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of the international society of soil science

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de l'association internationale de la science du sol

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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

CONTENTS/SOMMAIRE/INHALT

PRE-INFORMATION ON THE 14TH ISSS CONGRESS
to be held from August 12th through 18th, 1990, at Kyoto, Japan

The congress will be organized under the motto:
'IMPROVING SOIL MANAGEMENT FOR MAN AND THE ENVIRONMENT; Optimum Utilization of the World's Soil Resources to Increase Biological Production and to Protect the Environment'

The program will include plenary sessions, symposia and poster sessions. No oral presentation sessions will be held; instead, a great number of symposia (40 at the maximum) will be organized on selected themes of relevance to today's soil science. These symposia are to be composed of both invited and voluntary papers along the line of themes, which will be announced in the next issue of this Bulletin. All the contributions not included in the symposia are to be presented at the poster sessions.

Both pre- and post-congress field study tours are being planned. Some of the post-congress tours will be organized in China under the auspices of the Chinese Society of Soil Science. The details of the tour programs will also be announced in the next issue of the Bulletin.

INFORMATIONS PRÉLIMINAIRES SUR LE 14° CONGRÈS AISS qui sera tenu du 12 au 18 Aout 1990 à Kyoto (Japon)

Le congrès sera organisé sous la devise:
'AMÉLIORATION DE L'AMÉNAGEMENT DU SOL POUR L'HOMME ET L'ENVIRONNEMENT; utilisation optimum des ressources en sol du monde pour accroitre la production biologique et protéger l'environnement'.

Le programme comprendra des sessions plénières, des symposiums et des séances de posters. Aucune présentation orale ne sera faite; à la place, un grand nombre de symposiums (40 au maximum) seront organisés sur des thèmes choisis interessant la science du sol d'aujourd'hui. Ces symposiums consisteront en communications non seulement sur invitation mais aussi benévoles, selon des thèmes qui seront annoncés dans la prochaine parution de ce Bulletin. Toutes les contributions non retenues dans les symposiums seront présentées sous forme de poster.

Des excursions pre et post congrès ont été prévues. Quelques unes des excursions post congrès seront organisées en Chine sous les auspices de la Societé Chinoise de la Science des Sols. Le detail des excursions sera aussi annoncé dans la prochaine parution du Bulletin.

VOR-INFORMATION ÜBER DEN 14ten IBG-KONGRESS, Vom 12ten bis den 18ten August 1990, in Kyoto, Japan.

Der Kongress wird organisiert unter dem Motto:
'VERBESSERUNG DER BODENVERWALTUNG BEZÜGLICH MENSCH UND UMWELT'; optimale Nutzung der Bodenresourcen der Welt zur Erhöhung der biologischen Produktion und zur schützung der Umwelt.

Das Programm wird Plenarsitzungen, Symposien und Posterausstellungen umfassen. Es wird keine mündliche Presentationssitzungen geben. Dafür werden aber sehr viele Symposien organisiert über auserlesene Themen die relevant sind in Bezug auf den heutigen Bodenkunde.
Die Symposien sollen sowohl aus eingeladene als auch freiwillige Referate zusammengestellt werden, entsprechend die entlang der Linie angedeutete Themen, die im nächsten Bulletin angekündigd werden sollen.
Alle Beiträge die nicht im Programm der Symposien aufgenommen sind sollen über Posterausstellungen presentiert werden.

Es werden Excursionen geplant vor Beginn und nach Beeindigung des Kongresses. Einige der Post-kongressexcursionen werden in China organisiert werden unter Verantwortung des Chinesischen Bodenkundlichen Gesellschafts. Einzelheiten des Tourprogramms werden ebenfalls im nächsten Mitteilungsblatt angekündigd werden.

INFORMACIÓN PRELIMINAR SOBRE EL 14° CONGRESO DE LA SICS, a ser realizado en Kyoto, Japón, del 12 al 18 de Agosto de 1990.

El tema principal del congreso será
'MEJORAR EL MANEJO DE SUELOS PARA EL HOMBRE Y EL AMBIENTE; Utilización optima del recurso suelo a nivel mundial para aumentar la producción biologica y para proteger el ambiente'

El programa incluirá sesiones plenarias, simposios y presentación de trabajos en cartelera. No se realizarán sesiones de presentación oral, en su lugar un gran numero (maximo 40) de simposios será organizado sobre temas seleccionados de importancia para la ciencia del suelo contemporanea. Estos simposios serán compuestos de trabajos invitados y voluntarios sobre temas a ser anunciados en el proximo numero de este boletín. Todos los trabajos que no estarán incluidos en los simposios serán presentados en cartelera.

Giras de estudio al campo antes y después del congreso están en preparación. Algunas de las giras después del congreso se realizarán en China patrocinadas por la Sociedad China de la Ciencia del Suelo. Los detalles de los programas de las giras serán anunciados en el proximo numero de este boletín.

CANCELLED:
The Israel Society of Soil Science regrets to inform that the International Meeting on 'Marginal Soils, their Management and Productivity' agreed to at the Hamburg ISSS Council meeting and envisaged to be held in Israel in June 1988 (Bulletin no. 70, page 22) cannot take place, due to severe budgetary cutbacks and other factors.

ISSS Commission C and Commission I **Czechoslovak Soil Science Society**

Announcement

INTERNATIONAL CONFERENCE ON 'SOIL CONSERVATION AND ENVIRONMENT'

Soil Fertility Research Centre, Bratislava, Czechoslovakia, May 29-June 2, 1989

Background:
The Soil Fertility Research Centre Bratislava, Czechoslovakia and the Czechoslovak Soil Science Society in cooperation with the ISSS Subcommission C and Commission I organize the International Conference oriented on demonstration of the positive and negative consequences of intensive agriculture, searching for ways of soil cultivation optimalization at minimal environmental negative consequences. The Conference will be connected with the Czechoslovak 7th Soil Science Conference. It will be an opportunity for a discussion in all soil sciences branches concerned with intensive agriculture. Special attention will be given to problems of erosion and soil conservation.

Objectives:
1. Soil contamination in the agroindustrial landscape (including the agrochemicals), its positive and negative consequences and prognoses.
2. Recent soil cultivation technologies and their influence on soil properties.
3. Consequences of hydrological reclamations, including floods, on soil fertility changes in the long-term and on the hydrological balance of the spatial units.
4. Principles of land utilization in relation to agricultural production security and environmental conservation.

Activities:
- The presentation of papers will be partly oral, but predominantly by posters. The working languages of Conference will be English, German and Russian with simultaneous translation.
- In relation to the topics of the Conference a two days' excursion will be organized.

A more detailed programme will be sent to interested persons upon preliminary registering. The meeting will preceed immediately the International Conference on Soil Compaction as a Factor determining Plant Productivity, to be held in neighouring Poland, June 5-9, 1989 (see announcement in this Bulletin)

NOTICE OF INTENT

Soil Conservation and Environment Conference

Name and title(s): .....
Address: .....
.....
Institution: .....

☐ I intend to participate in the Conference
☐ I intend to give a presentation on the subject: .....
.....
..... as oral paper ☐ as poster ☐

This notice is to be sent before April 10th, 1988 to: Prof. Dr. Juraj Hrasko, Soil Fertility Research Centre, Vrakunska 29, 825 63 Bratislava, Czechoslovakia.

Announcement

INTERNATIONAL CONFERENCE ON SOIL COMPACTION AS A FACTOR DETERMINING PLANT PRODUCTIVITY

Institute of Agrophysics, Lublin, Poland, June 5-9, 1989

The *topics* of the Conference are:

1. Soil compaction
   - physical processes (water, gas and heat transport) in soils
   - physicochemical properties of soils
   - biological status of soils
   - nutrient availability for plants
   - root system development
2. Soil compaction control.

Activities:
Three days of sessions for plenary lectures and posters, and a two-days excursion in Lublin and Warsaw Regions to see field experiments on soil compaction are planned.

Posters and papers for oral presentation are to be published in proceedings before the conference (about 6 types camera-ready pages). In order to receive further information please return the enclosed form as soon as possible.

Official language: English.

Organized by: the Institute of Agrophysics of the Polish Academy of Sciences. Chairman of the Organizing Committee is Prof. Dr. Jan Glinski, Vice-Chairman of Commission I-ISSS, Director of the Institute of Agrophysics.

The meeting will follow immediately the International Conference on Soil Conservation and Environment, to be held in neighouring Czechoslovakia, May 29-June 2, 1989 (see announcement in this Bulletin).

NOTICE OF INTENT
International Conference on Soil Compaction as
a Factor Determining Plant Productivity

Name: ..... Surname: .....
Address: .....
..... Telex: .....

☐ Please send me the second circular.
I intend to present a paper/poster Yes ☐ No ☐
Preliminary title of the paper/poster .....
.....
.....
I intend to participate in Post Conference tour Yes ☐ No ☐

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

This notice-of-intent to be returned before April 30, 1988, to the Secretary of the Conference: Dr. Ryszard Debicki, Polish Academy of Sciences, Institute of Agrophysics, ul. Krakowskie Przedmiescie 39, 20–076 Lublin, Poland.

ISSS Working Group RS

Announcement

INTERNATIONAL SYMPOSIUM ON PADDY SOIL FERTILITY

Cheing Mai, Thailand, December 6-13, 1988

The Symposium is co-sponsored by the Department of Land Development and the Thai Mnistry of Agriculture, by the International Rice Research Institute (IRRI) of Los Baños, Philippines, by the Japanese Tropical Agriculture Research Centre (TARC) and the Japanese International Cooperation Agency (JICA).

Background and objective

Paddy rice has always been one of the most important crops for mankind and will continue to be so as long as it remains a major foodstuff of one third of the world's population. In the near future, people will have to try to produce more rice to cope with the rapid increase in the population of the world even though it would appear that the current rice production is enough to feed the world's population at present. It has been predicted that paddy rice will rescue the world in the next country.

Paddy rice requires poorly drained soils. The chemical and biological behaviour of the submerged soils is not clearly understood, although a lot of effort has been made to elucidate their basic nature. Many problems still remain to be solved, especially relating to the fertility of paddy soils in the tropical regions where most paddy rice is cultivated. The First International Symposium on Paddy Soil Fertility will enhance our knowledge of the subject leading to better management of the paddy soils in the future.

Place and date, Language:

All functions of the symposium will be held at Suriwong Hotel, Chiang Mai Province, Thailand, between December 6-13, 1988. The language of the symposium will be English.

Scientific programma

There will be 5 days of technical sessions. The symposium will include research reports and poster presentation on management and utilization of paddy soils:

1. Country reports (10-15 countries: Bangladesh, Burma, China, India, Indonesia, Korea, Japan, Malaysia, Philippines, Australia, Thailand, Egypt, Italy, USA, USSR, etc.).
2. N_2-fixation and other themes as addressed by IRRI.
3. Utilization of fertilizer and agricultural chemicals.
4. Land management and mechanized practices.
5. Business session.
6. Poster session.

Submission of papers:

All those interested in presenting papers must submit:

- the title and a 200 to 300 word abstract before 1st April, 1988.
- on notification of acceptance the full text of the article together with illustrations before 1st July, 1988.

Accommodation, Field trips, Registration fees:

Accommodation has been reserved at Suriwong Hotel in Chiang Mai Province. The special room rate will be US$ 25.

Three days field trip are proposed for the symposium. These trips will provide opportunity for participants to visit rice cultivation, paddy soil, agricultural research centres and land development research centres in northern Thailand.

Symposium registration: US$ 100; accomp. guests: US$ 30; field trip: single room occupancy US$ 80.

NOTICE OF INTENT

International Symposium on Paddy Soil Fertility

1. Name (family, title, first name): .....
.....
2. Nationality: ..... 3. Affiliation: .....
4. Mailing address: .....

5. Sponsor Agency Endorsement
   Name .....
   Address .....
   Signature .....

☐ I wish to attend the symposium ☐ I wish to attend the field trip
☐ I will contribute a discussion paper/poster entitled: .....
.....
.....

Please return this form to: Dr. Samarn Panichapong, Department of Land Development, Bangkhen, Bangkok 10900, Thailand.

ISSS Committee on International Programmes

Announcement

INTERNATIONAL CONFERENCE 'SOILS AND THE GREENHOUSE EFFECT'

Wageningen, The Netherlands, August 14-18, 1989

The Conference will take place at the International Agricultural Centre (IAC) in Wageningen. It is organised by the International Soil Reference and Information Centre (ISRIC), in cooperation with UNEP, Unesco/MAB and SCOPE. The main sponsor is the Netherlands' Ministry of the Environment (VROM).

Objectives: to consider the present status and future trends concerning the effect of soils and their cover on the emission of 'greenhouse gases', the albedo and the water balance.

Scientific Programme: 5 days of presentations covering the following topics in plenary sessions:
- quantification of the global spatial distribution of soils and land cover;
- quantification of the emission rates of greenhouse gases, of the evapotranspiration and the albedo for the world soils and their cover types;
- mechanisms and modeling of gas emissions and evaporation from soils and land cover; case studies of emissions from soils;
- global trends in land use and changes taking place in soils and land cover under human influence;
- quantification of the global effect of soil and land use changes on the emission pattern of greenhouse gases, on evaporation and on albedo;
- remote sensing techniques for the monitoring of land use;

Presentations: besides the key-notes presented by a few eminent scientists and invited presentations during the plenary sessions the scientific programme will consist of a comprehensive series of poster sessions and ad-hoc workshop discussions. Research papers on any of the above topics are invited from prospective participants. Proceedings will be published after the symposium with posters as extended abstracts. The invited papers will be pre-printed and distributed among participants. The official workshop language is English.

Registration: The registration fee is Dfl 600 incl. board and lodging (1 US$ is about Dfl 2). Intention of participation should be received by July 1988. A first circular with detailed information on the conference and instructions for preparing manuscripts will then be sent. The final date for sending your paper or (extended) abstract is February 1989.

NOTICE OF INTENT

Soils and the Greenhouse Effect

name: .....
institute/organization: .....
address: .....
country: .....
telephone: ..... telex: .....
I intend to present a poster ☐ paper ☐
Preliminary title of my presentation: .....
.....
.....
Date: ..... Signature: .....

Please return this form, before July 1st 1988, to:
ISEC Conference secretariat, attn. A. F. Bouwman, ISRIC, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

REPORTS OF MEETINGS
COMPTE-RENDUS DE REUNIONS
BERICHTE VON TAGUNGEN

SEMINAR ON LAND EVALUATION FOR MEDITERRANEAN REGIONS

Sevilla, Spain, September 16-18, 1987

The meeting was organized by the Agencia de Medio Ambiente of Sevilla, Andalucia-Spain, on behalf of the Directorate-General for Agriculture (DG VI) of the Brussels Commission of the Europan Economic Community (EEC). It was preceeded by a two-days expert group meeting of the CORINE*/Soil Programme of the Commission's Directorate-General for the Environment (DG XI), and followed by a one-day field trip in the Donana area where the problem of agricultural development vs. environmental protection in wetland areas was demonstrated and discussed.

The European Community is presently facing problems of surplus production and agricultural imbalances, while at the same time there is a growing concern about protection of the environment. There is an evident need for a reorientation of the agricultural production and for the introduction of alternative crops which can meet the more realistic demand of consumers and insure an ecological use of the natural resources. These new priorities include a series of changes in the location of production sites, soil uses, farming systems, and protection of natural sites, which must be decisions derived from an integrated land use planning process.

The two principles which should dictate integrated land use planning decisions are: i) land should be used for the purposes for which it is ecologically suited; and ii) land of high value for an existing land use should be protected against changes which are difficult to reverse. Within this context, the land evaluation process represents an interface between resource inventories and land use planning. This process aims at evaluating the physical land potential for production and conservation.

In Mediterranean regions, these new priorties are suddenly demanded, mainly due to the important degradation of many areas along with the uncontrolled changes of agricultural and urban uses. Soil erosion represents the main cause of degradation, which is being dangerously increased by forest fires in recent years. The main challenges in land evaluation and land use planning from the Euro-mediterranean regions could be summarized in the following questions: 1. How to diversify the appropriate used of agricultural lands? 2. What to do with the increasing marginal lands? and 3. How to reserve the scarce natural zones?

The basic aim of the seminar was to focus on the present status and future needs of ecological land evaluation in Mediterranean regions, with special reference to basic information, methodological procedures and application of new technologies: remote sensing, computer science, geographical information systems, etc.

* a geographical information system for the EEC countries, under development

The seminar was attended by about 70 specialists, including delegates from all EEC countries except the F.R. of Germany, and from EEC headquarters in Brussels.

At the start of the seminar, the *steering Group on Land Evaluation* of DG VI presented an account of the work for assessing the crop production potential of the land of the European Community. Within this context, the Group recommended that the methodology to be employed should be based on the FAO Framework for Land Evaluation (1976) but adapted for European conditions. Effectively, the methodology consists of matching the growth requirements of specific crops to the environmental data. To date the necessary climatic data have been collected and the major agro-climatic zones in the Community are being delineated. Soil data are being derived from the Soil Map of the European Community (1985) and from representative soil profiles throughout the EEC. Topographic information is being obtained from the Soil Map and through the CORINE Programme of DG XI. The growth requirements of mechanised winter wheat have already been established. It has been suggested to determine the production potential of the EEC lands for other crops (soybean, citrus, lupin, sunflower, oil seed rape, grass and poplar) as well.

In the Session on *Soil Investigations,* it was emphasized that land research in Mediterranean regions is absolutely necessary, with special reference to improve the criteria of soil characterization and mapping according to the ecological pecularities of these regions and to the diversity of possible map users. Only after intensive research on benchmark soils, it appears possible for agrotechnology to be transfeered to other similar soils. Both general and detailed studied are presently considered necessary in order to evaluate the soil behavior.

In the Session on *Land Capability,* attention was focussed on new soil characteristics not considered by the most frequently used soil taxonomic classifications, but which are nevertheless important for soil evaluation. Also, problems of interpretative maps were treated, such as data collection and handling techniques, with special reference to combine soil data with climate statistics. Quantitative techniques including mathematical modeling appear to be a main target in order to produce interpretative maps. In summary, this sesion showed that, while soil classification is getting more and more complicated, the approaches to land evaluation are becoming more and more important for our needs.

At the Session on *Land Suitability* a landscape ecological map was presented so as to form a basis for land evaluation and planning, for environmental impact study and degradation hazard assessments. Such studies including general landscape features and other significant characteristic and particular socio-economic properties, have more use than simple maps using conventional soil classifications. The next communication which dealt with land suitability for grass-land in the EEC, based on the Soil Map of European Community, scale 1/1,000,000, demonstrated map values for international comparisons and evaluations on the continental scale. The third speaker gave an outline on ecological land resources evaluation in Andalucia, scale 1/400,000, as an approximation to the information requirement of land use and protection planning.

The first communication in the session on *Soil Erosion Prediction* illustrated the soil erosion risk and the importance of land resources in the framework of the CORINE Programme of DG XI. The interest of the project was discussed, and its usefullness for ensuring land protection, improving land management and giving environmental dimension to other EEC sectorial policies. At regional level, studies developed in Navarra and Andalusia were presented, where soil erosion prediction is not an objective in itself but is a part of the general land use planning. Attention was focussed on the necessity to collect and integrate more experimental data coming from plots and from small watersheds, which makes possible the validation and adaptation of conventional methodologies on soil erosion prediction in Meditrerranean regions.

Four communications were presented in the session on *Integration of Land Evaluation in Global Resources Information Systems.* They pointed out the modern techniques in information systems as tools for the integrated and functional analysis of the complex of ecological factors shaping the environmental systems. Remote sensing from space was considered the best way to collect necessary data for land evaluation, which presently are lacking for large zones throughout the Mediterranean regions. Existing geographical information systems have to be refined through practice to become really operative systems. In summary, the land evaluation studies and the computer based methods support each other, and it appears correct to speak of land evaluation information systems.

The seminar has illustrated that land evaluation is a multidisciplinary approach requiring high inputs of data and expertise. Land use planning, which deals with agriculture and any other land use, demands the opportunity for transfer of knowledge at regional, national and international level based on standardised methodologies. There is a continuous need for the interchange of ideas between scientists and the users of their information.

(shortened from a report by:) D. de la Rosa, Sevilla, Spain.

INTERNATIONAL SYMPOSIUM ON ADVANCES IN NITROGEN CYCLING IN AGRICULTURAL ECOSYSTEMS

Brisbane, Australia, May 11-15, 1987

Co-sponsored by the International Society of Soil Science and the Australian Society of Soil Science, this Symposium was the ninth in a series of symposia on various topics organized by the CSIRO Division of Tropical Crops and Pastures. About 160 scientists representing 30 countries attended.

Twenty-four papers were presented by invited speakers, these papers being divided into 11 on the state-of-the-art with respect to the various nitrogen transformation processes, 6 integrative papers considering how the nitrogen cycle works in various agricultural systems, 5 papers on recent developments in methodology, and two keynote papers. The opening address was by Dr R. D. Hauck, National Fertilizer Development Center, Muscle Soals, USA and the closing address, which considered future research directions, was by Dr E. A. Paul, Michigan State University, USA. A feature of the methodology sessions was extended discussion periods which allowed a range of contributions on techniques from the audience.

A mid-Symposium excursion provided delegates with an opportunity to learn something of pineapple production and of some nitrogen-related problems, of agroforestry, and of general subtropical fruit tree production.

All contributed papers (65 in all) were presented as posters with extended lunch breaks set aside for their viewing. Two-page abstracts of these papers were printed as a booklet which was issued to all delegates. The invited papers will be published shortly as a book.

R. J. K. Myers, Brisbane, Australia

Welcome address to the participants of the International Symposium on 'Advances in Nitrogen Cycling in agricultural ecosystems', Brisbane, Australia, May 1987.

On behalf of the International Society of Soil Science, which is co-sponsoring this International Symposium, I like to ask your attention for two points:

- Nitrogen is and has been a key element in soil productivity and food supply for the world. Seen on a global scale and for economic as well as environmental-hygienic reasons, most of our research efforts should now be concentrated on the efficiency of fertilizer nitrogen uptake.
  In that sence, I want to congratulate the organising committee for establishing such a well-balanced programme covering all aspects influencing the fertilizer efficiency. The presence of delegates of so many countries proves the high standard of this symposium and I am sure that the International Society of Soil Science, through co-sponsoring, can help in linking the different national efforts to increase our knowledge on improving the welfare of mankind.
- A second point I want to ask your attention for is the following: You are all warmly invited to our next International Congress, which will be held in Kyoto, Japan, from the 12th to the 18th of August of 1990. At this moment we are already preparing the general theme of the congress and the different symposia and I can tell you that the Japanese Society of Soil Science is doing a lot of effort to make the next I.S.S.S. Copngress a very fruitful one. All information will appear in the next bulletin of I.S.S.S. So, once again, ladies and gentlemen, on behalf of the International Society of Soil Science, welcome here in Brisbane and already welcome in Kyoto in 1990. Thank you very much.

Dr. O. van Cleemput, Gent, Belgium (Vice-Chairman ISSS Commission II)

WORKSHOPS ON IMPROVEMENT OF THE USDA 'SOIL TAXONOMY' SYSTEM OF SOIL CLASSIFICATION

Japan, July 20-31, 1987 and Southwestern USA, October 1987

As number nine in a series of international meetings to improve the Soil Taxonomy system of classification for use outside the USA, the Soil Management Support Services (SMSS) of Washington DC, in cooperation with the Japanese Society of Soil Science and Plant Nutrition, organised an international workshop on the properties, classification and utilization of Andisols and Paddy Soils.

Thanks to the enthusiastic and efficient preparatory work and organizational skill of both Japanese and US soil scientists, it provided an excellent forum to exchange information on these two groups of soils, so prevalent in Japan. Seven days of field inspection across central and northern Japan were preceeded and followed by technical sessions with the presentation of background papers, country reports, and the results of recent research on basic characteristics and properties of soils derived from volcanic materials, and of artificially or naturally hydromorphic soils. It provided further data for refining the scheme of subdivision of the proposed new order of Andosols, which is the task of the ICOMAND Committee (Chairman: Dr. Mike Leamy, Bureau of Soils DSIR, New Zealand). The work of that Committee is now nearing completion. The need for better criteria to separate the proposed Aridisols from Spodosols (Podzols) and from Oxisols (Ferralsols) was recognized and taken care of.

