of water supply and water purification plants, irrigation and drainage installations. On this subject numerous publications with a different focal point clearly emphasize the water-chemical, micro-biological, pedological and agricultural studies carried out. Predominatingly in humid climates of the northern hemisphere, iron set free by weathering of minerals is dissolved in water and transported; due to contact with the oxygenous air it oxidizes, immobilizes and accumulates. This reaction not only causes damage to technical installations but is also subject to several ecological and aesthetic objections.

The demands made on limited resources of water and soil are increasing in quantity and quality. Drainage turns out to be a successful method to improve the location. In former times, exposed iron clogged locations were not in themselves considered worth draining, also because of the high maintenance costs involved. However, nowadays this use limit is exceeded by the increasing demand for more useful and arable land. The Federal Republic of Germany is an area with a long experience in drainage. Therefore, other countries increasingly turn to the knowledge gained here form different biologic and climatic conditions. From the encouragement of many contacts with foreign professional colleagues and discussions on problems of iron clogging during various specialist meetings and excursions in different European countries as well as overseas, it appeared desirable to consider an English translation of the 1978 German edition. This publication is based upon 20 years' experiments and research work carried out on iron clogging.

The book has the following chapters: clogging phenomena, chemistry of ocher formation, microbiological and ecological aspects of ocher formation, ocher endangered sites, outlining the clogging hazard, measures to prevent drain clogging, and concluding remarks.

Price: £ 9.50, including postage.

Orders to: Verlag Paul Parey, Spitalerstrasse 12, D-2000 Hamburg 1, F.R.G., or: Pitman Books, Cashpost Service, Book Centre Ltd., Southport PR9 9YF, U.K.

Field Extract of 'Soil Taxonomy'. International Soil Museum, Wageningen, 1980, 95 p; reprinted 1982.

This handsome field extract (size 11 × 25 cm) of the USDA/SCS 1975 system of soil classification 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.

Agriculture: Toward 2000. FAO, Rome, 1981, 134 pages and statistical annex.

As its title indicates, this publication is a major perspective study on world food and agriculture up to the year 2000. It is not another 'doom and disaster' study, but an action-oriented analysis, developed from a detailed study of conditions and potentialities in 90 developing and 34 developed countries and on 28 individual commodities, of alternative scenarios of growth up to the end of the century.

The brevity of the study should not conceal the fact that it is a major analytical work which draws not only on the accumulated information and judgement of FAO, but also on the guidance provided by its Member Governments at the FAO Conference. It reflects the unequalled judgement of the Member Nations of FAO on the prospects for the world's agriculture until the year 2000.

The study shows that if past trends were to continue, the already unacceptable level of hunger and undernutrition would be considerably aggravated, especially in low-income, food deficit countries, but that on the basis of reasonable normative assumptions, developing countries could over the next two decades double their food and agricultural production and greatly improve its equitable distribution.

A four-part strategy is suggested to achieve the results desired. This strategy covers modernization of food and agricultural production technologies in developing countries, involving a four- to five-fold increase in inputs such as fertilizers, and an annual flow of investment of $100–$130 billion (in 1975 prices) by the year 2000. Greater equity and adequate incentives have to be assured through improved distribution of income and access to productive resources. A more equitable and liberalized international trading systems for food and agricultural products, and at least a trebling of external assistance for agriculture in the developing countries will be necessary. Measures, consistent with modern technologies and restructuring of the traditional system of farming, must also be taken to preserve the environment.

In short, the study demonstrates that through sustained efforts, national and global, and by new policies, incentives and institutional requirements, it is possible to reverse past trends and substantially solve the problem of world hunger and poverty by the year 2000. This study deserves a great circulation and attention.

Price: US$ 25.00

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

Metody stosowane w zoologii gleby (Methods in Soil Zoology, in Polish). M. Górny and L. Grüm, editors. State Scientific Publishers, Warsaw, 1981, 483 p. ISBN 83-01-02807-6.

The book has been written by 25 specialists, members of the Soil Zoological Section of the Polish Society of Soil Science. It discusses three main topics: ecological and mathematical aspects of the establishment of the method, methods of gathering of information and methods of data processing.

In the first part, an ecological and mathematical background for quantitative zoological studies of soil is given and also the distribution of soil fauna is discussed.

The second part describes apparatus and tools for collecting and extracting animals from the soil. The most extensive chapter reveals the methods of population density evaluation of Protozoa Gastrotricha, Turbellaria, Nematoda, Gastropoda, Lumbricidae, Enchytraeidae, other Oligochaets living in wet soils, Isopoda, Diplopoda, Chilopoda, Collembola, other Insects, Acarina, Aranea and Vertebrata. It also deals with the fixation and conservation of soil animals and with the methods of biomass evaluation.

The third part discusses methods of data processing by biocenotic indices and by soil zoocenological analysis.

The book is well illustrated with 110 figures and 28 tables. It comprises more than 500 references and a general index of terminology.

The book will not only be of great interest to soil biologists, ecologists, and those who deal with plant protection, but also to students in biology, agriculture, and forestry.

Price: Zloty Polski 120.

Orders to: ORPAN – Palac Kultury i Nauki, 00-901 Warsaw, Poland.

L. Królikowski, Warsaw.

Acid Precipitation – Effects on Forest and Fish (the SNSF-project), Norway, 1972–1980. The Norwegian Interdisciplinary Research Programme 'Acid Precipitation – Effects on Forest and Fish' (the SNSF-project).

In Norway acid precipitation was at that time seen as a possible cause of increasing acidity of the water courses and of the gradual disappearance of fish populations from many lakes and rivers. It was also feared that the inputs of acid might over time reduce forest growth particularly through increased leaching of nutrient elements from the soil.

The main objectives of the SNSF-project, in which more than 150 scientists have been engaged over the years, were to establish as precisely as possible the effects of acid precipitation on forest and freshwater fish, and to investigate the effects of air pollutants on soil, vegetation and water.

Recently, three publications on the SNSF projects have been issued.

Ecological Impact of acid precipitation. D. Drabløs and A. Tollan, editors. SNSF, Oslo-Ås, 1980, 383 p. ISBN 82-90376-07-3.

These Proceedings report on the results of the International Conference on the Ecological Impact of Acid Precipitation, which was held in Sandefjord, Norway, in March 1980.

This meeting provided a forum to evaluate, not only the recent research performed by the SNSF, but also that being done elsewhere in the world.

It was concerned with the ecologica impact and fate of acid precipitation, and also other pollutants found in association with acid precipitation. The effects of these substances on terrestrial plants and soils; and on aquatic plants and animals, and water quality was debated. Other possible sources of acidification of soil and surface water were also considered.

More than 140 papers were presented on transport and deposition, vegetation and soil, water quality, and aquatic biota.

Acid precipitation – effects on forest and fish. Final report of the SNSF-project 1972–1980. L. N. Overrein, H. M. Seip and A. Tollan, SNSF, Oslo-Ås, 2nd edition, 1981, 175 p. ISBN 82-90376-16-2.

This publication is the final report of the SNSF-project and is based on nearly 300 previously published SNSF reports and publications in various international journals. After chapters on the emission, transportation and deposition of hydronium ions, sulphate, nitrate, ammonium, various heavy metals and on organic micropollutants, the recent acidification of freshwater and the influence of the terrestrial system on the runoff are treated.

The influence of changes of land use on water acidification and the effects of acid precipitation on soil productivity and plant growth are treated in detail. The report is concluded with a chapter on the effects on aquatic life.

Reference could also be made to: Effects of acid precipitation on terrestrial ecosystems, Plenum Press, 1980, 654 p., with a.o. chapters on the effects of acid precipitation on soils, plant nutrition, mineral cycling, soil microbial activity, and the sensibility of soils to acid precipitation.

Annotated Bibliography 1974–1980. A. Tollan. SNSF, Oslo-Ås, 1981, 42 p. ISBN 82-90376-15-4.

This bibliography on acid precipitation contains information on the content of Research Reports (in English), Internal Reports (in English or Norwegian with English summary), Technical Notes (in Norwegian), Annual Reports and scientific papers published in international journals, etc.

Enquiries about the project can be directed to: Norwegian Institute for Water Research, P.O. Box 333, Blindern, Oslo 3, Norway.

Orders for SNSF reports and proceedings to: SNSF project, P.O. Box 61, 1432 Ås-NLH, Norway.