Good progress was also made at the definition and subdivision of hydromorphic soils or soils with aquic moisture regime, which is the task of the ICOMAQ Committee (Chairman: Prof. Dr. Johan Bouma, Wageningen Agricultural University, the Netherlands). Consensus was reached on the need to distinguish groundwater-induced hydromorphism (phreatogleyic) from surface water stagnation-induced hydromorphism (stagnogleyic) and from paddy cultivation-induced hydromorphism (anthrogleyic or anthraquic).

In addition to a large group of Japanese scientists, there were about 35 participants from neighbouring Asian countries (China, Korea, Fiji, Thailand, Philippines, Indonesia, and Malaysia), as well as from the USA, New Zealand, West Germany, Holland, Belgium and Costa Rica.

Many of the redefined criteria will also be used in the improvement and detailing of the FAO/Unesco soil classification terminology, currently being finalised by a working group of FAO, University of Leuven, and ISRIC (final publication due early 1988).

Some of the participants (Clayden, Hamada, Kyuma, Shoji, Sombroek, Ugolini) assembled in Aomori town immediately after the workshop, as lecturers and discussants in an International Soils Symposium attended by a large group of Japanese scientists, students, planners and politicians. The meeting concluded with a ringing *1987 Aomori Soil Declaration,* which called for a positive re-appreciation worldwide of the soil as the source of human life and well-being. As a break from the solemnity and urgency of the issue, the participants also enjoyed an evening of jig-a-jogging in the town's annual carnavelesk Nebuta festival.

Soil classification specialists gathered again at the fourth International Soil Correlation Meeting (ISCOM) in southwestern USA in October 1987, on the subject of improvement of the Aridisol classification (Xerosols and Yermosols of the present FAO/Unesco terminology). The organising group was again the SMSS programme, this time in cooperation with the regular staff of the Soil Conservation Service of the USA.

Participants enjoyed eleven days of inspection of arid zone soils, their landscapes and land use, in the states of Texas, New Mexico, Arizona, Nevada and California.

Excellent tour guide and hand-outs had been prepared by state soil scientists and soil conservationists, but the quality of the technical soil decription and the laboratory data left to be desired in some cases. A visit to the famous US Salinity Laboratory concluded the field tour. The tour was preceeded and followed by several days of paper presentations and discussions centred on the proposals of the ICOMID Committee (Chairman: Dr. Ahmed Osman, ACSAD, Syria) to distinguish at suborder level Salids, Gypsids, Calcids, Argids and Orthids. These discussions, and especially the field tour, provided for a very timely opportunity to exchange information and opinions between US soil scientists and about 40 invited foreign soil classification specialists, mainly from Arab countries. For the latter it was a unique chance to inspect and evaluate the type localities of many of the diagnostic horizons and features used for the Aridisol classification in the US system. It included the site where the Paleargid concept was first defined (the US-SCS 'Desert Project' area near Las Cruces, NM.).

Elderly soil scientists at the proposed world soil heritage site near Las Cruces (left to right: Dr. Hari Eswaran, SMSS Washington; Prof. Dan Yaalon, Israel; Dr. Leland Gile, Las Cruces, USA; Prof. René Tavernier, Belgium; Dr. Bill Johnson, formerly SCS Washington; Dr. Wim Sombroek, ISSS, Wageningen; and Dr. Bob Grossman, Lincoln, USA)

A fifth meeting of the ISCOM type is planned to take place in north-eastern USA in early 1988, concentrating on improvement of the classification of Spodosols (Podzols), which is the task of the newly formed ICOMOD Committee (Chairman: Dr. R. Rourke, University of Maine, USA). That meeting will be co-sponsored by Commission V of ISSS.

In September 1988, soil classification specialist will get together again, at the invitation of the USSR All-Union Society of Soil Science, in Alma Ata, Kazakhstan, USSR, immediately preceeding the mid-term business meeting of the ISSS Executive Committee overthere. At that occasion, the consultative group of Commision V on the elaboration of an International Reference Base for soil classification (IRB, see Bulletin 71, page 21) will present the first draft of its proposals (Secretary: Prof. Dr. Rudy Dudal, Catholic University of Leuven, Belgium).

W. G. Sombroek

TWELFTH CONGRESS OF THE INTERNATIONAL UNION FOR QUATERNARY RESEARCH (INQUA)

Ottawa, Canada July 31-August 9, 1987

INQUA is a multidisciplinary organization of earth- and life-scientists interested in understanding and in reconstructing the multifarious changes in the natural environments during the Quaternary (1.7 mill. years). Its 12th International Congress, held in Ottawa, Canada, with many pre- and postcongress tours to all parts of Canada, attracted nearly 1000 delegates and guests from over 30 countries.

Besides the usual topics, dealing with the nature and dating of Quaternary glaciations, sea level changes, glacial, marine and limnological stratigraphy, and paleoclimatic indicators, there was this time also particular stress on landscape evolution and processes, and the impact of observed and monitored changes on the reconstruction of past and the prediction of future changes in the non-glaciated environments. Many of these were soil related and of interest to soil scientists.

All participants enjoyed and benefitted from the exemplary organization and the modern facilities of the Ottawa Congress Center, which enabled up to seven parallel sessions. The local one-day excursions included one on the Soils of the Ottawa Area (K. Valentine, leader).

Many of the Special Sessions and Symposia were organized by the various commissions which are generally also active between congresses. The Paleopedology Commission, which is a joint body of ISSS and INQUA, organized three well-attended half-day sessions on the *Climatic and Lithostratigraphic Interpretation of Paleosols.* The twenty papers which were presented surveyed, both in broad aspects and in some detailed case studies of specific paleosols, most of the recent advances, showing that buried paleosols can be extremely good proxies for the reconstruction of past environments. They are thus some of the best indicators of climate and/or landscape stability, provided all relevant factors are duly considered. Clay and $CaCO_3$ accumulations in B-horizons and certain micromorphological features are considered as best proxies for environmental reconstruction of buried paleosols during the Quaternary.

Selected papers from these sessions will be published in a special issue of Geoderma. Many additional soil papers dealing with various aspects of soils were presented as posters and in other sessions. The long continental record of thick loess and paleosol sections in China, Central Asia and also western USA, with over 20 loess/paleosol cycles drew particular attention.

The Congress also demonstrated the increasing involvement of Quaternarists and INQUA with process studies and the impact of man on the Holocene and the more recent environments, a related to the need for modeling or prediction of past and future changes. A new Committee on Global Change (H. Faure, Chair) and a Commission on Applied Quaternary (G. LÜttig, Chair) were established, in part to promote and coordinate INQUA's expertise and participation with the IGBP (Global Change) programme. Dr. N. W. Rutter, Canada, was elected as the new President.

Founded in 1928, INQUA is now a Union of 367 National Committees and governed by an International Council of its National Delegates. Between congresses its activities are carried out mainly through its 15 subject matter and some regional Commissions, which carry out their work, like preparing maps, bibliographies or agreeing on nomenclature and definitions, as projects with specific goals. The next Congress will be held in Beijing, China, 1991, but many inter-congress activities are planned by the Commissions. Interested soil scientists are invited to collaborate with the Paleopedology or any other Commission. The address of the INQUA Secretariat is: Dr. Christian Schlüchter, Institute of Foundation Engineering, ETH – Hönggerberg, CH-8093 Zürich, Switzerland.

D. H. Yaalon, Jerusalem

CONGO SEMINAR ON FACTORS AFFECTING LAND FERTILITY

Pointe Noire, Mayombe, Congo, March 9-21, 1987

A feature of the training programme within Unesco-MAB is the use of field research projects and biosphere reserves for short-term training activities, whereby researchers and managers from a particular country or region are invited to share experience and become informed about recent progress in particular technical fields or problem areas.

One such regional training seminar, on the factors and conditions maintaining the fertility of humid tropical environments, was held in the town of Pointe Noire and the region of Mayombe in the Congo from 9-21 March 1987, taking advantage of the initial results and field facilities within the Mayombe pilot project. The March 1987 seminar brought together 42 francophone participants from 11 African countries (Benin, Burundi, Cameroon, Central African Republic, Congo, Cote d'Ivoire, Gabon, Guinea, Rwanda, Togo, Zaire) as well as from France. Participants' backgrounds included agronomy, pedology, forestry, geography, plant pathology, biology, ecology, ... a fair spectrum of the technical skills needed to deal with land fertility issues.

Among the specific topics presented an discussed in the Congo seminar were the impact of disappearance of plant cover on soil degradation, the effects of different crops on the physical and chemical characteristics of soil, mineral fertilization and exploitation in clonal tree plantations, studies on alumino-manganese toxicity at high altitude, soil fertility factors affecting banana production, the role of humus in soil fertility, the relations between termite populations and soil fertility, the impact of the nematode parasites of plants on soil fertility, erosion control methods, and physical characterization of soils. Possibilities for participating in the IUBS-MAB collaborative programme on Tropical Soil Biology and Fertility (TSBF) were discussed, and the whole programme of oral presentations and discussions was combined with a series of field visits to experimental forest plots, village gardens, agroforestry trials, etc.

The seminar was organized as a cooperative activity by the MAB Committee of the Congo, Unesco-MAB and the Association des Universités pour l'Enseignement de la Langue Francaise (AUPELF).

from: Info MAB no. 8, Sept. '87

SYMPOSIUM ON NUTRIENT MANAGEMENT FOR FOOD CROP PRODUCTION IN TROPICAL FARMING SYSTEMS

Malang, Indonesia, October 19–24, 1987

The Universitas Brawijaya in Malang and with the Institute for Soil Fertility in Haren, the Netherlands, organized an International Symposium on Nutrient Management for Food Crop Production in Tropical Farming Systems, in cooperation with the Royal Tropical Institute in the Netherlands and the International Institute for Tropical Agriculture in Nigeria. The symposium was funded by the European Commission and the Netherlands' Ministry for Development Cooperation.

More than 60 participants from 17 countries discussed topics relating to food crop production on upland soils in the humid tropics.
Some topics are mentioned below.

Two key-note adresses focussed on nitrogen management in upland food-production systems, with particular reference to inclusion of legumes in cropping systems, and nutrient management in shifting cultivation systems.

Limitations to food crop production with particular reference to Al toxicity were discussed, which may be reduced by application of lime and fertilizers, breeding tolerant crop species, and application of organic matter.

Detailed attention was paid to the interaction of root development and nutrient uptake efficiency, and on the possibilities of nutrient recycling.

On acid upland soils proper timing of planting and selection of intercrops may increase N-availability. This is not always due to transfer of N from the leguminous (alley) crop, but rather to the additional space provided after harvesting the intercrop.

Specific focus on phosphate featured a mathematical model to culculate long-term recoveries of fertilizer-P, and the agronomic effectiveness of various crop species in utilizing rock phosphate.

Studies in Sri Lanka demonstrated the applicability of alley cropping for smallholder farmers, as an effective way of soil and nutrient conservation. Plant successions following forest removal and cropping were evaluated in the Solomon Islands. In a report from Vietnam the need was stressed to overcome the prohibitive costs of inorganic fertilizer by the maximum use of organic fertilizers.

Decomposition rate of alley tree-prunings with litterbags showed that the decomposition rate depended on age of the leaves and time of the year.

Experimental and analytical procedures to quantify the recycling of N from 15-N labelled crop residues were extensively discussed. The conclusion was drawn that the use of 15-N is a powerful tool to study N-utilization, but should be used wisely.

The concluding paper of the session summarized sustainable systems of crop production on acid upland soils, avoiding soil degradation following forest clearing, and inadequate soil and crop management.

The traditional knowledge of farmers about the positive effects of the incorporation of trees in food crop production systems was pointed out, as well as the good possibilities to combine this traditional knowledge with modern scientific developments.

K. W. Smilde, Haren, the Netherlands

SEVENTH FAO SOIL CORRELATION AND LAND EVALUATION MEETING FOR EASTERN AND SOUTHERN AFRICA

Botswana, 30 March – 8 April 1987

Since 1970 FAO organizes yearly an international meeting on soil correlation and land evaluation in Africa. These meetings, which are alternatively held in a French and an english speaking African country, have been instrumental in fostering soil survey and land evaluation in the region. African soil scientists and agronomists have in this way kept abreast of developments in international soil classification and land evaluation.

The 7th meeting for Eastern and Southern Africa was hosted by the Ministry of Agriculture of Botswana, in Gaborone, from 30 March to 8 April 1987. It was organized by FAO's Regional Office for Africa in cooperation with the FAO/UNDP Soil Survey project in Botswana and the Soil Management Support Services (SMSS) of the USDA Soil Conservation Service. The meeting was attended by 42 participants respresenting Botswana, Ethiopia, Kenya, Lesotho, Mozambique, Sudan, Tanzania, Uganda, Zambia, Zimbabwe, ISRIC, SMSS, ODA, Norad, USDA-SCS, SADCC, WMO and FAO. Two main themes of the meeting were the revised Legend for the FAO/Unesco Soil Map of the World and the Application of FAO's guidelines on Land Evaluation for rainfed agriculture.

It appeared that the FAO Land evaluation framework is now being applied in Botswana, Ethiopia, Kenya, Mozambique, Tanzania and Zambia. It was suggested that the guidelines be made more explicit with regard to rating the land quality 'moisture delivery capacity', that more specific recommendations be made as to the land qualities applied at different scales and that field validation of suitability ratings is now required.

The discussions on the revised FAO/Unesco legend were effectively supported by the study of 13 profiles in the eastern and northern part of Botswana during a four day field trip to Lobatse, Sebele, Mahalapye, Shoshong, Francistown, Nata and Maun (Okavango delta). The need for a separation between Lixisols and Luvisols was very well demonstrated (respectively low and high activity clays in soils with an argillic horizon and high base saturation). Justification for deleting the Yermosols and Xerosols was confirmed as it clearly appeared that soils can hardly be defined solely on the basis of an 'aridic moisture regime'. In semi-arid areas the degree of aridity may change from year to year (as a result of strongly fluctuating rainfall), from place to place (depressions versus crests), from soil to soil (differences in water retention capacity) and from farm to farm (management practices such as ridging or irrigation). In the Okavango delta (an inland delta fed by floodwaters from the Angolan highlands) sodic and saline soils abound. It was observed that sodium saturation and the morphological characteristics required for a natric B horizon are not necessarily correlative. Planosols were also found but their formation was subject to differences of opinion. The definition and subdivision of Arenosols, which are extensive in Botswana, was considerably improved. The meeting also discussed the criteria for separating third level units.

Overall this was a very constructive meeting. The organizers are to be congratulated with the programme and the selection of profiles for field study which made it possible to resolve a number of pending issues in the definition and separation of important soils in semi-arid regions. The meeting also strenghtened the ties between soil scientists of neighbouring African countries and renewed the links with their colleagues from abroad.

R. Dudal, K. U. Leuven, Belgium

HUITIÈME RÉUNION DU SOUS COMITÉ OUEST ET CENTRE AFRICAIN DE CORRÉLATION DES SOLS EN D'ÉVALUATION DES TERRES

Yaoundé, Cameroun, 19–28 janvier 1987

La huitième réunion du sous comité Ouest et Centre Africain de corrélation des sols en d'évaluation des terres avait lieu à Yaoundé, la capitale de Cameroun. Cette réunion était organisé par l'office régionale de l'Organisation Mondial pour l'Alimentation et l'Agriculture (FAO), le Centre National des Sols de l'Intitut de la Recherche, et le projet FAO/Camerounais de Renforcement du Centre National des Sols.

Le thème de cette réunion était: Les Sols Rouges; étendue, characteristiques physico-chimiques, classification et évaluation pour leur mise en valeur.

A peu près 20 conférences étaient présentés sur les sols rouges aux différentes pays représentés: Cameroun, Benin, Burkina Faso, Gambie, Ghana, Guinée Bissau, Togo, Congo, Gabon, Mali, La République Centr'africain, Sénégal et Sierra Léone. En plus des délégués de ces pays ils y étaient à ce réunion, représentants du FAO (Ghana, Rome), de l'OMVG (Sénégal, Gambie, Guinée Bissau), de l'ORSTOM (Togo), du STIBOKA/ISRIC (Pays Bas) et des différentes instituts, organisations en projets agricoles Camerounais. Au total il y étaient à peu près 60 participants.

Dans les conférences, beaucoup d'attention était fait aux characteristiques physiques et chimiques des sols rouges et leur classification. l'Evaluation des sols pour leur mis en valeur, en étant toujours un sujet très compliqué, était peut-être un peu sous-exposé dans les présentations.

Beaucoup des exemples des vrais 'sols rouges' étaient montrés pendant les excursions dont la route parcourue le sud-ouest du Cameroun de Yaoundé par Dschang (l'université) et Buea (station CNS d'Ekona) à Douala. Entre autres ces profils incluaient des

Acrisols ferriques et humiques, Ferralsols rhodiques et humiques, Andosols humiques et Cambisols ferralitiques en differentes paysages, roches-mères et altitudes. Evidemment, les discussions autour des trous, sur le sujet de classification, étaient violentes de temps à temps, notamment s'il s'agit du classification francais CPCS.

En résumé on peut constater que cettes réunions forment une occasion excellente pour l'effacement et le comparaison d'information pédologique régionale.

Un autre véhicule pour un tel effacement scientifique sera l'Association Ouest et Centre Africaine de la Science du Sol (AOCASS), qui était établié par les participants, pendant la réunion. Espérons que cette véhicule sera plus vivement que l'autobus, qui nous transportait si paresseusement à travers le Cameroun (à 40 km/heure!). D'ailleurs, les organisateurs de cette réunion méritent beaucoup d'appréciation pour leur consacration que faisait cette réunion un succès.

Las prochaine réunion sera organisé en 1988 au Benin. Les comptes rendus de la réunion au Cameroun seront publiés aux séries FAO 'World Soil Resources Reports'. Pour obtenir information additionelle de cettes réunions régionales on peut écrire à: Dr. Racim Sant'Anna, FAO Régional Office, P.O. Box 1628, Accra Ghana. Pour information de AOCASS: M. Aziadome Kogblevi (secrétaire), Directeur du Centre National d'Agro-pedologie, B.P.988, Cotonou, Benin.

Wim Andriesse, Wageningen, Pays-Bas

SYMPOSIUM ON SUSTAINABLE AGRICULTURE – THE ROLE OF GREEN MANURE CROPS IN RICE FARMING SYSTEMS

IRRI, Los Baños, the Philippines, 25-29 may, 1987

Jointly organized by the Commission on the Application of Science to Agriculture, Forestry, and Aquaculture (CASAFA) of the International Council of Scientific Unions (ICSU) and the International Rice Research Institute (IRRI), an international symposium was held on the use of green manures in rice-based cropping systems, with the objective to review and summarize information and currently available technologies, to identify problem areas needing further scientific work, to determine the role of green manure crops in the development in an integrated nutrient supply to rice-based farming systems, and to bring together relevant scientists from all over the world. The symposium was attended by about hundred participants.

Due to causes such as intensification of farming, increasing cost of labour and ample availability of relatively cheap nitrogenous fertilizers, the use of green manure is declining in irrigated rice-farming systems. This development is particularly apparent in countries such as China and Japan, that are traditionally known for their integrated use of green manures in rotation with irrigated rice.

On the other hand, the value of green manure crops is increasingly recognized in upland farming systems, not only for the contribution to the nitrogen status of the soil, but also for factors such as the improvement of soil structure and soil biological activity, the maintenance of soil organic matter, and the control of weeds and soil erosion.

The official recommendations of the symposium recognized that a lot of information is still lacking concerning the taxonomy of green manures and their quantitative effect in rice-based farming systems. It highlighted the need for more research in specific areas, and the use of state-of-the-art technologies and accepted analytical techniques with a view to maximize extrapolation of results in conjunction with simulated modeling.

J. van der Heide, Haren, the Netherlands

X CONGRESO LATINOAMERICANO DE LA CIENCIA DEL SUELO

Maracaibo, Venezuela, 14-21 Junio, 1987

Este Congreso fue organizado por la Sociedad Venezolana de la Ciencia del Suelo, con patrocinio de las Sociedades Latinoamericana e Internacional de la Ciencia del Suelo. La Facultad de Agronomía de la Universidad del Zulia actuó como anfitriona.

Participaron alrededor de 250 delegados de Venezuela, Bolivia, Colombia, Ecuador, Perú, Brasil, Argentina y Cuba, además de conferencistas invitados de Estados Unidos, Holanda y Tailandia.

En el Congreso, cuyo tema central era el papel de los suelos en la producción de alimentos en América Latina, además de la presentación de trabajos se celebraron 3 Symposios (Manejo de Suelos Acidos en Latinoamérica, conjuntamente con el IBSRAM; La Enseñanza de Suelos a Nivel de Pre y Postgrado en Latinoamèrica; Política de Suelos en los Países Latinoamericanos), y se dictaron 5 conferencias a saber:

'Experiencias en Reconocimiento de Suelos y Evaluación de Tierras en USA y su Posible Utilización en Latinoamérica'. Por el Dr. R. Arnold. USDA/SCS. USA.

'El Suelo como Base para los Sistemas de Producción de Alimentos: Una Experiencia en las Sabanas Brasileñas'. Por el Dr. W. J. Goedert. EMBRAPA. Brasil.

'*Problemas de Conservación y Manejo de Suelos y la Producción de Alimentos en* Venezuela'. Por el Dr. I. Pla Sentís. UCV. Venezuela.

'Investigaciones sobre el Desarrollo de Sistemas de Computación en la Evaluación de Tierras. Por el Dr. A. Van Wambeke. Univ. Cornell, USA.

'La Información de suelos y Tierras en el Marco de los Sistemas de Información Geográfica. Por el Dr. A. Zinck. ITC. Holanda.

Como conclusiones y decisiones generales del Congreso, se destacan las siguientes:

1) La no existencia de una política clara sobre los inventarios, estudios, utilización y manejo de los suelos en la mayoría de los países latinoamericanos, lo cual acompañado de una disminución en los recursos financieros y humanos actualmente dedicados a dichos estudios, atenta contra la mejor y más radional utilización y conservación del recurso suelo, y por ende contra la producción futura de los alimentos que requerirá la población. Se decidió hacer una campaña ante los organismos responsables para que se corrija dicha situación.

2) Se seleccionó a Cuba como la próxima sede del XI Congreso Latinoamericano de la Ciencia del Suelo, el cual se celebraría en 1989, conjuntamente con el I Congreso de la recién organizada Sociedad Cubana de la Ciencia del Suelo.
3) Se decidió seguir apoyando la candidatura de México como país latinoamericano sede del Congreso de la Sociedad Internacional, a celebrarse en 1994.
4) Para el X Congreso Venezolana de la Ciencia del Suelo en 1989, se seleccionó la ciudad de Maturín, sede la Universidad de Oriente.
5) Se aprobó reorganizar la estructura de la Sociedad Latinoamericana de la Ciencia del suelo, con la creación de una Secretaría permanente, cuya sede se decidirá en los próximos meses.

Finalmente se organizaron tres giras técnicas de un día en la Cuenca del Lago de Maracaibo (Venezuela), las cuales permitieron observar suelos de los ordenes Aridisoles (Xerosoles Yermosoles), Inceptisoles (Cambisoles), Alfisoles (Luvisoles) y Ultisoles (Acrisoles) utilizados con fines agrícolas y pecuarios, con y sin riego, y una gran variedad de cultivos como frutales, hortalizas, cereales y pastos, en climas diversas.

Hay que destacar la magnifica labor cumplida por el Comité Organizador Local encabezado por el Dr. Luis Segnini, y el apoyo prestado por la Facultad de Agronomía de la Universidad del Zulia para que el Congreso fuera todo un éxito.

Ildefonso Pla-Sentis, Maracay, Venezuela

PALEOENVIRONMENTAL INTERPRETATION OF PALEOSOLS

Penrose Conference, Warm Springs, Oregon, September 11-17, 1987

An opportunity to exchange ideas with geologists interested in interpreting Quaternary and pre-Quaternary paleosols was presented during the highly successful Penrose conference of the Geological Society of America, held at the Kah-Nee-Tah Resort on the Warm Springs Indian Reserve. The format of the conference called for presentations, by invited speakers and discussants, of topics related to Quaternary and pre-Quaternary soils according to the five soil forming factors. Half a day was allocated for each factor, with ample time for general discussion of the relevant topic. Evenings were devoted to small discussion groups on recognizing, identifying and naming paleosols, techniques for studying them, applied paleopedology and modeling. Summary conclusions were presented at a final session. Posters were also encouraged and demonstrated more specific studies by graduate students mainly.

For a pedologist it was especially gratifying to see the growing interest in paleosols in the geological record and the considerable number of excellent studies on environmental interpretations using paleosols as indicators, including the Precambrian paleosols used for the interpretation of the then reducing atmosphere and the timing of the change to an oxidizing environment.

Two field trips, one devoted to the Quaternary soils and geomorphology of the Willamette valley and one to the mid-Tertiary paleosols of the scenic John Day country, complemented the most enjoyable conference. Of the 64 participants, about one-third were pedologists for whom the encounter with the many studies of pre-Quaternary environmental interpretations based on paleosols was highly encouraging. No proceedings will be published, in accordance with the rules for the Penrose conferences, whose aim is free interaction and exchange of ideas.

The conference was organized by Greg Retallack and Patricia McDowell, from respectively the Geology and Geography Departments of the University of Oregon, Eugene, who succeeded extremely well in their goal of bringing together exponents of both the geological and pedological approaches to the study of soils and paleosols. More conferences of this kind, in this and other fields of soil sciences, are welcome.

Dan H. Yaalon, Jerusalem, Israel

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

ISSS Commission I

MEETING OF COMM. I AT TRIESTE'S COLLEGE ON SOIL PHYSICS

An informal meeting of members of ISSS active in Commission I took place at the College on Soil Physics organised by the International Centre for Theoretical Physics in Trieste on 12 November 1987. The participants were informed by the Chairman M. Kutilek on the activities of Commission I after the XIV Congress in Hamburg and on the preparations for the XV Congress in 1990 in Japan. The members present were impressed by the careful and efficient system of preparation of the program and they expressed their agreement with the themes proposed by the Organizing Committee for the Symposia. In the discussion on the key problems to be tabled at the plenary sessions, they agreed unanimously on the most weighty issue of contemporary soil science: the scale problem. Most recent theories in soil science have been developed for areas of maximum 10° m^2 (soil columns in the laboratory, thin sections, monoliths, pedon-size experiments, soil sampling, etc.). The application of the theories is, however, expected to be for areas of more than 10^6 m^2 (farms, forests, watersheds, counties and districts, etc.). The scale problem starts to be dominant here. As a lot has been done in research on that problem recently, and more is still expected, Commission I is in favor of presentation of the Scale Problem in a plenary session of the XV Congress of ISSS.

M. Kutilek, Chairman Commission I,
Prague, Czechoslovakia

ISSS Committee on Standardisation

REPORT ON THE ISO TECHNICAL COMMITTEE 190 'SOIL QUALITY', meeting 22–26 June 1987 at Milan, Italy

In 1985 the International Standards Organization (ISO) established a Technical Committee on soil quality, ISO/TC 190. An account of the first meeting was given in the ISSS Bulletin no. 70, 1986/2 (page 48).

Following this, the TC secretariat collected votes by correspondence from the ISO member bodies on participation in the TC and on the proposed work items. The meeting in June 1987 in Milan officially endorsed the work items and allocated them to subcommittees and working groups. Secretariats of subcommittees were assigned and convenors of working groups were designated. These convenors will have to be the driving force behind the work of the working group.

In ISO/TC 190, 11 countries participate as P-member (participating member) and 19 as O-member (observing member).

P-members are Austria, France, Germany F.R., Hungary, India, Italy, Jamaica, Kenya, Netherlands, Sri Lanka and United Kingdom.

O-members are Australia, Belgium, Canada, Chile, China, Czechoslovakia, Denmark, Egypt Arab Rep., Greece, Malaysia, Mexico, Rumania, South Africa, Spain, Sweden, Switserland, Turkey, USA and Yugoslavia.

The ISSS has an official liaison with the TC through its own Committee on Standardisation (see page 84 of this Bulletin).

At the TC meeting in Milan, June 1987, the following countries were represented: France, Germany F.R., Hungary, Italy, Netherlands, Sweden, United Kingdom.

The undersigned served as provisional representative of ISSS at the request of its secretary-general.

The Technical Committee is arranged in subcommittees. Secretariats of the TC and subcommittees are held by the various national standardization institutes as indicated.

The organizational structure of ISO/TC-190 is as follows:

Subcommittee	*secretariat*	*work item*
TC 190	NNI (Netherlands)	soil quality
TC 190-SC 1	AFNOR (France)	evaluation of criteria, terminology and codification
TC 190-SC 2	DIN (Germany F.R.)	sampling
TC 190-SC 3	DIN (Germany F.R.)	chemical methods and soil characteristics
TC 190-SC 4	BSI (United Kingdom)	biological methods
TC 190-SC 5	NNI (Netherlands)	physical methods

The work item of Sub-Committee 3 contains the following elements: heavy metals, As, Se, nitrogen compounds, sulphur compounds, cyanide, phosphor compounds, mineral oil, chlorinated pesticides, PCB's, chlorinated hydrocarbons, electrical conductivity, pH, redox potential, CEC, particle size analysis.

The Sub-Committee 4 has specified its work item as follows: biodegradability, effects on soil fauna, effects on soil flora, microbial inhibition.

The elements of the work item of Sub-Committee 5 are: water retention characteristics, hydraulic conductivity, water content, soil water potential (tensiometer method and piezometer method).

Working groups are formed from subject-matter-experts and one of the experts is designated as convenor. Each working group will work on an element of a work item as mentioned. For some working groups a convenor could not yet been found.

During subcommittee and working group discussions efforts were made to identify the pitfalls on the way to standardization. In the different subcommittees and working groups the character of the discussions varied considerably. It ranged from very formal conversations on received documents (draft national standards or standards on water quality) and the allocation of the work to the working group members, to very lively discussions on the 'ins' and 'outs' of various analytical methods.

As can be noted from the above named countries, the active participation in the Technical Committee is at present limited to European countries, and a widening of the audience is desirable. The work of the Technical Committee can be made known among soil scientists world wide through the ISSS bulletin. ISSS members are encouraged to become actively involved in the various working groups through the national normalization institutes in their respective countries.

A number of the participants to the meeting were soil scientists (and ISSS member as well), but the majority of them were pure and applied chemists. Although capable in their field of work a feedback from ISSS can certainly do much to improve their efforts in drafting the proposals for international standards.

In the coming period the convenors of working groups will start drafting proposals for standards. Therefore national standards or related documents are invited. The ISSS Committee on Standardization (CST) will bring forward whatever it sees necessary for consideration by the working group convenors.

L. K. Pleysier, ISRIC Wageningen

ISSS Working Group RZ

RHIZOSPHERE

The rhizosphere is the place where the plant meets and interacts with the soil. Roots grow into the soil, take out nutrients and water and thus disturb equilibria and create gradients. The soil reacts by changing its density, by transporting nutrients and water to the root and by exchanging substances between the solid and the liquid soil phase. Furthermore, roots release inorganic ions and organic compounds into the soil thus influencing the mobility of plant nutrients and the abundance of microorganisms in the root environment. These various interactions of the soil and plant are most important for the mineral nutrition and health of plants. Knowledge of the processes in the rhizosphere and the factors affecting them is of fundamental importance for understanding the nutrition of plants.

The Council of ISSS has therefore established a new working group the aim of which is to promote scientific activity in gaining and distributing knowledge and understanding of the rhizosphere. All colleagues who are interested in the chemical, physical and biological processes in the rhizosphere are invited to cooperate with this new working group. Any suggestion and relevant information are welcome.

Recent meetings which have dealt at least partly with the rhizosphere were:

- Symposium 'Nutrient dynamics in the rhizosphere' as part of ISSS Congress 1986 in Hamburg,
- Symposium 'Nutrients and rhizosphere' as part of the International Botanical Congress 1987 in Berlin,
- The International Plant Nutrition Colloquium 1986 in Washington D.C., USA and
- The Symposium 'Structure and function of roots' 1987 in Nitra, CSSR.

Scientific meetings in the near future will be:

- Congress of the International Society of Root Research in Sweden, August 1988 (Prof. Persson, Uppsala).
- In the F.R. of Germany, 1988, the final colloquium will be hald of an 8 years main effort research project entitled 'Nutrient dynamics at the soil/root interface'. It is financially supported by the DFG (German Research Foundation) and co-ordinated by Prof. Marschner, Stuttgart-Hohenheim. Data and place of this colloquium will be announced in the next ISSS Bulletin. Special sessions are intended during the ISSS Congress 1990 in Japan.

Prof. A. Jungk, Chairman ISSS Working Group RZ, (Georg-August-Universität Institut für Agrikulturchemie von-Siebold-Str. 6 D-3400 Göttingen. FRG)

ISSS Working Group FT

WORKING GROUP ON LONG-TERM SOIL FERTILITY TRIALS RECONSTITUTED

Calling attention of all members, interested in long-term soil fertility trials

The mandate of Working Group FT, Comm. IV was withdrawn in Hamburg (XIII. ISSS Congress) by the 'Council' for a number of reasons. Meanwhile, considering the importance of the subject, it was suggested by ISSS members and accepted by the chairman of Working Group FT, Prof. Boguslawski, Giessen, FRG, that the existing Working Group will continue as Subgroup within a worldwide operating, expanded 'ISSS Working Group'. Thus, the long existing (since 1957) European network will be continued, while subgroups for Africa, Latin America, Asia-Australia and N-America will be created and added.

As an ad-hoc solution, the ISSS Secretariat-General has asked Prof. A. Agboola, Nigeria (for Africa), Prof. P. Sanchez, NCSU Raleigh USA/Yurimaguas Peru (for Latin America), Dr. S. K. De Datta, IRRI Philippines (for Asia and Australia), and Dr. T. Pech, Univ. of Illinois USA (for N-America) to help organizing the new Subgroups.

The coordination between the 5 Subgroups will be undertaken by a small Committee. The undersigned was asked to act as Chairman of this formal ISSS Working Group Committee, consisting of aforementioned regional Subgroup organizers and Dr. D. S. Jenkinson, Rothamsted UK as Secretary. The Committee will report to ISSS Commission IV Officers.

All Committee members are aware that their service is transitory in character and that an election of officers is required at earliest possible occasion, latest 1990 during the XIV. ISSS Congress in Kyoto.

Hopefully, the new Working Group will emerge as an official link between ISSS and the IUBS-'Tropical Soil Biology and Fertility Programme'. It may also extend a collaboration with the US-sponsored IBSNAT-project and with the networks of IBSRAM (International Board of Soil Research and Management).

All those interested in the 'ISSS Working Group on Long Term Soil Fertility Trials' are cordially requested to inform the Secretary General of the ISSS (P.O. Box 353, 6700 AJ Wageningen, Netherlands) accordingly.

Prof. Dr. H. W. Scharpenseel, interim Chairman (c/o Dept. of Soil Science, Univ. of Hamburg, Allende-Platz 2, D-2000 Hamburg 13, FRG).

ISSS Working Group SG

GEOMEDICINE, A YOUNG SUBJECT WITH OLD ROOTS

A new Working Group, 'Soils and Geomedicine', was established at the Thirteenth Congress of International Society of Soil Science.

Soil scientists have often expressed a wish that knowledge on this subject should be made available for more widespread use. Many possibilities in applied sciences and in botanical and zoological ecology have been pointed out. That soil science may contribute to solving some medical questions has seldom been mentioned.

However, knowledge on particular geographical distribution of certain diseases has existed just as long as medical science. Such information is known from Hippokrates and other ancient Greeks.

Old Scandinavian literature has some interesting viewpoints on patterns of illnesses. In a book printed in 1632 Peder Claussøn Friss told about scurvy in Northern Norway and the use of *Cochlearia officinalis* as a remedy.

In certain districts osteomalacia was a plague in animal husbandry. Many farmers thought that a special pasture plant caused the disease. A Norwegian official, Jens Bjelke, who lived in the period 1580-1659, gave the plant the Latin name *Gramen Ossifragum* ('the grass that breaks bones'), now renamed *Narthecium ossifragum* (L.) Huds. The farmers used small amounts of crushed bones as a remedy for the disease. A geologist had heard about this experience. He found extra low concentration of the mineral apatite in the bedrock in a typical osteomalacia-area, and drew the logical and correct conclusion that phosphorus deficiency may have caused the illness.

Special features concerning the distribution of goitre in relation to deficiency of iodine have been known from many parts of the world.

Geomedicine is now considered as the science dealing with the influence of ordinary environmental factors on the geographical distribution of problems of human and animal health.

Curative measures have dominated the work in human and veterinary medicine. In the future we expect that more emphasis will be placed on preventive measures as research work and the official health services become more developed. Both medical doctors, dentists, and veterinarians will probably increase engagements in this field.

Details in nutrition will have a central position among the problems which ought to be solved. Chronic poisoning is another group of questions which may invoke more attention. Health effects of several other factors, both chemical, physical, and biological, will be more thoroughly considered. Influence of radioactive matter and other pollutants of air, water, and soil from industry may be mentioned as examples. The circulation processes air – soil – plant – animal (man) ought to be studied carefully.

It should be possible in soil science to make valuable contributions towards solving important geomedical questions.

Prof. Dr. J. Låg, Chairman of the ISSS Working Group SG.
(Dept. of Soil Science – ANN, P.O. Box 27, 1432 Ås – NLH, Norway)

ISSS Working Group DM

WORLD SOILS AND TERRAIN DIGITAL DATABASE (SOTER)

Plans are in progress to implement Phase 1 of the SOTER Project. As a result of an ISSS-sponsored Workshop at the International Soil Reference and Information Centre, Wageningen, the Netherlands, in January 1986, a proposal was developed for establishing a world soils and terrain digital database at an average scale of 1:1 million. After technical review and revision the proposal was presented to and endorsed at the Soils Congress in Hamburg in August 1986. During the Hamburg Congress the provisional working group was approved as the official ISSS Working Group on World Soils and Terrain Digital Database under Commission V.

As a result of initial discussions with officials of the United Nations Environment Programma about the SOTER Project and its implementation, UNEP invited fifteen members of the SOTER Working Group to participate in an Ad Hoc Expert Group Meeting on Feasibility and Methodology of Global Soil Degradation Assessment. This meeting was held from 18 to 22 May 1987 at the UNEP Facility, Nairobi, Kenya. There Working Group members held discussions with members of the Environment Management staff of UNEP to consider the possibilities of combining UNEP's need for a small scale world map of soil degradation and the ISSS proposal to begin the development of a world soils and terrain digital database at average scale of 1:1 m.

Recommendations from the Nairobi meeting were used in the preparation of a UNEP Project Document entitled 'Global Assessment of Soil Degradation.' The Project Document was approved in September 1987 with a duration of 28 months. The project consists of two objectives. The first is to prepare a world soil degradation map at a scale of 1:10/15 million. The second objective is to generate soil degradation maps and digital databases for soils and terrain of a pilot area of approximately 250,000 square kilometers for portions of Argentina, Uruguay and Brazil.

Implementation of the project will be the responsibility of the International Soil Reference and Information Centre in association with FAO, the ISSS, Stiboka (Dutch Soil Survey Institute) and ITC (Int. Institute for Aerospace Survey and Earth Sciences).

A workshop is scheduled for 21–26 March 1988 in Montevideo, Uruguay, with soil scientists from Argentina, Uruguay and Brazil to develop an implementation plan for the development of a soils and terrain digital database for the pilot area.

Prof. Dr. M. Baumgardner, Chairman of the Working Group SG.
(Dept. of Agronomy, Purdue Univ., West Lafayette, IN 47907, USA)

PRESERVATION OF NATURAL SOILS – a Task for the World's Soil Scientists

The note entitled 'Proposal for an International Register of Soil and Vegetation Reserves' published in the ISSS Bulletin no. 69 (1986/1) constitutes an extremely valuable complement to the Polish initiative from about 10 years ago ('Preservation of Natural Soils – Soil Pattern Areas as a Basis for the Study of the Effects of Man on Soils', ISSS Bulletin no. 51 – 1977/1, pages 45–46). This initiative at the time aroused considerable interest in European countries, as shown by the incoming correspondence. We however lack information as to whether similar soil reserves have been set up anywhere outside Poland. In this country there are currently 139 such units with a total area of 56,529 ha. This figure does not include the natural, or near natural, soils in National Parks and vegetation reserves. The Polish Society of Soil Science has issued the 'Principles of Arrangement and Management of Soil Pattern Areas in the State Forests', with a detailed instruction for the documentation and mapping of the soil pattern areas. For the time being the instruction refers only to lowland areas. A separate variant is now being prepared for mountain areas.

The Polish Society of Soil Science strongly supports the idea of setting up an International Register of Soil and Vegetation Reserves and is ready to help with its experience in the field of soil preservation in reserves.

Prof. Dr. L. Krolikowski† and Prof. Dr. Z. Prusinkiewicz, Chairman of the Working Group of Soil Pattern Areas of the Polish Society of Soil Science (Kraszewskiego 22 M18, Torun 87-100, Poland).

The ISSS secretariat welcomes the renewed offer of our Polish colleagues and will approach appropriate international organisations such as Unesco-MAB and IUCN for moral and financial support to arrive at an effective programme to identify and establish sites with key soils under their natural vegetation. These may ultimately be entered in a kind of 'world soil heritage (or reference) site' register, and be identified as such with permanent bronze markers.

Some of these sites may be:

- A protected site of dark red, very deep and extremely strongly weathered soil (Akric Ferralsol/Acrox) with its characteristic 'cerrado' vegetation on the high plain of Brasilia. The site is located in the botanical garden of this new federal capital of Brazil, and has already been entered in the World Soil Monolith collection of ISRIC.
- A protected site of dark coloured cracking clay soil (Suleimi Series: Chromic Vertisol/Chromustert) with its sparse grassy vegetation within the Gezira irrigation scheme, near the headquarters of the Soil Survey Admin. in Wad Medani, Sudan.
- A site for which preservation is being sought by Dr. L. G. Gile et al., on the Upper La Mesa landsurface near Las Cruces, New Mexico, USA (Cruces series, the type locality for the Petrocalcic Paleargid classification unit in the US Soil Taxonomy system/Luvic Xerosol, petrocalcic phase).

There should be many more good sites, with soils that are representative for the central concepts of major natural soil units. Specific suggestions, preferably with supporting field and lab data, can be sent to the ISSS Secretariat or directly to Prof. Prusinkiewicz.

If there is sufficient interest by members to become active at the national level, then the ISSS Executive Committee will be asked to agree to the formation of a provisional Working Group for the matter.

□

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

CAMPINAS HOSTS THE XXI CONGRESS OF THE BRAZILIAN SOIL SCIENCE SOCIETY

The Brazilian Soil Science Society carried out, from 19 to 25 of July 1987, the XXI Brazilian Congress of Soil Science, which was held in the southeastern city of Campinas, State of São Paulo. With a record attendance of over **900**, the Congress was part of the celebration of the 100th anniversary of foundation of the Instituto Agronômico of Campinas (IAC), one of the oldest and most renowned agricultural research institutions of Latin America.

The meeting had as the central theme 'The Social Responsability of Soil Science' for which people with various backgrounds were invited for talks, including soil scientists, extension service agronomists, university faculty deans, sociologists, politicians, and farmers. This allowed the discussion of a broad variety of issues such as the reasons for studying the soil, the knowledgement of the user of the research in soils, research programs directed to small farmers, the importance of the knowledge of the physical environment for the agrarian reform, the integrated action of research and extension specialists, integrated systems of watershed management, and participation of the government in erosion control.

Despite the opening for political issues related to soil science, the XXI Congress kept the usual emphasis on scientific matters. Thus, over 200 papers were given, either as posters or oral presentations. In addition, a symposium was held on soil microbiology (Soil Microbiology – Only Symbiosis?); workshops on structural analysis in pedology; form and style of soil survey reports; studies on micromorphology of Brazilian soils, and quality control programs of laboratories of soil and plant analysis.

The program of the XXI Congress of the BSSS gave its members a unique oportunity to reflect upon the scientific as well as the social consequences of their work.

The General Assembly of the Brazilian Soil Science Society, held during the XXI Congress, elected new Officers for the 1987–1989 period:

President: José Fernando Moraes Gomes, Brasília, DF
1st. Vice-President: Fernando Barreto Rodrigues e Silva, Recife, PE
2nd. Vice-President: Antonio Carlos Moniz, Campinas, SP
Secretary: Heitor Cantarella, Campinas, SP
Treasurer: José Maria A. S. Valadares, Campinas, SP
Council: Francisco da Costa Verdade (Campinas, SP), Luiz Ferreira da Silva (Itabuna, BA), Antonio Ramalho Filho (Rio de Janeiro, RJ), Gonçalo Signorelli de Farias (Curitiba, PR), Ibanor Anghinoni (Porto Alegre, RS), and Gabriel de Araújo Santos (Seropédica, RJ).

Address of the society: Dr. Heitor Cantarella, Secretary S.B.C.S., Caixa Postal 28, 13001 Campinas, SP, Brazil.

Bulgarian Society of Soil Science

The new Chairman of the Society, serving for the period 1987–1990, is Prof. M. Yolevski, and the new Secretary-general Prof. R. Delkova.

The *address* of the Society is: 7, Shosse Bankya Str., Sofia 1080, Bulgaria; Telex: 22701A insol bg, tel. 2-52-71.

The Society's publication is 'Soil Science and Agrochemistry'.

The hardworking people behind-the-scene at a congress of ninehundred participants: the members of the organising committee of the Brazilian Congress of Soil Science.

Association Française pour l'Etude du Sol

Le nouveau bureau de l'AFES est le suivant depuis Mars 1987:

Président:	Pr. Jean Boulaine
Vice-Président:	Pr. Alain Ruellan
Secrétaire général:	Dr. Michel-Claude Girard
Trésorier:	Dr. Daniel Tessier
Membres:	Messieurs Bouteyre, Cheverry, Legros, Remy, Souchier, Fauck, de Beaucorps, Decroux, Pichot, Begon, Chossat, Hervé; Mme Jeanson.
Anciens présidents:	Messieurs Aubert, Drouineau, Douchaufour, Hébert, Henin, Leneuf, Pedro.

Adresse du secrétariat, et siège de l'association: 4 rue Redon, 78370 Plaisir, France.

Sociedad Venezolana de la Ciencia del Suelo

The new Board Members of the Society, serving for the period 1987–1989, are as follows:

Presidente:	Dr. Anibal Rosales (UCV), Suplente: Dr. Eduardo Casanova (UCV)
Secretario:	Ing.Agr. Elizabeth Gonzalez (FUSAGRI), Suplente: Ing.Agr. M. Sc. Carmen E. de Cori (UCV)
Tesorero:	Ing.Agr. Deyanira Lobo (UCV), Suplente: Ing.Agr. Reina Goitia (PALMAVEN)
Vocal:	Ing.Agr. Antonio Sanchez (CENIAP), Suplente: Ing.Agr. Maria Mendez (MARN)

Address: S.V.C.S., Las Acacias, Apartado 1208, Santa Rosa, Maracay, Venezuela.

Sociedad Chilena de la Ciencia del Suelo

The Fifth National Symposium on Soil Science was held in Valparaiso between October 26 and 28, and it was very successful. It was organized by the 'Facultad de Agronomia, Universidad Catolica de Valparaiso' and the organizing Committee was chaired by Dr. Eduardo Salgado.

Fifty papers were presented, in different branches of soil science: Soil Chemistry, Forest Soil, Soil Biology, Soil Fertility, Soil Physics, Micromorphology, and Soil Survey and Classification.