Perspectives in Landscape Ecology – contributions to research, planning and management of our environment. S. P. Tjallingii and A. A. de Veer, editors. Pudoc, Wageningen, 1982, 352 p. ISBN 90-220-0787-1.

This publication contains the proceedings of the International Congress, organized by the Netherlands Society for Landscape Ecology in Veldhoven, the Netherlands, April 1981. Both landscape ecology and landscape planning are trying to approach a synthesis. They work on a basis of many specialized scientific and practical disciplines, each producing a wealth of information. The congress proceedings contain the lectures given on unifying principles and practical syntheses, the results of the workshops, where controversial points were discussed and the poster presentations. An attempt is made to summarize discussion topics at the end of each chapter. The following five themes were discussed: theoretical concepts; rural areas; urban-rural relations; natural areas; and methods and applications.

Price: Dfl. 60.00

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

Irrigation Scheduling for Water and Energy Conservation in the 80's. American Society of Agricultural Engineers, St. Joseph, 1981, 230 p.

Irrigation scheduling to minimize costs, preserve water resources, and meet the Nation's food requirements is the subject of a new publication containing information presented at a special conference in Chicago in December 1981. It discusses the many problems of declining water resources, escalating energy prices, and their possible effects on familiar agricultural patterns.

Conference participants, all experts in some phase of water management, explored such vital issues as how to optimize use of available irrigation scheduling, monitoring systems to determine when and how much irrigation is needed for plant survival, irrigation strategies to conserve both water and energy. Thirty presentations were included in this conference by participants from industry, universities, and from both government and private research organizations.

Price: $ 19.50 including mailing charges.

Orders to: American Society of Agricultural Engineers, P.O. Box 410, St. Joseph, MI 49085, U.S.A.

Biological Husbandry – a scientific approach to organic farming. B. Stonehouse, editor. Butterworths, Sevenoaks, 1981, 362 p. ISBN 0-408-10726-X.

It is being recognized that high-technology agriculture may not be appropriate for all countries and situations: because of its energy and resource intensity, it may not be sustainable indefinitely at present levels. Biological husbandry is, therefore, currently arousing considerable interest within the agricultural establishment.

This system of organic farming seeks to maintain and improve the productivity of land by encouraging and enhancing natural biological processes. This book, the proceedings of the first conference held by the International Institute of Biological Husbandry, is a detailed scientific review of the subject. Contributions underline the need for further understanding and development of natural processes that can be managed, in non-destructive ways, to create a stable, self-perpetuating and self-contained agriculture.

Experts in biological husbandry write on a wide range of topics, for example, on the interrelationships of soil, fauna and flora; agricultural methods, problems of energy saving and recycling and an assessment of the limits to productivity. There is a section devoted specifically to the tropics.

Price: £ 25,00 cased

Orders to: Butterworths, Borough Green, Sevenoaks, Kent TN15 8PH, England.

Comptes-Rendus du Séminaire de Télédetection, Senegal, Avril 1980, 2 volumes. L. A. van Sleen, rédacteur, South Dakota State University, Brooking, 1980, 588 p.

This publication contains the papers in English and/or French, presented at a seminar in Senegal in April 1980. It discusses the principles of teledetection by earth resources satellites, mainly by Landsat, the image interpretation and processing, and information systems, and has a number of papers on the use of satellite sensors in, mainly francophone, West Africa.

Requests to: Remote Sensing Institute, South Dakota State University, Brookings, SD 57007, U.S.A.

Environmental Effects of Deforestation. An annotated bibliography, FBA Occasional Paper No. 10. Freshwater Biological Association, Ambleside, 1980, 1973 p. ISSN 0308-6739.

This bibliography is subdivided into five sections: forests, forestry and land management practices; the aquatic environment; the terrestrial and atmospheric environments; general processes; general reference section. The eight aspects applied to these sections are atmospheric processes; vegetation; forest floor, litter, soil; erosion, sedimentation; nutrients; water, hydrology; habitat, general environment; biota. Cross references are entered. An author index concludes the publication. With a few exceptions this bibliography contains only references to forests in temperate regions.

Price: £ 2.50

Orders to: Freshwater Biological Association, The Ferry House, Ambleside, Cumbria LA22 OLP, England.