On the occasion of the Symposium, the General Assembly of the Chilean Society of Soil Science was held and a new Board was elected, as follows:

President:	Prof. Sergio Alcayaga
Vice-President:	Ing.Agr. Pedro Baherle
Past President:	Prof. Dr. Renato Grez
Secretary-Treasurer:	Prof. Walter Luzio
Scientific Committee:	Dr. Ed. Besoain; Dr. Fernando Borie; Dr. Domingo Suarez.

Adress of the Secretariat: Facultad de Ciencias Agrarias y Forestales, Universidad de Chile, Casilla 1004, Santiago, Chile.

Bodenkundliche Gesellschaft der Schweiz – Societé Suisse de Pédologie

Vorstand/Comité 1987–1989:

Präsident/Président:	P. Lüscher, Biermensdorf
Vize-Präsident/Vice-Président:	H. Häni, Liebefeld
Sekretär/Secrétaire:	L.-F. Bonnard, Zürich-Reckenholz
Kassier/Caissier:	A. Kaufmann, Zollikofen
Beisitzer/Assesseur:	Th. Mosimann, Basen

Dokumentationsstelle/Service des documents: P. Lüscher, EAFV, Zürcherstr. 111, 8903 Birmensdorf.

Vorsitzende der Arbeitsgruppen/Présidents des groupes de travail:

Klassifikation und Nomenklatur:	M. Müller, Zürich-Reckenholz
Körnung und Gefüge:	E. Kramer, Tänikon
Lysimeter:	J. P. Ryser, Nyon-Changins
Bodenzoologie:	W. Matthey, Neuchatel
Bodenschutz:	H. Bieri, Zürich

Adresse: Eidg. Forschungsanstalt für landwirtschaftlichen Pflanzenbau, 8046 Zürich-Reckenholz, Switzerland.

Bodenkundlichen Gesellschaft der Deutschen Demokratischen Republik

Mitteilung über die 16. Wissenschaftliche Jahrestagung

Die Bodenkundliche Gesellschaft der DDR führte vom 18.–20. März 1986 in Erfurt ihre Jahrestagung mit Mitgliederversammlung durch. Die Tagung stand unter der Thematik 'Felddiagnose ertragsbestimmender Eigenschaften von Böden für die Prognose von Boden- und Ertragsentwicklungen und die Entscheidungsfindung für Steuermaßnahmen'. Es nahmen 230 Mitglieder und Gäste der Bodenkundlichen Gesellschaft

der DDR teil, darunter Prof. Dr. J. Szabolcs als Vorsitzender der Ungarischen BG und stellvertretender Generalsekretär der IBG, und Doz. Dr. Kowalkowski als Vorstandsmitglied der Polnischen BG. In der Plenarsitzung am 18. März 1986 wurden die Themen Bodenführung und Felddiagnostik, Diagnoseerfordernisse für die Bodenführung mit ackerbaulichen Maßnahmen und Diagnoseerfordernisse für die Vorbereitung und das Betreiben von Bodenwasserregulierungssystemen behandelt.

In einem Gastvortrag wurden Anwendungsmöglichkeiten und Tendenzen der Spitzentechnologie CAD/CAM vorgestellt.

Die Tagung wurde in 4 Symposien zur Diagnostik physikalischer und chemischer Bodeneigenschaften sowie zur Nutzung biologischer Indikatoren und zur Fernerkundung fortgesetzt.

Die Vorträge beinhalteten Grundlagen und Verfahren der Diagnose von Böden, Erfassung von ökologischen und technologischen Schadzuständen und den diagnostischen Einsatz von Modellen sowie Methoden und Ergebnissen zur Kennzeichnung der räumlichen Varianz von Meßwerten.

Die Exkursion führte in die Bezirke Erfurt und Gera. Neben der Interpretation von Bodenprofilen (Haplic Chernozems, Calcic Chernozems) wurden Lysimeteranlagen besichtigt und insgesamt 12 Felddiagnosemethoden demonstriert.

In der Mitgliederversammlung am 18. März 1986 wurden ein neuer Vorstand der BG der DDR gewählt und zwei neue Subkommissionen, 'Ökologie' und 'Tropische Böden' gebildet.

Der bisherige Vorsitzende, Prof. Dr. sc. P. Kundler, der diese Funktion 18 Jahre inne hatte, hat auf eine erneute Kandidatur verzichtet.

In den neuen Vorstand der BG der DDR wurden gewählt:
Vorsitzender: Dr. sc. J. Quast, Forschungszentrum für Bodenfruchtbarkeit (FZB) Müncheberg der Akademie der Landwirtschafts-wissenschaften der DDR.

Vorsitzende der Kommissionen:

Bodenphysik	Dr. sc. D. Werner	FZB Müncheberg, Bereich Jena
Bodenchemie und Pflanzenernährung	Prof. Dr. sc. G. Markgraf	Humboldt-Universität Berlin
Bodenbiologie	Prof. Dr. sc. B. Hickisch	Martin-Luther-Universität Halle
Bodenfruchtbarkeit	Prof. Dr. sc. H.-J. Liste	Martin-Luther-Universität
Bodengenetik Klassifizierung und Kartierung	Dr. sc. R. Schmidt	FZB Müncheberg, Bereich Eberswalde
Melioration	Doz. Dr. sc. P. Menning	Wilhelm-Pieck-Universität Rostock

Vorsitzende der Subkommissionen:

Forstliche Bodenkunde	Prof. Dr. sc. H.-J. Fiedler	Technische Universität Dresden
Tropische Böden	Prof. Dr. sc. H. Mutscher	Karl-Marx-Universität Leipzig
Bodenökologie	Dr. sc. M. Succow	FZB Müncheberg, Bereich Eberswalde
Sekretär	Dr. B. Strohbach	FZB Müncheberg, Bereich Eberswalde

Die BG der DDR führt im September 1988 eine Jubiläumstagung anläßlich ihres 20 jährigen Bestehens in Dresden durch.

Adresse: Bodenkundliche Gesellschaft der DDR, Wilhelm-Pieck-Straße 72, 1278 Müncheberg, DDR.

Deutsche Bodenkundliche Gesellschaft

Im Zeitraum 1986/87 erfolgten folgende ehrenvolle Berufungen von mitglieder der Deutsche Bodenkundliche Gesellschaft:

Prof. Dr. **Wiechmann**, Bonn, übernahm das Ordinariat Bodenkunde der Universität Hamburg als Nachfolger des emeritierten Prof. Dr. Scharpenseel.

Prof. Dr. **Brümmer**, Kiel, ging als Nachfolger des vorzeitig pensionierten Prof. Dr. Zakosek an das Institut für Bodenkunde der Universität Bonn.

Dr. **Wilke** *wechselte vom Lehrstuhl für Bodenkunde und Bodengeographie, Bayreuth, als Professor an das Institut für Landschaftsbau der Technischen Universität, Berlin.*

Prof. Dr. **W. Horst**, bisher Institut für Pflanzenernährung, Stuttgart-Hohenheim, wurde Nachfolger von Prof. Dr. Wehrmann am institut für Pflanzenernährung der Technischen Universität, Hannover.

Prof. Dr. **Ottow**, Chairman Commission III ISSS übernahm den Lehrstuhl für Mikrobiologie am Institut für Landeskultur der Justus-Liebig-Universität Gießen als Nachfolger von Prof. Dr. Küster.

Dr. **Timmermann**, wissenschaftlicher Oberrat am Institut für Pflanzenernährung und Bodenkunde der Forschungsanstalt für Landwirtschaft in Braunschweig-Völkenrode wurde zum Nachfolger von Prof. Hofmann zum Direktor der Landwirtschaftlichen Untersuchungs- und Forschungsanstalt Karlsruhe-Durlach, ernannt.

Dr. **Frede**, Institut für Bodenkunde, Universität Göttingen, erhielt einen ehrenvollen Ruf auf den Lehrstuhl für Landeskultur der Universität Gießen, Nachfolge des emeritierten Prof. Dr. Wohlrab.

Prof. Dr. **Hartge**, Hannover, Past President of ISSS und Prof. Dr. **Baumann**, Kiel wurden zu Ehrenmitgliedern der Deutschen Bodenkundlichen Gesellschaft ernannt

Prof. Dr. **Zakosek**, Bonn, und Prof. Dr. **Breburda**, Gießen wurden Honory Professors of the Institute of Soil Science of the Academy Sinica at Nanjing, China.

Dr. **Eggelsmann**, Bremen, wurde für seine Verdienste in der Moorforschung mit der C. A. Weber-Medaille der Deutschen Moor- und Torfkundlichen Gesellschaft (DGMT) ausgezeichnet.

Gedächtnis Professor Dr. Dr. H.C. Mult. Bohdan Dobrzański (1909–19 87), korrespondierendes Mitglied der Deutschen Bodenkundlichen Gesellschaft

Professor Dr. Dr. H.C. Mult. Bohdan Dobrzański, Emeritus an der Landwirtschaftlichen Universität Warschau, wurde am 3. März 1909 in Strutynka geboren und starb am 15. Juli 1987 in Warschau. Damit ging eine seltene wissenschaftliche wie auch menschliche Persönlichkeit, ein hilfsbereiter und in jeder Hinsicht angenehmer Kollege von uns, dem wir stets in Ehren gedenken werden. Er war ein schöpferischer Naturwissenschaftler, insbesondere Pedologe, darüberhinaus ein weitsichtiger Planer und Organisator der Wissenschaften. Das bezeugt sein beruflicher Lebensweg.

Das besondere wissenschaftliche Interesse von Prof. Dobrzański lag auf folgenden Spezialgebieten der Bodenkunde: Bodengenetik, Bodensystematik besonders der Rendizinen, Bodenkartographie, Dynamik des Bodenwassers, hauptsächlich Wasserkapazität und Wasserbewegung, im besonderen in Böden aus Löß und Sanden. Darum widmete er sich intensiv der agrophysikalischen Forschung unter eingehender Beachtung der grundlegenden physikalischen Prozesse im Boden.

Die außerordentlichen Leistungen von Prof. Dobrański in der pedologischen Forschung sowie in der Planung und Organisation der Bodenkunde und darüber hinaus in der langen Periode als Rektor bedeutender Universitäten haben ihm hohe Anerkennung und Ehrungen eingetragen: drei Titel Dr. H. C., Mitgliedschaft von wissenschaftlichen Akademien, und zwar in der Polnischen Adademie der Wissenschaften, in der Sowjetische All-Union Landwirtschaftlichen Akademie und in der G.D.R. Landwirtschaftlichen Akademie, ferner in der Ungarischen Akademie der Wissenschaften sowie Korrespondierendes Mitglied der Deutschen Bodenkundlichen Gesellschaft.

Die Fachkollegen danken Prof. Dobrzański für den großen Beitrag zur pedologischen Forschung und für die aufrichtige Kollegialität.

E. Mückenhausen und H. Kuntze

APPOINTMENTS, HONOURS
NOMINATIONS, DISTINCTIONS
ERNENNUNGEN, AUSZEICHNUNGEN

Dr. **Dennis J. Greenland**, for many years Deputy-Director General for Research at IRRI, the Philippines, has returned to his native England and there taken up appointment as Director of Scientific Services with C.A.B. International at its new headquarters in Wallingford.

Dr. **Ken E. Lee** of Glen Osmond, Australia, Chairman of the ISSS Subcommission on Soil Zoology, was the recipient of the Presscott Medal 1986 of the Australian Society of Soil Science.

Upon his retirement from FAO, Dr. **Hugh Brammer** soil scientist-agronomist with a life-time service in developing countries (Ghana, Zambia, Bangladesh) was awarded the distinguished order of the British Empire (DBE). Mr. Hugh Brammer of FAO-Bangladesh and Mr. **Maurice Purnell** of FAO-Rome received the Seniority Award for 25 years of service at that UN specialized Agency.

Prof. Dr. **Stanley Barber**, soil fertility and plant nutrition specialist at Purdue University, was elected to membership in the National Academy of Sciences of the USA.

Prof. Dr. **Eugene Kamprath** of North Carolina State University at Raleigh received a honorary Doctor-of-Science degree at the University of Nebraska.

Prof. Dr. **Pedro Sanchez**, Vice-Chairman of ISSS Commission VI, has been named a Honorary Professor of the National University of Peruvian Amazonian at Iquitos.

Dr. **Jose Benites**, local teamleader of the NCSU-CIPA Yurimagnas research station in the Amazon part of Peru, jointed the Soil Management Group of FAO's Land and Water Development Division in Rome.

Dr. **George Pedro**, Ancien-President de l'Association Française pour l'Etude du Sol a été élu Membre correspondant de l'Academie des Sciences de la France.

Prof. Dr. **Udo Schwertmann** of Freising-Weihenstephan FRG, past-Chairman of ISSS Commission VII, and Prof. Dr. **Ernst Schlichting** of Stuttgart-Hohenheim, past-Chairman of ISSS Commission V, were elected member of the Akademie der Naturforscher 'Leopoldina' (Halle/DDR), the oldest German academy of science.

Dr. **Marcel De Boodt**, Professor of Soil Physics at the State University Ghent and Chairman of the ISSS Working Group for the Study of the Nature and Properties of Soil Colloidal Surface, was nominated Doctor Honoris Causa of the Agricultural University, Lublin, Poland.

Dr. P. K. R. **Nair**, soil scientist with ICRAF-Nairobi, has been appointed Professor of Agroforestry at the University of Florida at Gainesville.

NEW/NOTEWORTHY

INTERNATIONAL FERTILIZER DEVELOPMENT SUBCENTER IN AFRICA

The International Fertilizer Development Center (IFDC) is establishing a regional center in Africa. The overall goal of the Africa center is to increase food production by overcoming the constraints to fertilizer use, and to promote the exploitation of indigenous resources as fertilizer sources. Specific objectives are to fill the personnel needs of the fertilizer sector, conduct and promote research, and provide technical assistance for policy analysis and sector development.

Paul L. G. Vlek, a soil scientist who has been with IFDC for the past 10 years, has been selected to head the newly formed Africa center, to be located in *Lomé, Togo.* During his 10 years at IFDC, Dr. Vlek has served as director of the Agro-Economic Division and also as research leader and soil scientist in the Nitrogen Program. A native of the Netherlands, Dr. Vlek received a Ph.D. in soil cheistry and plant nutrition from Colorado State University in 1976. Prior to this he had received M.S. and B.S. degrees in soil chemistry and tropical soils, respectively, from the Agricultural University, Wageningen, the Netherlands.

Address in the USA: IFDC, P.O. Box 2040, Muscle Shoals, Alabama 35660, USA.

SOIL CONSERVATION SOCIETY OF AMERICA CHANGES NAME

The 41 old, non-profit scientific and educational Soil Conservation Society of America has changed its name into *Soil and Water Conservation Society*, to reflect more accurately the Society's interests in water conservation as well as soil conservation and to indicate more appropriately the Society's international interests.

The Society has 13,000 members worldwide and its new executive Vice President is Professor Alan C. Epps of Fairbanks-Alaska.

The *address* is: SWCS, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021, USA.

IUMS

As part of the activities of the International Union of Microbiological Societies in support of microbiology worldwide, *free* subscriptions are offered for *Microbiological Sciences*, intended for laboratories and libraries in Third World countries.

Microbiological Sciences is an IUMS journal. New from national societies and their activities can be published in it free of charge. All correspondence should be addressed to: Prof. Stuart W. Glover, Secretary General IUMS, Dept. of Genetics, Ridley Building, The University, Claremont Place, Newcastle-upon-Tyre NE1 7RU, United Kingdom.

COOPERATION FAO – INTERNATIONAL ATOMIC ENERGY AGENCY

The Technical Cooperation projects of the Joint FAO/IAEA Division, carried out in developing countries support visits by experts for 1-2 months to advise on the research programme, help plan the research strategy, teach appropriate methods (if necessary) and possibly (in later visits) to help assess the results. The projects usually have a relatively high component of isotope/nuclear methodology. The Division would welcome hearing from scientists experienced in isotope/nuclear techniques who could be interested in involvement in these projects. They cover a wide range of applied and basic topics in plant nutrition, soil physics, soil biology (including symbioses) and nutritional and environmental aspects of plant physiology.

Please contact: Dr. Glynn D. Bowen, Head, Soil Fertility, Irrigation and Crop Production Section, Joint FAO/IAEA Division, P.O. Box 100, A-1400 Vienna, Austria.

IN MEMORIAM

Prof. Dr. Lucjan Królikowski, Honorary Member of ISSS (1898–1987)

Lucjan Królikowski, Professor emeritus of the Institute of Forestry Research, Doctor honoris causa from Poznań Agricultural University and the meritorious President of the Polish Society of Soil Science, died on January 12, 1987.

Professor Królikowski was born on 20 November, 1898 in Sosnowiec. He studied forestry and graduated from Poznań University in 1930. In 1935 he received the degree of Doctor of Forestry for the thesis: 'Investigation on the carbon-nitrogen ratio in the litter and humus of forest soils'. After six years of didactics work at the Forestry Department of Poznań University, he was appointed in 1936 a research officer at the Institute of Forestry Research, Warsaw. There he initiated investigations, which at that time were a pioneer work, on the fertilization of pine cultures in the poorest habitats. As the head of the Waste Land Afforestation Department of that Institute and, since 1960, the head of the Department of Soil Science, he intensified investigations towards making poor forest soils, waste lands, mine and industrial waste dumps more productive. As a result of that research he elaborated and put into practice numerous directions and instructions which could help to stop the process of degradation of forest soils and make their rational recultivation possible. In order to supply paper industry with wood, he initiated planting of fast growing wood species, especially poplar hybrids.

Over 130 scientific and popularized publications and reviews of over 40 doctor's theses are the results of an animated and manysided scientific activity. He was a man of outstanding knowledge. As a result of many years of his efforts, in 1986 the 'Atlas of Polish Soils' was published, of which he was the main author and editor.

Professor Królikowski was socially very active and rendered particularly great services to the Polish Society of Soils Science. He was for 10 years its secretary-general, for 5 years vice-president and for 26 years – until his death – its president. Thanks to his efforts the Society obtained its own offices, library and central laboratory and became an important scientific and economic center associating over 1000 active members. The profits gained by the laboratory enable the Society to organize meetings and symposiums, subsidize field trips of its members, financing its research projects, etc.

Professor Królikowski was the organizer and an active member of the scientific commissions of the PSSS, the co-editor of the 'Scientific Review of Agricultural and Forestry Litterature', the chairman of the editorial committee of the 'Soil Science Annual'. As an indefatigable propagator of progress in the knowledge of soils he prompted the production of educational equipment for schools. He was the animator and co-organizer of numerous symposia and conferences with the participation of many foreign pedologists, thus greatly contributing to the development of Polish pedology and to the collaboration of pedologist from different scientific centers in the country and abroad. He took an active part in the ISSS congresses in Paris, 1956, and in Bucharest, 1964. In 1978, during the XI Congress of ISSS in Edmonton the distinction of Honorary Member of ISSS was conferred on him.

During over half a century Professor Lucjan Królikowski devoted all his knowledge for the good of science and our Society.

Polish Society of Soil Science

Professor Dr. Angel Hoyos de Castro (1913–1987)

A. *Hoyos de Castro, Doctor in Chemistry and Pharmacy*, Professor of Applied Geology and Soil Science at Granada and Madrid Universities where he held the posts of Assistant Dean and Dean, died on 26 August 1987, together with his wife Gloria, in a tragic car accident.

Dr. Hoyos was well known for his academic and research work as well as for his strong personality. His connection with the 'Instituto de Edafología y Biología Vegetal' of the CSIC, Madrid, goes back as far as its foundation in 1942, forming part of the initial team led by Prof. Albareda. After a number of years as High-school Professor, Dr. Hoyos became Professor at the Faculty of Pharmacy at Granada University. In collaboration with Dr. Gutierrez Rios he created the 'Estación Experimental del Zaidín' (CSIC), being appointed as its first Director.

Within the CSIC, he held positions as Secretary of the 'División de Ciencias Matemáticas, Médicas y de la Naturaleza' of 'Patronato Alonso de Herrera'. His personal research work was carried out in the field of soil science at Madrid University and at the 'Instituto de Edafología y Biologia Vegetal', where he organized a team of collaborators for the teaching profession and the research.

He held the position of Director of the 'Instituto de Edafología y Biología Vegetal de Madrid' until his retirement in 1983, and later that of Honorary Director. During the period 1966–1986 he was the scientist responsible for several Projects subsidized by the CAICYT, coordinating research teams from the 'Instituto de Edafología' and other CSIC Institutes.

He was elected 'Académico de número' of the 'Real Academia de Farmacia' in 1973, giving a lecture entitled 'The past, present and future between man and his environment'.

Prof. Hoyos was a founding member of the 'Sociedad Española de la Ciencia del Suelo', which forms part of the ISSS, and President of the same from 1969 tot 1986; he later became an Honorary Member of the Spanish Society.

He maintained Spain's interest in soil science by encouraging and organizing national congresses and symposiums. In field excursions, he was always to be found studying the soil profiles and comenting on these with other members of the group.

His double facet as maestro and research worker is demonstrated by the number of books he has written, the uncountable doctoral theses he has directed and the prolific number of articles he published. Of particular interest are the books entitled 'Mineralogía', 'Petrografía' and 'Edafología', the latter in collaboration with Prof. Albareda.

In respect of research work, his life was devoted to the knowledge and characterization of Spanish soils, following the guidelines of Kubiena and Albareda.

His unfortunate death has came as a severe blow to his Spanish soil science colleagues and, together with Prof. Albareda, he will always be remembered and held in great esteem, respect and admiration.

E. Dorado, *Madrid, Spain*

Professor B. Dobrzański (1909-1987)

Professor Bohdan Dobrzański, retired professor of the Agricultural University in Warsaw, member of the Polish Academy of Sciences, born on March 3rd, 1909 in Strutynka, began his scientific work on April 1st, 1933 at the Technical University in Lwów. There he obtained his doctorate under the supervision of a prominent soil scientist, Prof. Dr. Arkadiusz Musierowicz.

Prof. Dr. Bohdan Dobrzański was an outstanding soil scientist, an organizer of several research establishments and a supervisor of numerous scientific workers. He promoted 30 doctors and most of them (22) are now professors.

After the end of the second world war he organized the Soil Science Department in the newly established Marie Curie-Skłodowska University of Lublin in the Agricultural Faculty and afterwards also the Soil Science Department in the Faculty of Biology and Earth Sciences. For 9 years Prof. B. Dobrzański was a rector of this University and later of the Agricultural University organized by him. He received the title of doctor honoris causa from both Universities and from the Agricultural-technical University in Olsztyn for his brilliant merits in their development and also for his scientific achievements.

It was on Prof. Dobrzański's inspiration that the Institute of Agrophysics, unique in Poland, was established in the Polish Academy of Sciences in Lublin. For many years he was a director of this Institute and the Chairman of its scientific council.

In 1969 Prof. Dobrzański was nominated Director of the Soil Science Department of the Agricultural University of Warsaw and he performed this function until 1979, when he went on pension.

Prof. Dr. B. Dobrzański held a number of honourable and responsible functions at the Polish Academy of Sciences (member of the Presidium, scientific secretary at the Section of Agricultural and Forestry, chairman of the Committee of Soil Science and Agrochemistry and of the Committee of Agrophysics, vice-chairman of the Committee of Man and the Environment; he was also active in the Polish Soil Science Society and other scientific organizations.

The research projects which Prof. Dobrzański has initiated, supervised and coordinated are of great scientific value and of importance to agricultural practice. Of particular value are the works on the genesis, systematics and evaluation of soils, particularly Rendzinas and also on the water properties of soils formed from loess and sand.

Prof. B. Dobrzański was very interested in the development of agrophysical research, setting them in the direction of investigating the basic physical processes in soils and the results of agrotechnical activities. He also initiated a new field of research – the physics of plants and agricultural products.

The monographs written in collaboration with other soil scientists: 'The Agricultural Value of Soils in Eastern Poland', 'Rendzinas of the Lublin Upland developed from Carbonate Rocks of Cretaceous Period', 'Typology and Properties of Soils developed from Boulder Loam of the Middle Polish Glaciation', and 'Surface Area of Arable Soils of Poland' are especially interesting.

Prof. B. Dobrzański is well known as one of the creators of Soil Cartography in Poland. He was a co-author of the Soil Map of Poland at the scale 1:300 000, the main editor of the Soil Map of Poland at the scales 1:500 000 and 1:1 000 000 with included soil characteristics, and a co-author of the Soil Map of Europe at the scales 1:2 500 000 and 1:1 000 000 which were prepared at the initiative of FAO.

Thanks to his research and ability to collaborate with other scientists Prof. Dobrzański reached a position of eminence in the circle of Polish soil scientists. He was elected member of the Hungarian Academy of Sciences, of the Soviet All-Union Agricultural Academy, the Agricultural Academy of German Democratic Republic, honorary member of the All-Union Soil Science Society of USSR and corresponding member of the German Soil Science Society of the Federal Republic of Germany.

Prof. B. Dobrzański was an author or a co-author of over 330 publications, more than half of which are scientific works.

J. Gliński, Lublin, Poland

Robert A. Olson (1917-1987)

Robert A. Olson, 70, internationally known soil scientist and professor emeritus, Agronomy Department, University of Nebraska, USA, died July 18, 1987, following an automobile accident.

Born April 14, 1917, in rural Platte County, NE, Professor Olson received in A.B. degree in chemistry and soils from University of Nebraska-Lincoln in 1938. He worked for the US Soil Conservation Service as a soil scientist from 1938–1943. From 1943–1946 he served as an Air Navigation Instructor and Naval Air Navigator in the U.S. Navy. In 1949 he received his M.S. in soil science from University of Nebraska-Lincoln and in 1951 was certified by USAEC for radioisotope use in biological systems by the Oak Ridge Institute of Nuclear Studies.

He served as extension agronomist (soils), instructor, assistant professor, associate professor, and professor at the University of Nebraska from 1946 to his retirement in 1986. In 1958 and 1962 Professor Olson served as a consultant to the Organization for European Economic Cooperation in Paris and head of the Soils Section of the International Atomic Energy Agency in Vienna, respectively. He managed the fertilizer program of the Food for Hunger Campaign of the Food and Agricultural Organization in Rome from 1967 to 1969. He was acting director of the Agricultural Division of the International Atomic Energy Agency in Vienna in 1974–1975.

'Prof' Olson, as he was affectionately called, held membership in several academic societies. He was accorded numerous honors and awards during his career including the following awards: Fellow, American Society of Agronomy, 1963; International Agronomy Award, American Society of Agronomy, 1971; Fellow, Soil Science Society of America, 1976; Agronomic Research Award, American Society of Agronomy, 1982; Agronomic Achievement Award-Soils, American Society of Agronomy, 1982; Bouyoucos Soil Science Distinguished Career Award, Soil Science Society of America, 1983; and Crops and Soils Magazine Award, American Society of Agronomy, 1983. In addition, Professor Olson served as Chairman of Division S-4 and member of Board of Directors of the Soil Science Society of America (SSSA). He also was a member and chair of numerous committees, associate editor of Agronomy Journal and SSSA Proceedings, and editor-in-chief of two American Society of Agronomy monographs.

adapted from: Agronomy News, October 1987

INTERNATIONAL RELATIONS
RELATIONS INTERNATIONALES
INTERNATIONALE VERBINDUNGEN

'Erasmus' programme on support for cooperation between EEC Universities approved

In May 1987 the Council of Ministers on Education of the European Economic Community approved the Erasmus action programme to increase the mobility of students and to promote cooperation between Universities of the 12 countries concerned across national frontiers.

'Erasmus', or the **E**uopean **A**ction **S**cheme for the **M**obility of **U**niversity **S**tudents, has three objectives.

- The first is to boost student mobility in the community so that a minimum of 10% of European students will benefit from a period of study in another member state during their university career. The situation today is that fewer than 1% of our students have such an experience. Student mobility is a great rarity, although in the time of Erasmus and during the medieval period which preceded him it was the common experience of those admittedly few people who received a university education;
- The second objective of the programme is to produce graduates who will have acquired during their studies direct experience of economic, social and cultural cooperation beyond the national frontiers of the community;
- The third main objective of Erasmus is to reinforce the relationship between citizens of different member states, thus ensuring a concrete expression of concept of citizens Europe.

To reach these objectives a budget of 85 million ECU has been alloted to the Programme over the period July 1987-June 1990. Four series of actions have been selected, described below:

1) *Community fellowships* will be awarded to about 25000 students between 1989–1990, as follows:
   - *Partial fellowships* of an average of 2,000 ECU per academic year, in order to cover mobility costs.
   - *Full fellowships* averaging 5,000 ECU per academic year.
2) A European *Network of Universities* will be formed in order to facilitate this increased student mobility. The objective is to build a network of a number of universities by 1989, each of them receiving an annual subvention averaging 10,000 ECU with a maximum of 25,000 ECU to introduce the European dimension in their activities.
3) *The academic recognition of diplomas* is – besides the financing issue – the second major element of any strategy aimed at fostering student mobility. Community aid averaging 20,000 ECU per year will be given to those institutions that are taking part
   - either in a new experimental system of academic recognition of diploma called ECTS (European Credit Transfer System) or
   - in the existing network of national information centres on academic recognition of diplomas or
   - in the joint elaboration of common curricula.
4) Fourthly, *complementary measures* will be partly or totally financed by the community. Fellowships, averaging 20,000 ECU will be awarded to Universities organizing short comprehensive courses for students from various member countries.

Adress: Dr. Alan Smith, Director, ERASMUS Bureau, 15 rue d'Arlon, B-1040 Brussels, Belgium.

UN University Establishes African Natural Resources Institute

The United Nations University Council at its 28th session in Tokyo, held from December 1-5, approved the establishment of the Institute for Natural Resources in Africa (INRA) as a research and training center of the university. The main headquarters of INRA will be in *Yamoussoukro*, capital of Cote d'Ivoire.

The INRA has been made possible by financial support totaling nearly US$ 16 million from the governments of the Cote d'Ivoire, Zambia, and France, the United Nations Development Programme (UNDP), and the OPEC Fund. The Cote d'Ivoire has pledged US$ 5 million to the UNU endowment fund for the new institute and agreed to provide premises for its main center at the Institut national supérieur de l'enseignement technique a Yamoussoukro. Zambia had pledged US$ 2 million to the endowment fund for INRA and will provide premises for a mineral resources unit of the institute at the School of Mines of the University of Zambia in Lusaka. France has pledged 20 million francs (approximately US$ 4 million) for the establishment and operation of INRA over a three-year period.

UNDP has agreed to provide project funding of US$ 5.6 million over a five-year eriod. The OPEC Fund has made a grant of US$ 175,000 for laboratory equipment at INRA's mineral resources unit in Zambia.

The major objective of INRA will be to strengthen scientific and technological capacities in Africa. The institute will seek to assemble a 'critical mass' of researchers and facilities needed to achieve a sustained scientific effort with a continent-wide focus on natural resource problems. In addition to its core academic staff, it will allow scholars from all over Africa, through the mechanism of a college of research associates, to participate in its work without leaving their own countries and thereby avoid a brain drain within the continent. It is expected that a director and members of the board of INRA will be appointed within the coming year and that the institute should become operational by early 1988.

from: BOSTID Developments 7(2), 1987.

Implementation of a UNEP project on Global Soil Degradation Mapping

Late September 1987 a contract was signed between UNEP (United Nations Environment Programme) and ISRIC (International Soil Reference and Information Centre) for the implementation of a project: 'Global Assessment of Soil Degradation' (GLASOD) with a duration of 28 months. The project document is based on recommendations from an ad-hoc Expert Group Meeting on 'Feasibility and Methdology of Global Soil Degradation Assessment', held from 18 to 22 May 1987 at the UNEP facility, Nairobi, Kenya. ISRIC will be assisted by STIBOKA (Dutch Soil Survey Institute), ITC (International Institute for Aerospace Studies and Earth Sciences), and FAO, and it hopes to obtain also the cooperation of members of ISSS (Subcommissions A and C in particular).

The project aims to strengthen global awareness of decision and policy makers on the rate of soil degradation as a result of inappropriate land and soil management. Leading soil institutions throughout the world will be asked to cooperate in assembling essential information on soil degradation according to a set of guidelines, especially prepared for this purpose. The result will be a general document summarizing the rate of soil degradation on a global scale, accompanied by a 1:15 Million soil degradation map.

The second objective of GLASOD is to improve the capability of regional and national institutions to deliver accurate information on qualitative and quantitative aspects of soil degradation processes, such as water- and wind erosion; salinization and

alkalization; chemical and nutrient decline. For this purpose, a pilot area has been selected in South America of approximately 250,000 square kilometers, covering portions of Argentina (Entre Rios), Brazil (Rio Grande do Sul) and Uruguay. A procedures manual will be prepared to ensure that uniform methods and descriptors are used to minimize problems of correlations. Data assembled will be entered into the world soils and terrain digital database, and soil degradation maps will be prepared at a 1 : 1 Million scale. The methodologies will be discussed during a regional workshop in Montevideo, 21–26 March 1988. See also the Report from the ISSS Working Group DM on page 25 of this Bulletin.

ISRIC, International Conference on 'Soils and the Greenhouse Effect'

In close connection with the project on Global Soil Degradation, ISRIC will organize, on behalf of the Dutch Ministry of the Environment (VROM), an international conference on the effect of changing soils and land use on their emission of greenhouse gases, evaporation and albedo.

The symposium will be held from 14–18 August 1989 at the International Agricultural Centre in Wageningen, the Netherlands. It will be endeavoured to make a quantitative assessment of the production of greenhouse gases for the major soil units and ecosystems, as well as their evapo(transpi)ration and albedo characteristics. Knowledge of the rate of soil and land use changes due to soil degradation will play an important role in these assessments of emissions of greenhouse gases.

It has been suggested that the conference be one of three meetings to be co-sponsored by the ISSS-Committee on International Programmes (CIP) on the role of soil science in the Geosphere-Biosphere programme of ICSU (see Bulletins 84/2, 86/2, and 87/1).

Further information on this conference and a subscription form for participation can be found elsewhere in this bulletin.

SMSS, International Soil Correlation Meetings on Spodosols and Wetland Soils

The Soil Management Support Services (SMSS) of the US Dept. of Agriculture is organizing an international soil correlation meeting (ISCOM) on 'Characterization, classification, and utilization of Spodosols' scheduled for October 2 to 14, 1988. The meeting is held under the auspices of the International Society of Soil Science and co-sponsored by Agriculture Canada and the Soil Conservation Service, USDA. The meeting will be held at Orono, Maine with two days of technical sessions followed by ten days of field trip to new Brunswick (Canada), New Hampshire, Vermont, New York and Maine; it will conclude with another two days of technical sessions at Orono.

The major purpose of the meeting is to refine the classification of Spodosols which is the task of the International Committee on Spodosols (ICOMOD; for information contact ICOMOD Chairman: R. Rourke, Department of Plant and Soil Science, Deering Hall, Orono, Maine 04469-0118, USA). Technical sessions will also address properties, genesis, survey techniques, and management of Spodosols.

Persons interested in attending the ISCOM on Spodosols, present a paper or wishing more information, please write to J. Witty, Soil Conservation Service – USDA, P.O. Box 2890, Washington D.C. 20013, USA; Telephone: 202–382 1812. Closing date for application is March 1, 1988.

SMSS is planning a similar ISCOM on 'Characterization, classification, and utilization of wetland soils' which will address the mandate of the International Committee on Soils with Aquic Moisture Regimes (ICOMAQ, Chairman: J. Bouma, Department of Soil Science, Agricultural University, P.O. Box 37, 6700 AA Wageningen, Netherlands). The meeting will be held October 2 to 14, 1989 at New Orleans, Lousiana. The ten day field tour will take place in Lousiana and Texas and end in Nevada.

Participants will then have the opportunity to attend the annual meeting of the American Society of Agronomy which is from 15 to 19 October at Las Vegas. For information on ICOMAQ, contact J. Bouma. Persons wishing to participate in the ISCOM on Wetland Soils, present papers or require more information, contact Hari Eswaran (Soil Management Support Services; P.O. Box 2890, Washington D.C., 20013, USA; Telephone: 202–475 5333). Closing date for application to attend is October 1, 1988.

MAB-NCC, Soils in Urban Areas

In recent years, there has been an upsurge of interest in the role of soils in urban areas – linked to such aspects of urban ecology as indicators of pollution, urban green areas, use of urban and peri-urban areas for food production. Within the framework of Unesco's MAB Project 11, a workshop on urban soils in the planning and management of urban green space was held in Berlin in September 1986. A draft report is being circulated for comment and revision prior to publication end 1987.

In part as an outgrowth of the MAB meeting in Berlin, a small workshop was held in Peterborough (United Kingdom) on 8 June 1987, convened by George Barker, Urban Programme Coordinator of the UK Nature Conservancy Council. The main purposes of the workshop were: to discuss the present state of knowledge of soils in urban areas; to suggest ways in which gaps in knowledge can be quickly identified; and to help identify ways in which soil scientists can be drawn into discussion and critical areas of research. The background of the workshop was provided by a review of research needs in urban ecology commissioned by NCC and the MAB Project 11, which have converged in pointing out the need for further knowledge to be gained about the nature and genesis of soils in urban areas. There is also a need to interpret the work of soil scientists in terms which are relevant and comprehensible to landscape architects, land managers and ecologists concerned with urban areas.

Among the points raised in discussion was that of existing soil survey and soil classification, which in Britain recognized man-made soils as one of the main divisions. Scant attention has been paid to this division and, in consequence, existing soil maps are of limited value in urban areas. Current work on grid-sampling will, however, produce some useful results where grid points fall within urban areas. In view of the rapid changes in the structure of urban areas it was felt that soil maps would become outdates quickly. However, a classification of soils relevant to urban areas was urgently needed to give the framework for studies and a basis on which characteristics could be decribed. It was felt that the term 'urban soils' should be avoided since it implied distinctions between soils in urban and in rural areas which were unjustifiable.

In terms of future work, the Peterborough workshop recommended critical reviews should be commissioned by the NCC to cover the following eight subject areas: contaminated soils; waste material as substrates – including soil genesis processes; soil processes and nutrient cycling; management for nature conservation on waste material substrates and natural successions on them; soil creation and handling of soils; physical properties of soils in urban areas; soils and health hazards; classification of soils in urban areas.

For further information on the Nature Conservancy Council work on soils in urban areas, write to George Barker, Northmuster House, Northmuster Road, Peterborough PE1 1NA, United Kingdom. Requests for the report of the MAB meeting in Berlin should be addressed to the MAB Secretariat.

from: Info MAB 8, Sept. 87

Specifications of the ISSS Fellows Fund

The fund is meant to promote active participation of young ISSS members of developing countries in international scientific meetings, especially those taking place in their own continent, by providing partial support in the costs of travel or subsistence.

– eligible to benefit from the fund are promising young soil scientists of developing countries of limited personal or institutional financial means. They should have at least at BSs level of education, preferably by under 35 years of age, have several years of experience in one of the branches of soil science, and be a member of ISSS for at least two years.

– only international meetings that are officially sponsored by ISSS can be considered, and with preference those that take place within the continent of the applicant's residence.

– applications are to directed to the organising committee of the meeting, which thereupon submits the names until six months before the meeting to the Secretary-General ISSS with its recommendations. The Secretary-General, in consulation with the Treasurer and the other Officers of the Society where necessary, decides which applicants are to be supported and what amounts can be allotted. The Treasurer of ISSS will then transfer these amounts directly to the applicants selected.

– the maximum number of applicants to be supported per event is four, and the maximum subsidy per person US$ 500.– or equivalent.

– soonest after the event the successful applicant will submit a short person on the meeting, with the relevant receipts, to the Secretary-General or Treasurer.

Spécifications du fonds pour aspirants de l'AISS

Le fonds est destiné à promouvoir la participation active de jeunes membres de l'AISS des pays en voie de développement dans des réunions scientifiques internationales spécialement lorsque ces réunions ont lieu dans leur propre continent, en apportant une contribution partielle aux frais de voyage et de séjour.

– ceux qui peuvent bénéficier du fonds sont de jeunes pédologues prometteurs appartenant à des pays en voie de développement et qui ont des moyens financiers ou institutionels limités.

Ils doivent avoir au moins le niveau d'enseigment BSc, avoir de préférence mois de 35 ans, avoir quelques années d'expérience dans une des branches de la science du sl et être membre de l'AISS depuis au moins 2 ans.

– seules les réunions internationales officellement parrainées par l'AISS seront prises en considération et de préférence celles qui setiennent sur le continent où réside le candidat.

– les demandes doivent être adressées directement au comité organisateur de la rénion que soumet ensuit les noms au moins 6 mois avant la réunion au SG de l'AISS avec ses recommandations. Le SG, après avoir consulté le Trésorier et les autres responsables de la Société si nécessaire, décide quels sont les postulants qui seront aidés et quelle somme leur sera allouée. Le Trésorier de l'AISS transfèrera ensuite cette somme directement aux postulants sélectionnés.

– le nombre maximum de postulants aidés par manifestion est de 4 et le subside maximum par personne est de US$ 500 ou son équivalent.

– aussitôt après cette manifestation l'heureux postulant soumettra un rapport succinct sur la réunion, avec les reçus concernant les dépenses, au SG ou a Trésorier.

Condiciones del Fondo para becarios de la SICS

El Fondo pretende promover la activa participación de jovenes miembros de la SICS de paises en desarrollo en reuniones cientificas internacionales, especialmente aquellas que tienen lugar en su proprio continente, mediante la provisión parcial de apoyo, bien en los cortes de viaje, bien en los de estancia.

– Candidatos a los beneficios del Fondo son prometedores jòvenes cientificos de suelos de paises en vias de desarrollo con limitados medios económicos personales o institucionales. Deberan tener al menos un nivel BCs de educación, preferiblemente de menos de 35 años de edad, con varios años de experiencia en alguna de las ramas de la cienda del suelo y ser miembros de la SICS por al menos dos años.

– Sólo reuniones internationales que sean oficialmente promovidas por la SICS podran ser consideradas, y con preferencia aquellas que tengan lugar dentro del continente de residencia del solicitante.

– Las solicitudes serán dirigidas al comité organizador de la reunión, el cual enviará los nombres hasta seis meses antes de la reunión al Secretario General de la SICS con sus recomendaciones. El Secretario General, en consulta con el Tesorero y los otros Directivos de la Sociedad cuando sea necesario, decidirá que solicitantes van a ser atendidos y que contidas pueden ser asignadas. El Tesorero de la SICS transferirá luego estas cantidades directamente a los solicitantes seleccionados.

– El número máximo de solicitudes concedidas para cada ocasión es de quatro y el máximo subsisio por persona es de 500 dolares USA o su equivalante.

– Lo antes posible despues de la reunión cada solicitante seleccionada enviará un breve informe de la reunión, con los correspondientes recibos, al Secretario General o Tesorero.

The Fellows Funds, or 'young scientists travel fund' is now being supported by the members of the national Soil Science Societies of the Netherlands, the United Kingdom, Canada and the U.S.A. These contributions are complemented by an annual contribution of ISCU's COSTED committee.

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

Meetings etc. marked with*, are organized or (co)-sponsored by ISSS, implying that participation with support from the ISSS Fellows Fund can be considered (for details on the Fund see page 42).

ISSS, as an associate member of the International Council of Scientific Unions, subscribes to the principle of free movement of bona fide scientists; patronage or sponsoring will therefore automatically be withdrawn if the country of venue denies or purposely delays visa awarding to any ISSS member who wishes to participate in the meeting concerned.

Les réunions, etc., marquées d'un astérique (*) sont organisées ou (co)-financées par l'AISS, ce qui implique qu'il y a possibilité d'y participer avec un financement du Fond pour Aspirants de l'AISS (voir détails, pagina 42).

Tagungen usw, versehen mit (*) werden organisiert bzw (mit)finanziert von der IBG, was bedeutet daβ die Möglichkeit gegeben ist sich zu beteiligen mit finanzielle Unterstützung aus der IBG Stipendien (für Einzelheiten siehe Seite 42).

Las reuniones, etc. marcadas con un asterisco (*) son organizadas o (co-) promovidas por la SICS, implicando la posibilidad de participar con el apoyo del Fondo para becarios de la SICS (ver detalles, p. 42).

1988

***5th International Soil Conservation Conference,** Bangkok, Thailand, January 18-29, 1988 (ISCO; cosponsoring by ISSS Subcommission C).
Information: Mr. Sanarn Rimwanich, President ISCO, c/o Dept. of Land Development, Phalolyotin Road, Bangkok 10900, Thailand.

***International Symposium on Managing Sandy Soils,** Jodhpur, Rajasthan, India, February 8-12, 1988 (ISSS Commission VI).
Information: Dr. K. Shankarnarayan, Central Arid Zone Research Institute, Jodhpur 342003, India. **Postponed till february 6–10, 1989.**

International Rangeland Development Symposium, Corpus Christi, Texas, USA, February 15–19, 1988.
Information: Dr. James A. Tiedeman, Cooperative Extension, 129 Johnson Hall, Washington State Univ., Pullman WA 99164-6412, USA.

International Conference on Agricultural Engineering, Paris, France, March 2-6, 1988.
Information: Dr. Francis Sevila, CEMAGREF, B.P. 5095, 34044 Montpellier Cedex, France.

2nd International Symposium on Geotechnical Applications of Ground-Penetrating Radar, Gainesville, FL, USA, March 6-10, 1988.
Information: Luis Rivera, Office of Conferences, IFAS Building 639, Univ. of Florida, Gainesville, FL 32611, USA.

1st International Conference in Africa on Computer Methods and Water Resources, Rabat, Morocco, March 14-18, 1988.
Information: Prof. D. Ouazar, Head of Hydraulics Department, Civil Engineering, E.M.I., B.P. 765, Agdal, Rabat, Morocco.

International Workshop on Soil Survey in the Nineties, Minneapolis, MN, USA, March 22-24, 1988.
Information: Dr. J. L. Anderson, Dept. of Soil Science, Univ. of Minnesota, 439 Borlaug Hall, St. Paul, MN 55108, USA.

Annual Meeting of the British Society of Soil Science, on 'Chemistry of the Rhizosphere' and on 'Soil-related Problems in Development Programmes', London, England, March 29–30, 1988.
Information: Dr. P. Gregory, Hon. Secr. BSSS, Dept. of Soil Science, The University, London Road, Reading RG1 5AQ, England

Agricultural World Congress, Athens, Greece, April 4–8, 1988 (Confédération Internationale des Ingenieurs Agronomes, CITA).
Information: Prof. N. Kypriadis, General Secretary CITA, 37 Alexandras Avenue, GR-11473 Athens, Greece.

Second International Conference on Contaminated Soil, Hamburg, F.R. of Germany, April 11-15, 1988 (TNO/BMFT).
Information: Ms. S. van de Graaf, Secretarial Office TNO, P.O. Box 297, 2501 BD the Hague, the Netherlands.

***5th International Symposium on Remote Sensing for Soil Survey,** Budapest, Hungary, April 11–15, 1988.
Information: Mrs. Dr. I. Juhasz, Research Institute on Soil Science & Agricultural Chemistry, Herman Otto ut 15, 1022 Budapest, Hungary.

International Conference on Forest Growth: Process Modeling of Responses to Environmental Stress, Gulf Shores, AL, USA, April 19–22, 1988.
Information: Dr. John I. Blake, School of Forestry, 108 White Smith Hall, Auburn University, Auburn AL 36849–5418, USA.

International Symposium on Water Resources Management and Protection on Tropical Areas, Havana, Cuba, May 8–12, 1988 (Unesco-IHP).
Information: Cuban IHP Committee, P.O. Box 6053, Havana, Cuba.

Australian National Soils Conference, Canberra, Australia, May 8–15, 1988.
Information: National Soils Conference, c/o Australian Convention and Travel Service, G.P.O. Box 1929, Canberra, ACT 2601, Australia.

International Symposium on the Hydrology of Wetlands in Semi-arid and Arid Regions (IAH and IAHS), Sevilla, Spain, May 9–13, 1988.
Information: Dr. Pablo Arambarri, Instituto de Recursos Naturales, Apartado 1052, 41080 Sevilla, Spain.