Contributions to the Ecology of Halophytes. D. Navin Sen and Singh Rajpurohit, editors. Junk, The Hague, 1982, 272 p. ISBN 90-6193-942-9.

Giving a wide scope to the ecology of halophytes, this book covers the fields of climatology, soil science, phytogeography, adaptive biology and agriculture.

In the recent past studies of halophytes have received increasing attention from a number of scientists to elucidate new vistas to more than one problem faced by this special group of plants. It offers the reader an over-all view of saline environment and the ecology of plants found therein. The widely differing views have been expressed by scientists working in Australia, Egypt, Germany, India, Israël, Saudi Arabia and the U.S.A.

Price: £ 68.75

Orders to: Dr. W. Junk Publishers, P. O. Box 322, 3300 AH Dordrecht, the Netherlands.

Food-Climate Interactions. W. Bach, J. Pankrath and S. H. Schneider, editors. Reidel, Dordrecht, 1981, 528 p. ISBN 90-277-1353-7 bound; 90-277-1354-5 paperback.

The variability of climate and the implications for international food production is one of the most serious problems facing mankind today, requiring both urgent scientific and social solutions. All of the contributions to these proceedings are mindful of the dual nature of the problem as they come to terms with the uncertainties of large-scale agricultural planning.

Papers in this book deal with two aspects of climate/food interaction: firstly 'Climate as a hazard', focusing on shocks to the food system created by short term climatic events such as droughts, floods, hail, forst, wind damage, hot/dry or cool/wet summers, hurricanes and tornadoes; and secondly, 'Climate as a resource', stressing long term development which utilise climatic opportunities to meet world food needs more effectively.

Price: £ 56.25 bound; $ 27.00 paperback.

Orders to: D. Reidel Publishing Company, P.O. Box 17, 3300 AA Dordrecht, the Netherlands; or: 190 Old Derby Street, Hingham, MA 02043, U.S.A.

Alternative Energy Sources, Parts A and B. J.T. Manassah, editor. Academic Press, New York and London, 1981, 922 p. Part A, ISBN 0-12-467101-2 (cloth), Part B. ISBN 0-12-467102-0 (cloth).

The contents of these two volumes has been assembled from the proceedings of the Alternative Energy Sources Symposium, sponsored by the Kuwait Foundation for the Advancement of Sciences (KFAS), that was held in Kuwait in February 1980. the focus of the symposium was to review and assess those technologies that presently complement and will most likely substitute in the future for oil and gas extracted by conventional techniques. The text includes the state of the art of these technologies.

This publication contains 14 papers, in which most of the attention is given to alternative methods of oil recovery, use of wind, solar energy and nuclear fission and fusion. In a smaller number of papers the use of biomass to produce synthetic fuels is discussed. Since it may be foreseen that soil scientists will increasingly have a role to play in the enhanced production of the most suitable biomass products for this conversion these papers are of great interest. Especially the needs of the developing world are apparent and these are set out in a separate article.

Price: Part A: $ 49.50, cloth. Part B: $ 55.00, cloth. Also available in paper back edition.

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

New Journals/Nouveaux Périodiques/Neue Zeitschrifte

Isotope Geoscience – a new journal from Elsevier. Editor-in-Chief: G. Faure.

Isotope Geoscience will be a scholarly journal publishing papers on the use of the isotopic composition or radioactivity of chemical elements in natural materials, that are both innovative and that contribute to the solution of significant problems in the earth sciences in the broadest sense. It will also accept original contributions and review articles dealing with the experimental studies, analytical techniques and instrumentation and theoretical concepts of isotope geology and radiochemistry.

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– Radiochemical Studies – based on the radioactivity of natural and man-made short-lived nuclides in the terrestrial and extra-terrestrial environment.

The journal is launched as a 'daughter' to Elsevier's journal Chemical Geology, it is also available separately. For a free sample copy write to Mr. Keith Foley, Elsevier Scientific Publishing Company, P.O. Box 330, 1000 AH Amsterdam, The Netherlands.

Energy in Agriculture. An International Journal. Elsevier, Amsterdam. ISSN 0167-5826.