6th International Congress on the Study of Bauxite, Alumina and Aluminium (ICSOBA), Sao Paulo, Brazil, May 11–20, 1988.
Information: Prof. A. J. Melfi, VI ICSOBA Congress, Inst. Agronômico e Geofisico, Caixa Postal 30.627, 01051 Sao Paulo, Brazil.

7th International Congress on Soilless culture, Flevohof, the Netherlands, May 13–21, 1988.
Information: Secretariat ISOSC, P.O. Box 52, 6700 AB Wageningen, the Netherlands.

International Workshop on Changing Tropical Forests; historical perspectives of today's challenges in Asia, Australasia and Oceania; Canberra, Australia, May 16–18, 1988 (IUFRO).
Information: Dr. J. Dargavel, CRES-Australian National University,GPO Box 4,Canberra ACT 2601,Australia.

***International Workshop on Validation of flow and transport models for the Unsaturated Zone,** Las Cruces/Ruidoso, New Mexico, USA, May 23–26, 1988 (Cosponsoring of ISSS Commission I and II and Working Group MV).
Information: Dr. P. J. Wierenga, Dept. of Horticulture, Crop & Soil Sciences, N.M. State University, Las Cruces, NM 88003, USA.

8th Congress of the Yugoslav Society of Soil Science, Titograd, Cetinje, Yugoslavia, May 23–27, 1988.
Information: Djuretic Grujica, eng., President YSSS, Argo Association, P.O. Box 46, 81000 Titograd, Yugoslavia.

***International Symposium on health problems in connection with radioactive radiation from fertilizing soils and rocks,** Oslo, May 26–27, 1988 (Norwegian Academy of Science and ISSS Working Group SG).
Information: Prof. j. Låg, c/o Norwegian Academy of Science and Letters, Drammensvn 78, 0271 Oslo-2, Norway.

IGU Joint Meeting on Geomorphological Hazards, Firenze-Modena-Padova, Italy, May 28-June 4, 1988.
Information: Prof. G. Rodolfi, Instituto Sperimentale per lo Studio e la Difesa del Suolo, Piazza D'Areglio 30, I-50121 Firenze, Italy.

6th IWAR World congress on Water Resources: Water for World Development, Ottawa, Ont., Canada, May 29-June 3, 1988.
Information: P. J. Reynolds, Inland Waters Directorate, Environment Canada, Ottawa, Ontario, Canada K1A-OE7.

International Symposium on the Interaction between Groundwater and Surface Water, Lund, Sweden, May 3:-June 3, 1988 (IAHS).
Information: Prof. G. Lindh, Lund Institute of Technology, S-22007 Lund, Sweden.

International Symposium on the Hydrology of Wetlands in Temperate and Cold Regions. (IAHS, IPS and Unesco), Joensuu, Finland, June 6–10, 1988.
Information: Prof. S. Mustonen, National Board of Waters & Environment, PB.250, 00101 Helsinki 10, Finland.

International Workshop on Hydrology of Mountainous Areas (cosponsoring Unesco and IAHS), Vysoké Tatry, Czechoslovakia, June 6–11, 1988.
Information: Dr. L. Molnar, Czechslovak Committee for Hydrology, Trnavska 32, 82651 Bratislava, Czechoslovakia.

***International Symposium on Solonetz Soils; problems, properties and utilization,** Osijek, Yugoslavia, June 15–20, 1988 (ISSS Subcommission A).
Information: Dr. M. Adam, Agricultural Faculty, 54000 Osijek, Tenjska cesta BB, Yugoslavia.

3rd International Symposium on Genetic Aspects of Pland Mineral Nutrition, Braunschweig, FRG, June 19–23, 1988.
Information: Dr. M. Dambroth, Inst. of Crop Science and Plant Breeding, FAL, Bundesallee 50, D-3300 Braunschweig, F.R. of Germany.

International Symposium on Water Quality Modeling of Agricultural Non-Point Sources, Logan, Utah-USA, June 19–23, 1988 (IAHS).
Information: Dr. John Rodda, Institute of Hydrology, Wallingford, Oxon OX10 8BB, England.

International Symposium 'Towards an Agro-industrial Future', Coventry, UK, June 28-July 4, 1988
Information: International Symposium Administrator, Royal Agricultural Society of England, NAC, Stoneleigh, Kenilworth, Warwickshire CV8 2LZ, England

Symposium on Amazonia, Deforestation and possible Effects at the 46th International congress of Americanists, Amsterdam, the Netherlands, July 4–8, 1988.
Information: Prof. Paulo R. Leopoldo, Fac. de Ciencias Agronômicas, UNESP, Caixa Postal 237, 18600 Botucatu SP, Brazil.

***8th International Meeting on Soil Micromorphology,** San Antonio, Texas, USA, July 10–15, 1988 (ISSS Subcommission B):
Information: L. P. Wilding, Department of Soil and Crop Science, Texas A & M University, College Station, TX 77843, USA.

11th Conference of the International Soil Tillage Research Organization (ISTRO), Edinburgh, Scotland, July 11–15, 1988. Theme: Tillage and Traffic in Crop Production.
Information: Dr. B. D. Soane, President of ISTRO, Scottish Institute of Agricultural Engineering (SIAE), Bush Estate, Penicuik, Midlothian EH26 OPH, Scotland.

7th North American Forest Soils Conference, Vancouver, Canada, July 24–28, 1988.
Information: Prof. G. F. Weetman, Dept. of Forest Sciences, Univ. of British Colombia, 23567 Main Mall, Vancouver BC, V6T 1W5 Canada.

5th International Conference on Permafrost, Trondheim, Norway, August 2–5, 1988.
Information: The Norwegian Institute of Technology, Studies Administration, N-7034 Trondheim-NTH, Norway.

***10th International Soil Zoology Colloquium,** Bangalore, India, August 7–13, 1988 (Subcommission D and IUBS).
Information: Dr. D. Rajagopal, Dept. of Entomology, University of Agricultural Sciences, GKVK Campus, Bangalore 560 065, India.

***3rd International Symposium on Spatial Data Handling,** Sydney, Australia, August 15–19, 1988 (co-sponsoring by ISSS working Group DM).
Information: Prof. Duane F. Marble, Dept. of Geography, Ohio State Univ., Columbus, Ohio 43210, U.S.A.

International Conference on Dryland Farming, Amarillo/Bushland, Texas, USA, August 15–19, 1988.
Information: Dr. B. A. Stewart, USDA Conservation and Production Research Lab., P.O. Drawer 10, Bushland, TX 79012, USA.

***9th International Symposium Humus et Planta,** Prague, Czechoslovakia, August 21–26, 1988.
Information: Dr. B. Novak, Research Inst. for Crop Production, Drnovska 507, 16101 Praha 6-Ruzyne, Czechoslovakia.

26th International Geographical Congress, Sydney, Australia, August 22–26, 1988.
Information: B. Thom, Dept of Geography, Institute Building, University of Sydney, Sydney 2006, Australia.

International Symposium on Manganese in Soils and Plants, Waite Agricultural Research Institute, Adelaide, Australia, August 22–26, 1988.
Information: Mrs. Sue Moore, Univ. of Adelaide, North Terrace, Adelaide, SA 5000, Australia.

***International Symposium on Land Qualities in Time and Space,** Wageningen, the Netherlands, August 22–26, 1988 (ISSS Working Groups MV and LI).
Information: Ir. A. Bregt, Symposium Secretary, c/o Dutch Soil Survey Institute, P.O. Box 98, 6700 AB Wageningen, the Netherlands.

International Symposium on Modelling Soil-Water-Structures Interactions (IAHR), Delft, the Netherlands, August 28-September 23, 1988.
Information: SOWAS'88, c/o KIVI, P.O. Box 3024, 2500 GK the Hague, the Netherlands.

7th International Colloquium on the Optimization of Plant Nutrition, Nyborg, Denmark, August 28-September 4, 1988.
Information: Holger Hamsen, Institute for Vegetables, Kirstinebjergvej 6, DK-5792, Aarslev, Denmark.

***Symposium on Mechanical Properties of Soils related to Soil Tillage and Field Traffic,** Minneapolis/St. Paul, USA, September 1988. (ISSS Working Group PT).
Information: Dr. R. R. Almaras, Dept. of Soil Science, University of Minnesota, 439 Borlaug Hall, 1991 Upper Baford Circle, St. Paul MN 55108, USA.

3rd International Geostatistics Congress, Avignon, France, September 5–9, 1988.
Information: GEOSTAT Congress 1988, Centre de Géostatistique, 35 rue St-Honoré, 77305, Fontainebleau, France

CIGR Inter-Section Symposium on Rural Technology for Agricultural Growth in Developing Countries, Ilorin, Nigeria, September 5–10, 1988.
Information: Prof. E.U. Nwa, Dept. of Agric. Engineering, Univ. of Ilorin, P.M.B. 1515, Ilorin, Nigeria.

1st International Workshop on Soil Management and Smallholder Development in the Pacific Islands, Honiara, Solomon Islands, September 16–22, 1988 (SMSS and IBSRAM).
Information: Dr. R. J. Cheatle, Dodo Creek Research Station, Ministry of Agriculture and Lands, P.O. Box G 13, Honiara, Solomon Islands.

International Symposium on Water Erosion, Varna, Bulgaria, September 19–24, 1988 (Unesco's IHP + MAB).
Information: Organising Committee I.S.W.E., Centre for Earth Sciences, Acad. Georgy, Bonchev Str., bl. 3, P.O. Box 134, 1113 Sofia, Bulgaria; *and*: Mr. S. Dumitresco, Division of Water Sciences, Unesco, 1, rue Miollis, 75015, Paris, France.

***International Correlation Meeting on Spodosols,** Orono, Maine, USA, October 2–4, 1988 (SMSS and Commission V of ISSS).
Information: Dr. J. Witty, USDA-SCS, P.O. Box 2890, Washington DC 20013, USA.

***International Workshop on Classification, Management and Use Potential of Swell-Shrink Soils,** Nagpur, India, October 24–29, 1988 (ISSS Commissions V and VI).
Information: Dr. S. B. Deshpande, Div. of Pedology, National Bureau of Soil Survey and Land Use Planning, Amravati Road, Nagpur 440 010, Maharashtra, India.

3rd International Rangeland Congress, New Delhi, India, November 7–11, 1988.
Information: Dr. Panjab Singh, Indian Grassland and Fodder Research Institute, Jhansi 284 003, India.

International Conference on Plantgrowth, Drought and Salinity in the Arab Region, Cairo, Egypt, November 28-December 3, 1988 (IAPP and IUBS, with Arab Biosciences Network), with a special **Symposium on Moisture Stresses in Cereals** (ICSU-CASAFA).
Information: Prof. K. K. Batanouny, Dept. of Botany, Faculty of Sciences, Cairo University, Egypt.

***1st All-Africa Soil Science Society Congress,** Kampala, Uganda, December 5–10, 1988.
Information: Prof. J. Y. K. Zake, general coordinator, ASSS, c/o Dept. of Soil Science, Fac. of Agriculture, Makerere University, P.O. Box 7062, Kampala, Uganda.

***1st Symposium on Paddy Soil Fertility,** Cheingmai, Thailand, December 6–13, 1988. (ISSS Working Group PS).
Information: Dr. Samarn Panichapong, Secretary ISSS Working Group PS, c/o Land Development Department, Phaholyothin Road, Bangkok 10900, Thailand.

International Symposium on Mining Subsidence, New Delhi, India, mid-December 1988 (Int. Society for Soil Mechanics and Foundation engineering).
Information: Prof. B. Singh, ISMS Organising Committee, Central Mining Research Station, CSIR, Barwa Road, Dhanbad 826001, India.

1989

***International Conference on the Utilization of Soil Survey Information for efficient Land use Planning,** Nairobi, Kenya, March 13–23, 1989.
(ISSS Commission V and SMSS).
Information: Mr. S. Wokabi, Head Kenya Soil Survey, P.O. Box 14733, Nairobi, Kenya; Dr. H. Eswaran, SMSS, USDA-SCS, P.O. Box 2890, Washington, D.C. 20013, USA. (The workshop on 'Land Evaluation for Sustainable Farming Systems in Tropical Agriculture and Agroforestry,' earlier announced as to take place as the second phase of the above Conference, has now been postponed, *sine die*)

***International Workshop on Denitrification in Soil, Rhizosphere and Aquifer,** Giessen, FRG, March 17–19, 1989 (ISSS Commisions III and IV in cooperation with the Commission III of the German Society for Soil Science (DBG) and the Society for General and Applied Microbiology (VAAM, FRG).
Information: Prof. J. C. G. Ottow, Institute for Microbiology, Justus Liebig-University, 3 Senckenbergstrasse, D-6300 Giessen, FRG

International Workshop on Conservation Farming on Hillslopes, Taichung, Taiwan, March 20–26, 1989 (co-sponsoring by ISCO).
Information: Dr. San-Wei Lee, Soil and Water Conservation Society, Council of Agriculture Executive Yuan, 37 Nanhai Road, Taipei, Taiwan, China.

3rd Scientific Assembly of the International Association of Hydrologic Sciences (IAHS), Baltimore, USA, May 10–19, 1989.
Information: Dr. A. I. Johnson, Organising Committee, 3rd IAHS Assembly, 7474 Upham Court, Arvada, CO 80003, USA.

***International Conference on Soil Conservation and Environment,** Bratislava, Czechoslovakia, May 29-June 2, 1989 (Co-sponsoring ISSS Commission I and Subcommission C).
Information: Prof. J. Hrasko, Research Centre of Soil Fertility, Vrakunska 29, 82563 Bratislava, Czechoslovakia.

***International Conference on Soil Compaction as a Factor determining Plant Productivity,** Lublin, Poland, June 1989 (ISSS Commission I).
Information: Prof. J. Glinski, Institute of Agrophysics, Krakowskie Przedmiescie 39, 20–076 Lublin, Poland.

***International Meeting on Rock Weathering and Soil Mineralogy,** Strasbourgh, France, July 1989 (ISSS Commission VII, with AIPEA).
Information: Dr. A. Herbillon, CNRS, Centre de Pédologie Biologique, B.P. 5, 54501 Vendoeuvres-les-Nancy Cedex, FRance.

28th International Geological Congress, Washington DC, USA, July 9–19, 1989.
Information: Secretariat Int. Geol. Congress. P.O. Box 1001, Herndon, Virginia 22070, USA.

11th International Plant Nutrition Colloquium *(ICPN), Wageningen, the Netherlands,* July 30-August 4, 1989.
Information: Dr. M. L. van Buisichem, Dept. of Soil Science and Plant Nutrition, WAU, P.O. Box 8005, 6700 EC Wageningen, the Netherlands.

International Conference on Soils and the Greenhouse Effect; the effect of changing soils and land uses on their emission of 'greenhouse' gases, evaporation and albedo; Wageningen, the Netherlands, August 14–18, 1989. (VROM/ISRIC, with co-sponsoring by ISSS Committee on International Programmes).
Information: Ir. A. Bouwman, Organising Secretary, ISRIC, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

International Symposium on Soil Testing and Plant Analysis, Fresno, California, USA, August 14–19, 1989
Information: Dr. J. Benton Jones, Council on Soil Testing and Plant Analysis, University Station, P.O. Box 2007, Athens, Georgia 30612-2007, USA

International Meeting on Statistics, Earth and Space Sciences, Leuven, Belgium, August 21–25, 1989.
Information: Dept. of Mathematics, Faculty of Sciences, Catholic University of Leuven, Celestynenlaan 200B, B-3030 Leuven, Belgium.

9th International Clay Conference (AIPEA), Strasbourg, France, August 28-September 2, 1989.
Information: Dr. Helène Paquet, Institut de Géologie, 1 rue Blessig, 67084 Strasbourg, France.

2nd International Conference on Geomorphology, Frankfurt/Main, FRG, September 3–9, 1989. Theme: 'Geomorphology and Geo-ecology'.
Information: Prof. Dr. A Semmel, Inst. für Physische Geographie, Universität Frankfurt, Postfach 11 19 32, D-6000 Frankfurt/Main 11, F. R. Germany.

11th International Congress of the International Commission of Agricultural Engineering, Dublin, Ireland, September 4–9, 1989.
Information: M. Carlier, Secr. General CIGR, 17 Rue de Javel, 75015 Paris, France.

2nd Iberian Quaternary Meeting, Madrid, Spain, September 25–29, 1989.
Information: Dra. T. A. Campos, Instituto de Edafologia y Biologia Vegetal (CSIC), Serrano 115-do, 28006 Madrid, Spain.

International Symposium on Groundwater Management: Quality and Quantity, Benidorm, Spain, October 2–5, 1989 (IAHS).
Information: Dr. J. Andreu, Symposium Secretary, E.T.S. de Ingenieros Caminos, Univ. Politécnica, Camino de Vera s/n, 46071 Valencia, Spain.

International Soil Correlation Meeting on Wetland Soils, New Orleans, Louisiana, USA, October 2–14, 1989 (SMSS).
Information: Dr. H. Eswaran, SMSS, P.O. Box 2890, Washington, DC 20013, USA.

16th International Grassland Congress, Nice, France, October 4–11, 1989.
Information: Secretariat, XVI Congrès Intern. des Herbages, AFPE, INRA, Rue de St. Cyr, 78000 Versailles, France.

1990

10th Congress of the International Union of Pure and Applied Biochemistry (IUPAB), India, Agust 1990.
Information: J. Tigyi, Secretary IUPAB, Institute of Biophysics, Medical University, Szigeti ut 12, 7643 Pécs, Hungary.

14th Congress of the International Commission on Irrigation and Drainage (ICID), Rio de Janeiro, Brazil, August 1990.
Information: Secretariat ICID, 48 Nyaya Marg. Chanakyapuri, New Delhi 11, India.

19th World congress of the International Union of Forestry Research Organisations (IUFRO), Montreal, Canada, August 7–18, 1990.
Information: IUFRO Secretariat, Tirolergarten, Schönbrunn, A-1131 Vienna, Austraia.

****14th INTERNATIONAL CONGRESS OF SOIL SCIENCE,** Kyoto, Japan, August 12–18, 1990.
Information: Dr. K. Kumazawa, Japanese Society of Soil Science and Plant Nutrition, 26-10-202, Hongo 6-chome, Bunkyo-ku, Tokyo 113, Japan.

23rd International Horticultural Congress (ISHS), Firenze, Italy, August 22-Sept. 1, 1990.
Information: Org. Committa, Societa Orticola Italiana, Via G. Donizetti, 6-50144, Firenze, Italy.

5th International Congress of Ecology, Yokohama City, Japan, August 23–30, 1990.
Information: Dr. A. Miyawaki, Inst. of Environmental Science & Technology, Yokohama National University, 156 Tokiwadai, Hodogaya-ku, Yokohama 240, Japan.

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 Reference and Information Centre (ISRIC) in Wageningen, the Netherlands.

Les titres de nouvelles publications sont mentionnés à titre d'information. Le Secrétariat de l'AISS ne peut pas traiter les commandes, celles-ci doivent être adressées à une libraire ou directement aux éditeurs. Presque toutes les publications mentionnées peuvent toutefois être inspectées au siège. L'AISS, p/a Centre International de Référence et d'Information Pédologique (ISRIC) à Wageningen, Pays-Bays.

Die Titel neuer Veröffentlichungen sind hier zu 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 Internationales Bodenreferenz und Informations Zentrum (ISRIC) im Wageningen, Holland.

Man's Dependance on the Earth. The Role of the Geosciences in the Environment. A.A. Archer, G.W. Lüttig and I.I. Snezhko, editors. Published by arrangement with Unesco and Unep. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart. 1987, xiii + 216 p., 83 figures, part in colour. ISBN 3-510-65128-6 (this publisher), 92-3-102384-5 (Unesco, Paris).

Over the last two or three decades, the international scientific community has become increasingly aware of the need for a better understanding of the interactions between man's demands on it. Conservation of the planet's renewable natural resources, that is their management for optimum sustainable yield, is now widely accepted as a necessity. As a consequence, there has been a substantial increase in the research efforts of a wide range of scientists and extensive international co-operation.

More recently, attention has been focussed on the specific issue of the impact of man on the Earth's crust, that part of this planet which literally supports all of our activities. For almost all practical purposes it is non-renewable: there are exceptions, for example, the emergence of new rocks, followed by fresh, often fertile, soils, from volcanoes.

The growing awareness of the need for more knowledge of these problems led UNEP in cooperation with UNESCO to launch an interdisciplinary project 'Protection of the Lithosphere as a Component of the Environment' (1979-1984). It was decided that the priorities should be scientific investigation of methods for protecting groundwater from pollution and minimising its depletion, and of the ways in which man-induced landslides, rockfalls and mudflows can be eliminated or reduced.

In 1984 UNEP and UNESCO started the joint project 'Geology and the Environment' implemented with wide international cooperation. The project calls for the development of the 'geological environment' as a scientifically sound concept, requiring the many disciplines involved in the study of the Earth's crust.

This book is intended to provide an insight into the importance of the Earth's crust as a principal component of our environment and into the contribution that earth scientists can make to its management. It describes our dependence on the Earth, directly for the provision of minerals, water and energy, and indirectly for the food for all that is alive on it. It describes some of the ways in which the geological environment is in need of protection from, for example, damage due to the use of unnecessarily harmful technology, the wasteful use of resources and poor management.

Being primarily intended for the non-specialist, the use of technical terms and the jargon of the scientists has been kept to a minimum, but it is hoped that earth scientists unfamiliar with the subject will also benefit.
Price: DM 69.00
Orders to: E. Schweizerbart'sche Verlagsbuchhandlung. Johannesstrasse 3A, D-3700 Stuttgart 1, Fed. Rep. of Germany. In the U.K. through H.M.S.O.; in the U.S.A. through UNIPUB, New York.

The New Zealand Land Resources Inventory Vegetation Cover Classification. Water and Soil Miscellaneous Publication no. 101. G.G. Hunter and P.M. Blaschke. National Water and Soil Conservation Authority, Wellington, 1986, 92 p. ISSN 0110-4705.

This publication describes the vegetation cover classification used for the New Zealand Land Resource Inventory. It discusses the development of the classification and the methods of mapping and recording vegetation cover. Forty-four vegetation cover classes, grouped in 5 vegetation groups, grassland, cropland, scrubland, forest and miscellaneous vegetation are defined and described. Maps and a table show the distribution and extent of the vegetation cover classes in New Zealand. It is well-illustrated with more than 80 black and white photo's and maps.
Price: NZ$ 13.20.
Orders to: Technical Information Section. Water and Soil Directorate, Min. of Works and Development, P.O. Box 12041, Wellington North, New Zealand.

Publications from the International Erosion Control Association.
It is the aim of the International Erosion Control Organisation – a non-profit organization – to provide opportunities for the exchange of worldwide information and ideas concerning effective and economical methods of erosion control. President of the IECA is Dr. Carol L. Forrest, P.E.; the Executive Director is Dr. Michael McMillan. From annual conferences proceedings are issued. These mainly contain contributions from the U.S.A. and a few from other areas of the world.

Erosion Control ... Protecting our Future. Proceedings of Conference XVII, February 27 & 28, 1986, Dallas. IECA, 303 p.
Price: US$ 25.00.

Erosion Control ... You're Gambling Without It. Proceedings of Conference XVIII, February 26 & 27, 1987, Reno. IECA, 335 p.
Price: US$ 30.00.
Orders to: Dr. M. McMillan, P.O. Box 195, Pinole, CA 94564-0195, U.S.A.

Norden. Man and Environment. U. Varjo and W. Tietze, editors. Gebr. Borntraeger, Berlin and Stuttgart, 1987, xvii + 535 p., 387 fig. and 110 tables. ISBN 3-443-01022-9, hardbound.

In connection with a Nordic Week in 1979, a body devoted to fostering closer relations and cooperation between the Nordic family of peoples, the Geographical Society of Northern Finland invited a group of geographers from the Nordic countries to produce a new textbook on the geography of Norden. A concise treatise dealing with the main geographical aspects of the Nordic countries (Denmark, Finland, Norway and Sweden), was obtained within one volume concluded by a regional synthesis. Iceland, Greenland, Svalbard, Jan Mayen and the Faeroe Islands, and the seas around Norden are also extensively treated.

Although this textbook has been put together from separate articles, which differ greatly in style and approach in some cases, an attempt has been made to arrange them into a logical geographical whole. With few exceptions, the structure of the book follows the customary division of geography into six main fields, which are arranged in such a way as to ensure that as far as possible the information in each one can be assimilated on the basis of that presented earlier in the book. To the same ends, the inter-Nordic summaries covering each of the special fields are located before the articles on the separate countries in that field. A chapter on the history of Norden is supplied at the beginning in order that the reader should start out with an understanding of the historical unity of the region and the special characteristics that stem from this. Also for soil scientists this is an interesting source of information, since the starting point for assembling the contents of the book has been the notion that the bedrock, soils and geomorphology of most of Norden form a common background, together with its location on the globe, which provides the foundation for its climatic characteristics and its waterways. The animate world is then viewed as a function of climate, although limited in the sense that the relief, soils and waters to a great extent determined the occurrence and functioning of the local ecosystems with their plants and animals.

The book contains a wealth of information and is illustrated with many photographs.
Price: DM 118.00 or US$ 70.00.
Orders to: Gebrüder Borntraeger Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Fed. Rep. of Germany. In the U.S.A.: Lubrecht & Cramer, Box 244, Forestburgh, NY 12777, U.S.A.

Symbiotic Nitrogen Fixation Technology. G.H. Elkan, editor. Marcel Dekker Inc., New York and Basel, 1987, ix + 440 p. ISBN 0-8247-7751-4, hardbound.

In the 100 years since Frank described one symbiotic nitrogen fixation system, the legume-Rhizobium interaction, interest in this field has grown rapidly. The types of studies have been cyclical in nature, involving a cross section of disciplines. As a spin-off from the explosives industry after World War II, the availability of cheap nitrogenous fertilizers caused much of the nitrogen fixation research to become more theoretical in the developed world. The advent of the energy crisis in 1973 reawakened interest in the agricultural potential of nitrogen fixation. Thus, today the research has cross-disciplinary aspects ranging from molecular to agronomic studies.

The present reference book summarizes the major techniques used in the study of symbiotic biological nitrogen fixation. Although most of the research in this field involves the legume-Rhizobium symbiosis, chapters covering other major symbioses are included as well.

Authored by nearly 25 experts in the fields of microbiology, horticulture, agronomy, and related soil sciences, this book provides an up-to-date summary of the major techniques used in the study of symbiotic biological nitrogen fixation. It also gives information on various serological techniques, techniques for measuring of nitrogen fixation including plant responses, acetylene reduction, and 15N isotopes, the preparation and use of marked bacterial strains and mutants for ecological studies, procedures for evaluating biological nitrogen fixation by use of growth chamber, greenhouse, and field studies, and details the production of rhizobia inoculants.
Price: US$ 125.00 in U.S.A. and Canada, $ 150.00 elsewhere.
Orders to: Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016, U.S.A.

Subsurface Drainage Instructions. Second, completely revised edition. DVWK Bulletin 6. R. Eggelsmann. Verlag Paul Parey, Hamburg and Berlin, 1987, xvi + 336 p., 154 figures and 64 tables. ISBN 3-490-02390-0, stiff paper cover. Translation of the second German edition 'Dränanleitung' of 1981.

Drainage techniques have a long tradition in Germany and other countries in Central and Western Europe. In former times, farmers in the marshland and river plains of the coastal area of the North Sea and the Baltic Sea began to realize that surface drainage by means of ditches and furrows improved field management substantially. The open drainage system drew off excess water and involved many different advantages.

The application of subsurface drainage adopted later reduced the land losses caused by open ditches and permitted a purposive regulation of soil moisture and nutrient conditions. The methods used include mole drainage, deep loosening, deep ploughing and, last but not least, pipe drainage. The introduction of pipes of burnt clay enabled the farmers to cultivate heavy clay soils. Today high-quality pipe materials and sophisticated drainage techniques are available. But the development has not yet come to an end.

The present second edition is completely revised, partially abridged and where necessary elaborated with recent practical and theoretical knowledge. The book deals with drainage methods like pipe and mole drainage and subsoiling as well as their effect, extent and limits of application. A field questionnaire facilitates the identification of the nature of water logging, whether it is caused by high groundwater level, impermeable soil strata or film water. Technical planning principles are established for agricultural as well as for engineering and landscape drainage problems. Drainage materials are discussed in detail including new developments, standardization, research and practical application. The modern mechanical execution of drainage systems and successful drainage machines, their capacity and operation range are exemplified.

The publication describes also modern topics such as ecological aspects of drainage technique, the application of drain filters, drainage of regions exposed to the hazard of slipping, as well as drainage of marshy lands. A bibliography includes more than 400 titles.

Price: DM 59.00.

Orders to: Paul Parey Verlagsbuchhandlung, Postfach 106304, D-2000 Hamburg-1, Fed. Rep. of Germany.

New Publications from the International Association of Hydrological Sciences (IAHS).

Land Subsidence. A.I. Johnson, L. Carbognin and L. Ubertini, editors. International Association of Hydrological Sciences Publication no. 151. IAHS Press, Wallingford, 1986, xiii + 939 p. ISBN 0-947571-40-X.

Land subsidence, or land-surface sinking, has become a major man-induced hazard in many parts of the world. Many of the subsiding areas have become known only in recent years, and have taken place primarily as a result of the rapidly increasing population and industry. Man's continuing development of groundwater, gas, oil, and minerals has been changing the natural fluid regime in the subsurface at many locations.

Subsidence can result from the compaction of sediments due to heavy withdrawal of water, oil, or gas and extraction of solids through mining, by the shrinkage and oxidation of organic deposits, the withdrawal of fluids for geothermal power, and the collapse of sediments contained in karst terrain. Many areas of subsidence are known, some having subsided as much as 10 m. Many more areas are likely to develop in the next few decades as a result of accelerated exploitation of natural resources, especially ground water, in order to meet the demands of the increasing population and industrial concentrations.

Most areas of known subsidence are along coasts where the land sinking becomes quite obvious as the ocean or lake waters gradually creep higher and higher up the shore. Since the 1976 Second International Symposium on and Subsidence was held there has been much new subsidence and research and many new problems and remedial measures. The present publication contains the papers given at the third symposium, which was held in Venice in March 1984.

Following review and revision 85 papers were included. They cover case histories of fluid and mineral withdrawal; engineering theory and modeling; karst 'sink-hole' type subsidence; subsidence due to dewatering of organic deposits or due to application of water (hydrocompaction); instrumentation; legal, socio-economic, and environmental effects of land subsidence; and remedial works. The papers indicated the need for a broad interdisciplinary approach to any study of subsidence and to correction of resultant problems.

Price: US$ 45.00.

Conjunctive Water Use. Understanding and managing surface water-groundwater interactions. S.M. Gorelick, editor. International Association of Hydrological Sciences Publication no. 156. IAHS Press, Wallingford, 1986, x + 458 p. ISBN 0-947571-65-5.

The common distinction between different types of water resources and water scientists is unfortunate. A given water resource is typically classified as groundwater or surface water. Correspondingly, there are specialists known as hydrogeologists and surface water hydrologists. In fact, all water moves between visible and invisible portions of the hydrologic cycles, and all who study hydrology must appreciate the interaction between groundwater and surface water. Conjunctive water use, which is the combined utilization of groundwater and surface water, depends upon this linkage between surface and subsurface water.

Full consideration was given to this subject at the International Symposium on Conjunctive Water Use, one of the four symposia held during the Second Scientific Assembly of IAHS at Budapest in July 1986.

Although planning for conjunctive use is an ultimate aim of many hydrologists, understanding the interactions between surface water and groundwater is necessarily the primary focus of this subfield and this volume. The contributions herein span many key features of water movement at and near the ground surface. Both water quantity and quality aspects are inspected. In addition, the critical interface directly between groundwater and the atmosphere is explored. The final portion of this volume discusses the planning of combined surface water and groundwater use. It is shown how a firm scientific basis can be the foundation for environmentally sound management through conjunctive water use.

This volume contains over 50 papers, including keynote addresses on quantitative interaction, on salinity and conjunctive use, on groundwater-atmosphere interactions, and on environmentally sound management.
Price: US$ 48.00.

Drainage Basin Sediment Delivery. R.F. Hadley, editor. International Association of Hydrological Sciences Publication no. 159. IAHS Press, Wallingford, 1986, x + 487 p. ISBN 0-947571-80-9.

In recent years the International Commission on Continental Erosion (ICCE) of the IAHS has organized several symposia on many aspects of erosion and sediment yield. One of the most perplexing problems of erosion and sedimentation investigations is the satisfactory linkage of on-site rates of erosion on upland areas and sediment yields as measured at the drainage basin outlet. This relationship between erosion and sediment yield, referred to as sediment delivery, has received attention from hydrologists and geomorphologists for many years yet still remains as a major research need. This symposium was organized to review some of the recent research work designed to produce quantitative solutions to the sediment delivery problem. The objectives of the symposia were: a) to examine the processes and mechanisms in the conveyance and storage of eroded material in drainage networks from upland slopes to stream channels, and b) to discuss the relationship between erosion and sediment delivery as it affects estimates of basin sediment yield, and problems of scale in drainage basin studies. With these objectives in mind the papers in this volume have been divided into five categories: (1) sediment sources, (2) processes and sediment delivery, (3) storage and mobilization of sediment, (4) modelling of sediment yield and delivery, and (5) data acquisition and analyses.
Price: US$ 45.00

Developments in the analysis of groundwater flow systems. G.B. Engelen and G.P. Jones, editors. International Association of Hydrological Sciences, Publication no. 163. IAHS Press, Wallingford, 1986, xiii + 356 p. ISBN 0-947571-01-9.

Traditional attitudes in groundwater studies in the past tended to perpetuate the division between hydrogeologists and hydrologists resulting in the separation of groundwater studies from surface water studies. Matters were made worse by the limited scale of many groundwater projects where attention was directed towards yield and protection of individual sources at the expense of regional studies and the totality of the water resources.

Realization of the importance of natural boundaries and an increase in the number of basin-wide studies for direct usage of groundwater or for conjunctive use has assisted in the breakdown of past attitudes. The modern interdisciplinary approach has encouraged profound changes in the way groundwater studies are planned and implemented and has thus stimulated new scientific ideas of theoretical and practical significance.

The increasing complexity and the resulting need for a holistic view, as well as the use of a systems approach, mark the transitions from flow to wells via aquifers, aquifer systems, and groundwater systems to regional water systems as the encompassing framework.

The present report originates from the deliberations of a Working Group, the aim of which was to advance systematic approaches for the classification, quantification and mapping of groundwater systems at various scales in different environments, as a basis for groundwater assessment, development and management.

The report contains two parts: Part I deals with methodology and general aspects of groundwater flow systems. Part II presents a number of regional case studies at different scales and under different socio-economic, climatological and geological conditions. This publication demonstrates the basis and value of a broad systems approach to groundwater studies which ideally complements the modern concepts of numerical modelling.
Price: US$ 35.00.
Prices include postage by surface mail.
Orders to: Office of the Treasurer, IAHS (attn. Meredith Compton), 2000 Florida Ave. NW, Washington, DC 20009, U.S.A.; UGGI, 140 rue de Grenelle, F-75700 Paris, France; or: IAHS Press, Institute of Hydrology, Wallingford, Oxfordshire OX10 8BB, England.

Final Report Monitoring Project of Nutrient Cycling in Soils used for Shifting Cultivation under various Climatic Conditions in Asia. J.P. Andriesse. Royal Tropical Institute, Amsterdam, 1987, Part I, 141 p.; Part II Annexes.

This report marks the completion of a research project initiated in 1980 by the Royal Tropical Institute with the objective of gathering more and detailed statistically reliable information on the changes in soil nutrient level as effected by traditional shifting cultivation practices: felling forest, burning, cropping and bush-fallowing.

The project in south and south-east Asia started with 5 participants but after two years only two continued. This final report concentrates on the remaining sites in Malaysia (Sarawak) and Sri Lanka.

It contains all relevant field and analytical data collected in the course of the activities. The interim reports published in 1982, 1984 and 1985 continue to be a source for more detailed information particularly for each individual site.

In this report, a cursary analysis of all project findings justifies drawing a series of conclusions, some of which are quite pertinent whereas others are of a tentative nature only. A large number of different issues have been dealt with. They cover problems of methodology, representative values of sites, actual recycling processes which could be proven to exist and those which could be surmized from circumstantial evidence. For practical reasons no attempts have been made to verify, or compare all results which were obtained with those documented in known studies carried out elsewhere, albeit often under completely different conditions, employing an incomparable methodology. The scientific understudy is therefore incomplete.

The prime objective of this final report is to publish in an easily accessible form the body of large amounts of factual information which has been collected. As indicated certain findings provide ample evidence to allow the drawing of quite definite conclusions, others are only thought-provoking and stimulate the development of hypotheses requiring further studies and verification. This document would then serve as a useful source of information.

Price: Dfl. 30.00 plus postage.

Orders to: Publications Department, Royal Tropical Institute, 63 Mauritskade, 1092 AD Amsterdam, The Netherlands.

Vadose zone modeling of Organic Pollutants. S.C. Hern and S.M. Melancon, editors. Lewis Publishers, Inc., Chelsea, 1986, xi + 295 p. ISBN 0-87371-042-8.

This book was conceived to address the needs of a growing body of individuals working with soil fate and transport models. A variety of stochastic and deterministic soil leaching models have been developed in the past decade, particularly to measure the transport and transformation of organic pollutants moving through the vadose zone. The U.S. Environmental Protection Agency (U.S. EPA) has supported the development and testing of three such models, the Seasonal Soil Compartment Model (SESOIL), the Pesticide Root Zone Model (PRZM), and the Pesticide Analytical Model (PESTAN). This book seeks to provide the reader with a general overview of the uses and limitations of vadose zone models and with a generic set of guidelines for field collection of data necessary to calibrate and evaluate their predictive capabilities. The book specifically examines the assumptions, data requirements, and processes underlying the three models.

Chapter 1 includes an overview of the basic soil processes represented in vadose zone models, including process definitions and common model assumption. This chapter provides the reader with tables of references for process rate constants and field collection methods for parameters commonly input to vadose zone models. Also, the reader is directed to Section II of the book, where detailed process description, mathematical derivations of significant equations underlying these processes, and information regarding the spatial variability of soil properties can be found.

Chapter 2 discusses transport mechanisms and loss pathways for chemicals in soils.

Chapter 3 introduces a stepwise generic approach for the implementation of a data acquisition strategy which can be used in field model testing. It provides guidelines on criteria to be used in model selection and establishment of validation acceptance criteria, as well as site and compound selection. and implementation of a field sampling progam.

Chapters 4 and 5 then present two scenarios describing actual field validation attempts using the three models we have more closely scrutinized.

This document provides a unique compilation of many of the factors that must be considered in the field testing and application of vadose zone fate and transport models.

Price: £ 46.00.

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

Applied Geochemistry in the 1980s. I. Thornton and R.J. Howarth, editors. Graham & Trotman, London, 1986, 347 p., ISBN 0-86010-796-5 (hardbound).

This book comprises a selection of papers presented during a meeting at the Imperial College in London. The meeting was organized to honour the contribution of Professor Johns Webb to applied geochemistry. This book is a valuable reference work on applied geochemistry and contains readily applicable information on the use of geochemical methods in mineral exploration, analytical geochemistry and geochemistry and environment.

Geochemical methods in mineral exploration are exhaustively discussed with many examples from different countries. Geochemical analyses are also discussed in depth, as instrumental methods and methods for specific elements. Mention should be made of the special attention for the future role of ICPAES-method in applied geochemistry.

The application of geochemistry to environmental studies are also covered thoroughly. The contribution of geochemical information to studies on environmental pollution are clearly explained. Special attention

is paid to the natural and man-made inputs of metal in the environment and the effects of contaminated metals to soil microbiology.

The final paper is a 9-page summary of the broad topic of geochemistry and human health.

This book should be recommended as a unique source of information for those involved in applied geochemistry, in mineral exploration and in environmental studies. It will, undoubtedly, prove also very useful to soil scientists involved in soil pollution studies.

Orders to: Graham & Trotman Limited, Sterling House, 66 Wilton Road, London SW1O 1DE, England.

M.L. Moura, Wageningen, The Netherlands.

Physics of Desertification. F. El-Baz and M.H.A. Hassan. Martinus Nijhoff Publishers, Dordrecht, Boston, 1986, xii + 473 p. ISBN 90-247-3292-1 (hardbound).

Deserts are parts of the Earth that receive little or no rain. The physical processes that act upon these parched lands are vastly different from those that shape the more humid parts of the terrestrial landmasses. In the desert, wind is a major agent of erosion and transportation.

An understanding of the physical layout of arid lands, and the nature of processes that initiate changes therein is fundamental to thoughtful utilization of these lands for the benefit of mankind. It is with this in mind that this book was prepared.

It groups together the results of investigations of the process of desertification by twenty specialists. The book represents a thorough report on the status of our knowledge of the cause and effect of degradation of arid lands worldwide.

Emphasis is placed on the regions that are chronically affected by drought in North Africa, particularly in the Sahel. It is a timely look at the scientific basis of our knowledge of how arid terrain changed in space and time.

Price: Dfl. 189.00, US$ 75.50 or £ 51.95.

Orders to: In the U.S.A. and Canada: Kluwer Academic Publishers, 190 Old Derby Road Street, Hingham, MA 02043, U.S.A.; in the U.K. and Ireland: MTP Press Ltd., Falcon House, Queen Square, Lancaster, LA1 1RN, U.K. Elsewhere: Kluwer Academic Publ. Group, P.O. Box 332, 3300 AH Dordrecht, The Netherlands.

Quantified Land Evaluation Procedures. ITC Publication no. 6. K.J. Beek, P.A. Burrough and D.E. McCormack, editors. International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede, 1987, 166 p. ISBN 90-6164-053-9.

This publication forms the proceedings of a workshop held in Washington, DC, in 1986, and organized by the ISSS, the Soil Conservation Service, ITC and FAO. This workshop was the fourth in a series of workshops elaborating on the FAO framework for land evaluation. The previous workshops dealt with land evaluation for forestry, for extensive grazing and for land use planning and conservation in sloping areas.

The purpose of this joint workshop of the ISSS Working Groups on Land Evaluation and on Soil Information Systems was to combine expertise to make land evaluation methods more quantitative in order to increase support for geographic and land information systems, which on their turn are expected to become important tools for land use planning and environmental protection.

The workshop generated 32 papers, divided over three categories: progress in quantified land evaluation; towards land information systems; and applications.

In view of the central role of soil scientists and land resources specialists in the production and processing of land information for development, it is expected that the results of the Washington workshop will draw wide attention, especially among members of the ISSS and of other international societies concerned with geographic/land information systems.

Price: Dfl. 60.00, including postage.

Orders to: ITC, The Bookshop, P.O. Box 6, 7500 AA Enschede, The Netherlands.

Soil Conservation and Land Management. S.K. Datta. International Book Distributors, Dehra Dun, 1986, 331 p.

At present there is hardly any area in India which is free from hazard of soil erosion. This is because of wrong land management, heavy pressure of ever increasing demand on limited agricultural land, faulty agricultural practices, overgrazing of grasslands, overexploitation of forest and natural vegetation, faulty irrigation and drainage systems. About a half of the country is affected by soil erosion, water logging, seasonal floods and inundations.

The book deals with soil conservation techniques and methods along with specialized techniques for management of lands affected by soil erosion. The book explains the recent developments in this field as well as the basic principles and concepts and their applications in watershed management in a simple, coherent and lucid manner. The methods and formulae have been simplified by adequate graphical illustrations, figures, sketches and numerical examples. Students, trainees and practitioners in the field of soil conservation and land management, especially in India, will find the book useful.

Orders to: DK Agencies, H-12 Bali Nagar, New Delhi 110015, India. or: TRIOPS Verlag, Raiffeisenstrasse 24, D-6070 Langen, Fed. Rep. of Germany.

Agroforestry – a Decade of Development. H.A. Steppler and P.K.R. Nair, editors. International Council for Research in Agroforestry (ICRAF), Nairobi, 1987, 335 p. ISBN 92-9059-036-X.

This book is being published in commemoration of the tenth anniversary of the establishment of the International Council for Research in Agroforestry (ICRAF).

The book is divided into five sections. Chapters 1 and 2 are an introduction, with Chapter 2 presenting some projections into the future as well as a retrospective look at ICRAF. Chapters 3, 4 and 5 present some perspectives on agroforestry from the ecological, the institutional and the development viewpoints. Chapters 6, 7, 8, 9 and 10 describe the prominent agroforestry systems in some particular regions as seen by residents of each region or by persons with many years' experience there. These chapters clearly project the diversity as well as the importance of agroforestry in these different areas. Chapters 11, 12 and 13 cover problems associated with the measurement, impact and transfer of the technology of agroforestry interventions. These chapters should make clear the complexity and interdisciplinary nature of agroforestry whether one is concerned with research, evaluation or transfer. Finally, Chapters 14, 15, 16 and 17 discuss some research findings and proposals for research activities in four areas of agroforestry, namely, systems, nutrient enrichment, germplast evaluation and tree-component improvement, all of which ultimately come together as management approaches.

Price: US$ 30,00, plus postage.

Orders to: ICRAF, P.O. Box 30677, Nairobi, Kenya.

Management of Acid Tropical Soils for Sustainable Agriculture. IBSRAM Proceedings No. 2. P.A. Sanchez, E.R. Stoner and E. Pushparajah, technical editors, C.L. Garver, publication editor. IBSRAM, Bangkok, 1987, v + 299 p.

The importance of this meeting is quite evident from the following facts:

– Acid tropical soils account for about 1 billion ha of land around the world.

– Of this 1 billion, acid humid tropical ecosystems comprise about 700 million ha, while acid savannas occur on about 300 million ha. Both ecosystems are located primarily in the developing world.

Acid tropical soils – Ferralsols/Oxisols and Acrisols/Ultisols – support an increasingly large proportion of the developing world's population, but technologies for their sustained production are at early stages of development.

Recognizing the urgency of this situation, the International Board for Soil Research and Management (IBSRAM) organized the inaugural workshop on Management of Acid Tropical Soils for Sustained Production. The workshop was held in Peru from April 24 to May 3, 1985.

Twelve invited papers were presented during this workshop. They form the scientific synthesis for the network and provide a vast array of information based on geographic reviews of current soil management (Part 1), technologies and critical issues (Part 2), and suggestions on the process of formation of the network (Part 3).

These proceedings meet one of the first demands of the workshop participants: fundamental information on the management of acid tropical soils.

Orders to: IBSRAM, P.O. Box 9-109, Bangkhen, Bangkok 10900, Thailand.

The Importance of Chemical 'Speciation' in Environmental Processes. Dahlem Konferenzen. Life Sciences Research Report 33. M. Bernhard, F.E. Brinckman, P.J. Sadler, editors. Springer-Verlag, Berlin, Heidelberg, New York, 1986, xi + 763 p. ISBN 3-540-15362-4 (German edition) 0-387-15362-4 (U.S.A. edition) – Hardcover.

Recognizing the need for more effective communication between scientists, especially in the natural sciences, The Donors Association for the Promotion of Sciences and Humanities, in cooperation with the German Science Foundation, founded Dahlem Konferenzen in 1974. The project is financed by the founders and the Senate of the City of Berlin.

The task of Dahlem Konferenzen is to promote international, interdisciplinary exchange of scientific information and ideas, to stimulate international cooperation in research, and to develop and test new models conducive to more effective communication between scientists.

Dahlem Konferenzen organizes four workshops per year, each with a limited number of participants.

The purpose of the present workshop covered by this volume was to increase the general awareness of the important role that chemical species play in environmental processes and to further advancement in species analysis, the understanding of species transformation and species reactivity, and to investigate whether different environmental disciplines are at a comparable state of the art and whether a transfer of knowledge and technology between them is feasible.