This is a new international journal for agricultural engineers, agronomists, horticulturists, agricultural economists and policymakers, and many others. It will provide an international forum for the scientific discussion of techniques and approaches leading to a higher degree of efficiency in agricultural production, to the responsible use of alternative resources, and to the production of biomass energy carriers.

The journal will cover two major aspects of energy in agriculture. On the one hand, it will deal with use and management in production agriculture and, on the other, with alternatives to petroleum or natural gas. Within this broad scope, articles will cover: energy use and management in production agriculture (e.g. energy flow in various agricultural systems and structures; output/input analyses; farm energy audits; direct and indirect energy use; and specific production elements such as tillage, irrigation, drying, etc.); alternatives/supplements to fossil energy carriers (e.g. solar heating and cooling; solar photovoltaic applications in agriculture; biomass production and conversion; food-fuel conflicts).

Subscription: 1981/82, Vol. 1 (4 issues): Dfl. 160.00. US$ 64.00.

Orders to: Elsevier Scientific Publishing Company, P.O. Box 211, 1000 AE Amsterdam, the Netherlands; or: Elsevier/North Holland, 52 Vanderbilt Avenue, New York, NY 10017, U.S.A.

Computer Enhanced Spectroscopy – a new journal. Heyden, London.

This is an international journal of instrumental methods, techniques and developments in all fields of computer-related spectroscopy and chromatography/spectroscopy.

The journal will be essentially practical in nature and is designed as a communications medium for the laboratory scientistis. The content will centre on minicomputers and microcomputers, their applications in the control and operation of spectrometers and the acquisition and evaluation of data, the relevant software and user-developed programmes, the associated hardware and the man-machine interface. Papers on more sophisticated computers and spectrometers will also be welcome, especially where the implications will be beneficial across a broader range. Short Notes and Letters to the Editor are also invited, so that a worthwhile interchange of ideas and results will be established. Selected reviews on topics of special interest will be included.

Subscription: (six issues, one volume, per year) 1982. Institutional/library rate: $ 110.00; £ 50.00; DM 230.00 Private rate: $ 60.00; £ 27.00; DM 125.00

Quaternary Science Reviews – the International Multidisciplinary Review Journal. Pergamon Press, Oxford.

This new quarterly covers parctically every discipline with any sort of historical state in the Quaternary Period. It includes, for example, geology, geomorphology, geography, archaeology, soil science, some branches of civil engineering, meteorology and climatology.

Until comparatively recently each of these was able to function adequately within its own limited confines, but the data explosion of recent years, coupled with the more complex picture of the Quarternary ('Ice Age') now available, makes interdisciplinary exchange of ideas and familiarity with other fields mandatory. New journals have appeared to meet this need, but these have not had a review function, dealing exclusively with research papers.

Contributions are intended to be both systematic reviews of progress, or techniques, in given fields, written for the specialist as well as other Quaternary workers wishing to keep abreast of recent developments in Quaternary Research for a given continent, or smaller area. Such regional reviews will form an essential part of each issue. While it will be open for anyone to submit items the commissioning of important review fields will be by acknowledged leaders – which make these articles essential reading for all engaged in Quaternary work.

Shorter items will include communications about meetings and news of research group activities.

Subscription: 1982: $ 70.00; 1982/83: $ 133.00

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

Outlook on Agriculture. A review journal. Pergamon Press, Oxford.

This international review journal was launched by Imperial Chemical Industries Limited (ICI) in 1956 and circulated in 138 countries, to government departments, universities and colleges, research institutions, and large-scale producers. Pergamon took over its publication as a quarterly review from January 1982.

Outlook on Agriculture will cover the whole field of modern scientific agriculture. It will cover on a global basis the principal food and industrial crops and their management in health and disease; soil science; agrochemicals; agricultural engineering; animal husbandry; energy utilisation; economics; education; and history. As in the past, the guiding principle in the choice of articles will be the intrinsic interest and importance of the subject and the authority of the writer. It will continue to publish critical reviews of important books in the agricultural field.

This review journal is essential reading for all those concerned with agriculture in a world where efficient production and high yields are increasingly dependent on the progress and application of science.

Subscription: 1982: $ 55.00; 1982/83: $ 104.50.

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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 OC6, 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

Committee on Rules/Comité du règlement/Satzungkomitee
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