The papers in this volume are grouped into four sections: chemical species in biological systems, in freshwater and terrestrial systems, in marine and estuarine systems, and in systems under stress from pollutants or other extreme environmental conditions. In addition, methods for the determination of species of metals and nonmetals are reviewed. Due to the unique mixture of environmental scientists and analysts this volume should be helpful in describing the needs of the environmental scientists, the available techniques, and their possible future developments.

Price: DM 248.00.

Orders to: Springer-Verlag, Tiergartenstrasse 17, D-6900 Heidelberg, Fed. Rep. of Germany; or: Springer Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A.

Science & Technology Education and Future Human Needs. J.L. Lewis, general editor. Published for ICSU Press by Pergamon.

The nine volumes in this series are concerned with different aspects of science and technology education at all levels (primary, secondary, tertiary, adult and community education). They are the outcome of extensive work over several years by the Committee on the Teaching of Science of the International Council of Scientific Unions which culminated in the Bangalore Conference on Science and Technology Education and Future Human Needs.

Educational conferences have often concentrated on particular disciplines. The starting point at this Conference was those topics already identified as the most significant for development, namely Health; Food and Agriculture; Energy; Land, Water and Mineral Resources; Industry and Technology; the Environment; Science Education and Information Transfer. Teams worked on each of these examining the implications for education at all levels (primary, secondary, tertiary, adult and community education). The emphasis was on identifying techniques and resource material to give practical help to teachers in all countries in order to raise standards of education in those topics essential for development. As well as the topics listed above, there is also one concerned with the educational aspects of Ethics and Social Responsibility. The outcome of the Conference is this series of books, which can be used for follow-up meetings in each of the regions of the world and which can provide the basis for further development.

Each of these volumes should provide valuable resource material for educationalists, teachers, curriculum planners, Ministry officials and all those involved in teacher training worldwide.

The following three volumes should be of particular interest to readers of the Bulletin.

Volume 4. Land, Water and Mineral Resources in Science Education. N.J. Graves, editor. Pergamon Press, Oxford, New York, 1987, 312 p. ISBN 0-08-033945-X (flexicover), 0-08-033915-8 (hardcover).

This volume examines the value of teaching about land, water and mineral resources; the content areas which might be included; and the teaching strategies that may be appropriate. The book draws on a wealth of knowledge worldwide and has an impressive list of contributors who provide practical teaching examples. The book is enriched with many case studies including those on land use; urban planning in Bombay, water resources and the Rhine and mining local mineral resources.

Volume 6. Food, Agriculture and Education. A.N. Rao, editor. Pergamon Press, Oxford, New York, 1987, 247 p. ISBN 0-08-033949-2 (flexicover), 0-08-033948-4 (hardcover).

This volume illustrates that, when we look at food and agricultural problems from the point of view of education, very little is done at present in schools and colleges to improve the understanding of children or students, or to prepare them to appreciate and solve the problems involved. The book identifies and discusses the five major areas which are crucial to our understanding of food and agriculture: food production; food consumption; preservation and storage; biotechnology; and technology transfer.

Volume 8. The Environment and Science and Technology Education. A.V. Baez, G.W. Knamiller and J.C. Smyth, editors. Pergamon Press, Oxford, New York, 1987, 430 p. ISBN 0-08-033953-0 (flexicover), 0-08-033952-2 (hardcover).

This volume aims to help teachers in schools and colleges communicate to pupils the methods and problems involved in making the best use of our environment and its resources. In recent years eco-development experts have stressed the urgency of spreading the concept of sustainable development if it is carried out via ecologically sound management practices, particularly in developing countries. This is essential to ensure the livelihood of people in these areas.

Prices: Vol. 4: flexicover £ 14.00/US$ 21.00, hardcover £ 28.00/$ 42.00; Vol. 6: flexicover £ 9.30/$ 14.00, hardcover £ 17.65/$ 26.50; Vol. 8: flexicover £ 13.30/$ 19.95, hardcover £ 26.60/$ 39.95.

Orders to: Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, England; Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.; or: Hammerweg 6, D-6242 Kronberg, Fed. Rep. of Germany.

Paleosols, their Recognition and Interpretation. V.P. Wright, editor. Blackwell Scientific Publications, Oxford, London, 1986, xiv + 315 p. ISBN 0-632-01336-2 (hardbound).

A paleosol is a soil that formed on a landscape of the past. To recognize paleosols it is necessary to show that the material has been modified by near surface, pedogenic processes. These processes include eluviation and illuviation, rubifaction and gleying to name a few, and the recognition of many of these processes is discussed in various chapters.

In the study of Quaternary sequences paleosols have become a standard tool and as such are well documented. It is now appreciated that paleosols are abundant in the pre-Quaternary geological record and even Precambrian types are now widely recognized. The study of these 'older' paleosols is still in its infancy but already such studies have caught the imagination of many, and this compilation of papers is aimed at providing both a database and a stimulus for future work.

The present book was conceived because of the interest being shown in pre-Quaternary paleosols. It aims to provide a focus for this interest and to provide a database and a stimulus for future work. Even though the subject as a whole is still in the early stages of development it proved very difficult to cover every aspect of the rapidly growing sub-discipline. Books already exist which are devoted to Quaternary paleosols but it was felt that specific reviews on such paleosols should be included in this book so as to provide a yardstick with which to compare other work. An appreciation of the methodology and conceptual background used in studying Quaternary paleosols is important for the future development of studies on pre-Quaternary paleosols.

The book contains a mixture of reviews and case-studies covering various aspects and various types of paleosols. The book also serves to highlight gaps in our knowledge such as paleosol diagenesis, clay mineralogy and palaeoecology. The chapters are arranged in stratigraphic order. Other aspects of paleosols are covered in the book Residual Deposits: Surface related processes and materials, edited by R.C.L. Wilson (Special Publication of Geological Society of London, number 11, 1983), published by Blackwell Scientific Publications, Oxford.

Price: £ 27.50.

Orders to: Blackwell Scientific Publications, Osney Mead, Oxford OX2 0EL, England; P.O. Box 50009, Palo Alto, CA 94303, U.S.A.; or: 107 Barry Street, Carlton, VIC 3053, Australia.

New publications in the series Proceedings of Soil Classification Workshops.

Since 1975 the Soil Conservation Service of the U.S. Department of Agriculture has established six international committees to critically evaluate and re-define the taxa and definitions of the U.S. system of soil classification, Soil Taxonomy, mainly for soils of the lower latitudes.

In order to provide fora for discussion of the issues studied by the various committees and to allow the examination of key examples of the soils under consideration in the field, the University of Puerto Rico initiated and helped organize a series of international soil classification workshops. These were held in Brazil in 1977, Malaysia and Thailand in 1978, Syria and Lebanon in 1980, in Rwanda in 1981, in the Sudan in 1982 and in Chile and Ecuador in 1984. These workshops dealt with the classification of Alfisols and Ultisols with low activity clays, Oxisols, Aridisols, high-altitude soils of the tropics, and Vertisols and Aridisols, and Andosols, respectively.

The proceedings of these workshops constitute an up-to-date reference publication on the classification and characteristics of some important orders of Soil Taxonomy in the (sub)tropics.

Proceedings of Fifth International Soil Classification Workshop, November 1982. Soil Survey Administration, Khartoum, 1985, Part I. Papers. 450 p.

This workshop was concerned with taxonomy and management of Vertisols and Aridisols in general and the mandates of the international committees on the classification of Vertisols (ICOMERT) and Aridisol (ICOMID) in particular.

Part I of the proceedings contains the papers presented at the workshop; part II provides reference background on the field excursions and includes complete descriptive and analytical data for the study pedons supplied by the National Soil Survey Laboratory of the USDA Soil Conservation Service.

Requests to: Director, Soil Survey Administration, Min. of Agriculture and Irrigation, P.O. Box 388, Wad Medani, Sudan; or: Soil Management Support Services, USDA-SCS, P.O. Box 2890, Washington, DC 20013, U.S.A.

Proceedings of the Sixth International Soil Classification Workshop, Chile and Ecuador, January 1984. F.H. Beinroth, W. Luzio L., F. Maldonado P., and H. Eswaran, editors. Part I: Papers, 365 p.; Part II: Tour guide for Chile, 237 p; Part III: Tour guide for Ecuador, 188 p.

This workshop addressed the taxonomy and management of soils derived from volcanic ash in general and the mandate of the International Committee on the Classification of Andisols (ICOMAND) in particular.

Part I of the proceedings includes the technical papers presented at the workshop, both in Chile and Ecuador. Part II provides reference background on the field excursions in Chile and include complete descriptive and analytical data for the study pedons. Part III contains the same information for Ecuador.

Requests to: Sociedad Chilena de la Ciencia del Suelo, Pontificia Universidad Catolica de Chile, Fac. de Agronomia, Casilla 6177, Santiago, Chile; or: Soil Management Support Services, USDA-SCS, P.O. Box 2890, Washington, DC 20013, U.S.A.

Salinitatea Solurilor si Cultura Planterol (Soil Salinity and Alkalinity and Crop Growing). G. Sandu, I. Vlas and M. Mladin. Editura Ceres, Bucuresti, 1986, 344 p. (in Romanian).

The authors present many original research data on the subject as well as concise accounts of their experiences gained in several countries. The book consists of 10 chapters.

In Chapter 1 the interrelation between soil salinity and natural vegetation as well as crops is described, including some problems of the salt tolerance of plants. In Chapter 2 the salinity and alkalinity of soils in Romania are characterized with particular regard to land utilization. In Chapter 3 the problems of irrigation water quality, mainly in Romania, are discussed while Chapters 4, 5, and 6 deal with the threshold values of the salt tolerance of plants in field conditions. Extended experimental material, mainly based on experience in Romania, is presented. In Chapter 7 the secondary salinity and alkalinity of soils are described including the methods of measuring salt and water balances.

The last three chapters of the book contain valuable data and methods of the reclamation and utilization of saline and alkali soils including the results of the application of different chemical amendments, agrotechnics, and irrigation.

It would be desirable to publish this very useful book in English although the numerous tables and figures make the message nearly fully understandable for the knowledgeable reader.

I. Szabolcs, Budapest, Hungary

Análisis Químico para Evaluar la Fertilidad del Suelo. Sociedad Mexicana de la Ciencia del Suelo. Publicación Especial no. 1. Editado por A. Aguilar, J.D. Etchevers y J.Z. Castellanos, Sociedad Mexicana de la Ciencia del Suelo, Chapingo, 1987, 217 p. ISBN 986-6201-00-9.

Este libro contiene los trabajos presentados durante el Simposio Nacional sobre Análisis Químico para Evaluar la Fertilidad del Suelo celebrado del 11 al 13 de septiembre de 1985.

El primer objetivo de este evento fue analizar, discutir y difundir las metodologías de análisis que son o pudieran ser utilizadas para los suelos de México. Consecuentemente, los trabajos aquí incluidos han sido elaborados principalmente con este fin. Se intentó además, señalar las necesidades de investigación en relación a cada una de la determinaciones presentadas con el propósito de que el trabajo realizado en las instituciones de investigación sea debidamente orientado hacia la solución de los problemas más importantes existentes en este campo de México.

Los cuatro últimos capítulos corresponden a conferencias que no tratan particularmente ningún método de determinación en suelos y con su eficiencia y aplicación en la solución de diversos problemas relativos a la producción agrícola.

El Simposio se organizó también con el objeto de producir un manual de métodos de análisis químico de suelos que quedara a consideración de todos los laboratorios de suelos del país para su posible aplicación, análisis y futuro perfeccionamiento. Para este fin, en cada capítulo se incluyen los métodos recomendados por los autores para cada determinación. Lamentablemente la presentación de los métodos no es uniforme y en varios casos se requiere incluir aún más información como para poder proponer a los laboratorios su aplicación rutinaria.

Pedidos: Sociedad Mexicana de la Ciencia del Suelo, Colegio de Postgraduados, Apartado Postal no. 45, C.P. 56230, Chapingo, Mexico.

Vulnerability of soil and groundwater to pollutants. TNO Committee on Hydrological Research Proceedings and Information No. 38. W. van Duivenbooden and H.G. van Waegeningh. Netherlands Organization for Applied Scientific Research, The Hague, 1987, xix + 1143 p. ISBN 90-6743-109-5.

Expansion and intensification of human activities give cause to dispersion of pollutants in the subsurface environment. Today, acid rain, hazardous chemical wastes, fertilizers, pesticides, solvents, manure and sewage sludge are, amongst other things, a serious threat to soil and groundwater. In numerous cases they have a severe impact on the quality of these natural resources. Therefore, existing groundwater and soil protection policies and strategies have to be reconsidered, and new ones have to be developed. To this end many research programmes have to be carried out.

It was against this background that the National Institute for Public Health and Environmental Hygiene (RIVM) of the Netherlands arranged the International Conference on the Vulnerability of Soil and Groundwater to Pollutants. The conference was held at Noordwijk aan Zee in March/April 1987, and was co-sponsored by ISSS. It focused on the vulnerability of soil and groundwater to pollutants with respect to their multifunctional character. Subjects covered were: criteria for protection, monitoring strategies, mapping, collection, interpretation and use of data in modelling and subsurface behaviour of pollutants.

Special attention was given to the interaction between top soils and groundwater bodies, as well as to the spatial and temporal variability of parameters. The main objective of the conference was to stimulate the exchange of information and points of view, on the topics mentioned, between researchers, especially hydrogeologists and soil scientists, active in the field of soil and groundwater quality. In total 111 papers and posters were presented and are included in the present proceedings. They have been grouped according to the six topics of the conference: criteria for protection of soil and groundwater; monitoring strategies for the quality of soil and groundwater; vulnerability mapping; vulnerability in relation to subsurface behaviour of inorganic pollutants; vulnerability in relation to subsurface behaviour of organic pollutants; and the use of data required for modelling effects on soil and groundwater quality.

The first chapter includes a general introduction and the conclusions and recommendations drawn by the chairmen at the end of the conference.

Price: Dfl. 95.00 (Benelux); Dfl. 125.00 elsewhere.

Orders to: CHO-TNO, P.O. Box 297, 2501 BD The Hague, The Netherlands.

Grasses in Alkali Soils. ICAR Bulletin No. 11. A. Kumar and I.P. Abrol. Central Soil Salinity Research Institute, Karnal, 95 p.

Rapidly growing population in India demands a balanced growth of agriculture to keep pace with the food, feed and fuel requirements of both human and animal population. While the past two decades have seen a rapid increase in foodgrain production, progress of production in other areas has been only marginal. This can, in part, be ascribed to lack of adequate investments into research in this area. In recent years, urgent need for utilization of wastelands for production of forage and fuel wood needs has been emphasized at various forums. Need and availability of adequately-tested technologies for successful implementation of utilization of wastelands can hardly be overemphasized. The present bulletin is a valuable attempt to find out the ways for utilizing the alkali lands for growing grasses for increased forage production. The bulletin will be found useful by research scientists, extension workers and others keen in utilizing alkali lands.

Orders to: Central Soil Salinity Research Institute, Karnal 132001, India.

Management of Saline Soils and Waters. S.K. Gupta and I.C. Gupta. Oxford and IBH Publishing Co., New Delhi, 1987, 339 p. ISBN 81-204-0206-5.

By the end of the twentieth century population of India is expected to increase to more than 1,000 million and the food grain requirement to 225 million tonnes. The cultivated area is to be increased by managing the so-called about 100 million hectares of wastelands which include saline lands also. Saline conditions reduce the value and productivity of more than 12 million hectares in India.

This book is a critical evaluation of the present knowledge on the management of saline soils and waters. It is hoped that bringing information together in one volume will not only contribute to the advancement of knowledge but also help to solve the food problem of the country through better management of saline wastelands.

Price: Rs. 95/–.

Orders to: Oxford and IBH Publ. Co., 66 Janpath, New Delhi 110 001, India.

Tropical and Subtropical Soil Science. S.V. Zonn. Mir Publishers Moscow, 1986, 422 p. (in Russian).

The volume has been compiled on the basis of the experiences accumulated during the long years the author spent studying the soils of several tropical countries as well as on his lectures on the subject held at Lumumba University in Moscow.

The book consists of three parts introduced by an outline of the general ideas about soil formation and soils as well as with a brief history of soil science with particular regard to Dokuchayev's school.

In Part 1, the principles of soil formation, the mineral part of soil, soil physics and chemistry as well as the physical chemistry and bio-chemistry of soils are discussed. A detailed description of the elementary processes of soil formation is also included. Part 2 consists of five chapters in which, introduced by some general ideas, the factors of soil formation, both biotic and abiotic, are discussed. Part 3, accounting for more than half of the book, comprises 14 chapters and, besides the fundamentals of soil classification, describes the different groups of soils, namely: siallitic neutral alkaline soils (including Vertisols), allitic (ferrallitic soils), podzolic ferrallitic tropical soils, yellow quartz allitic soils, red ferritic soils, volcanic soils (Andosols), hydromorphic soils (Gleysols), saline soils (Halomorphic soils) and illuvial soils. In the last three chapters the problems of soil conservation, soil fertility improvement, and soil cartography are treated. The book contains a bibliography, author, and subject indices.

The author successfully combines studying the pedological, geochemical and biological aspects of his subject in respect of both soil forming processes and land utilization.

Particular regard is paid to the chemical processes as well as to the soil-water regime in the different tropical and subtropical areas. The book contains many new data especially in respect of the iron content and iron dynamics of soils.

Professor Zonn's book is a good, and up-to-date work which can be useful for those who are interested in the subject.

I. Szabolcs, Budapest, Hungary

Rural Groundwater Contamination. F.M. D'Itri and L.G. Wolfson, editors. Lewis Publishers, Chelsea, 1987, xix + 416 p. ISBN 0-87371-100-9 (hardbound).

This book is mainly related to conditions in the USA, but many subjects will be of interest to persons from elsewhere, who are concerned about groundwater contamination problems.

Groundwater is one of the most precious natural resources. However, contaminants from natural and man made sources are causing an ever more increasing decline in the quality of this resource.

While the focus of this book is on groundwater contamination from agricultural sources, it is not limited to this. Rather, the reader is offered a general overview of the sources, impacts, assessments, methods, and health and risk implications of groundwater pollution as well as an explanation of the necessary remedial action program strategies.

The first two chapters of this book provide an overview with respect to agricultural issues. Chapters 3 through 10 present information on the losses, transport, and abatement of nitrogen from soils, nitrates in groundwater, and the impact of chemigation systems, large scale animal production, landfills, underground storage tanks and septic systems as sources of groundwater contamination. Chapters 11 through 13 describe methods to access, monitor and model the movement of contaminants in soil. Chapters 14 through 19 summarize drinking water standards, pesticide contamination of well waters, well construction, treatment of contaminated groundwater as well as pesticide risk considerations and health implications of groundwater contaminants. Chapters 20 through 23 address regulation and remedial action including groundwater law, liability, economics, land use planning, zoning, public policy and sociology considerations. The final chapters represent the authors' collective judgement on research priorities and strategies for the future role of groundwater resources to meet human needs. They identify and describe long-range planning methods and priorities regarding the uses, management conservation, and protection of the groundwater resources of the USA.

Price: £ 37.75.

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

Soil Erosion – A Global Problem. M.A. Fullen. Three slide sets in plastic wallet, with teaching notes. Focal Point Audiovisual, Portsmouth, 1987.

The following series have been published: 1) Soil Erosion Landforms, with 20 colour slides; 2) Soil Deposition Landforms & Wind Erosion, with 30 slides; and 3) Laboratory & Field Techniques & Soil Conservation, with 40 slides.

Part 1 has slides with morphological characteristics of soil erosion landforms (splash, sheet, rill and gully features); part 2 contains slides with gully erosion, colluvial and aeolian deposits, and features caused by overgrazing; the slides of part 3 show field and laboratory methods used in erosion studies, soil conservation practices. Short texts accompany the slides. The quality of the slides is better than usual.

Prices: Part 1: £ 11.50; part 2 £ 15.25; part 3: £ 17.75 in rigid binders.

Orders to: Focal Point Audiovisual Ltd., 251 Copnor Road, Portsmouth PO3 5EE, England.

Natural Resources and Rural Development in Arid Lands: Case Studies from Sudan. H.R.J. Davies, editor. The United Nations University, Tokyo, 1985, 84 p. ISBN 92-808-0504-5. NRTS-24/UNEP-504.

In 1975 the Council of the United Nations University identified three priority areas for its concern – world hunger, human and social development, and the use and management of natural resources – and directed that a programme should be organized in each of these areas. Each of these programmes is closely related to the others.

The Programme on the Use and Management of Natural Resources has identified a series of specific problem areas for its investigation – viz. environmental deterioration in the humid tropics, rural energy supplies, and the ineffectiveness of attempts to apply knowledge to the management and development of arid lands – and sub-programmes were developed in response to each of these.

In 1977 it was decided to base the Arid Lands Subprogramme (the Subprogramme on the Assessment of the Application of Knowledge to Arid Lands Problems) at the University of Khartoum, in Sudan. In October 1978 a workshop took place in Khartoum as a result of which a first series of five studies was initiated in Sudan during 1979 under the overall heading 'Obstacles to the Application of Existing Knowledge in Arid Lands'. By 1982 the four studies reported on here had been completed.

Each tackles a current problem in the use of natural resources in the semi-arid lands and looks at how and why the people involved reacted in the way in which they did to a particular change or aspect of the environment.

The report contains case studies of four problems of dryland resource management: dura production and its parasite buda, the impact of improved rural water supplies on the environment, the use of wood resources in the Nuba Mountains, and planners' and participants' differing perceptions of development.

Price: US$ 15.00.

Orders to: see below.

Land Policy and Agriculture in Eastern and Southern Africa. J.W. Arntzen, N.D. Ngcongco and S.D. Turner, editors. United Nations University, Tokyo, 1986, 150 p. ISBN 92-808-0604-1. NRTS-28/UNUP-604.

This volume contains a selection of papers presented at a workshop on land policy and agricultural production in eastern and southern African countries, held in Gaborone, February 1982.

The workshop dealt with many aspects of land policy, including administrative and institutional consideration and social, economic, and environmental implications, both as they determine and as they are influenced by land policy. Discussed were also: access to land and its distribution; food production implications of land-tenure systems; financial institutions and credit facilities; and environmental implications of land policy.

Price: US$ 20.00.

Orders to: UNU publication distributors all over the world; or, in case of difficulties, to Publications Section, Academic Services, The United Nations University, Toho Seimei Bldg., 2-15-1.

Tropical Root Crops. Root Crops and the African Food Crisis. E.R. Terry, M.O. Akoroda and O.B Arene. International Development Research Centre, Ottawa, 1987, 197 p. ISBN 0-88936-498-2. IDRC publication 258e.

A significant proportion of the world's hungry people are found in the countries of sub-Saharan Africa. In 30 of the 35 countries in this region, population increases have far outstripped food production; in 5 of these countries, food production has decreased in real terms. Therefore, the attainment of self-sufficiency in food production in sub-Saharan Africa is today one of humanity's greatest challenges.

The papers presented at the third triennial symposium of the International Society for Tropical Root Crops – Africa Branch all addressed this paramount challenge and proposed various roles for the major tropical root crops in alleviating the African food crisis. This publication is the result of the deliberations at the meeting in Owerri, Nigeria, August 1986. The five theme papers addressed the role of cassava, yam, sweet potato, cocoyam, and root crops postharvest technology in alleviating the African food crisis. A substantial number of the remaining papers report research and extension results on various aspects of cassava, yam, sweet potato, potato, and cocoyam breeding and agronomy. Other papers presented new ideas and status reports on root crops protection, postharvest technology and utilization, and the economics of production and marketing.

Orders to: Regional Offices of IDRC; or: IDRC, P.O. Box 8500, Ottawa, Ontario, Canada K1G 3H9.

New publications from the International Rice Research Institute.

Progress in Rainfed Lowland Rice. IRRI, Los Baños, 1987, 446 p. ISBN 971-104-167-7.

Rainfed lowland rice comprises more than 40% of the rice area of South and Southeast Asia. Despite its importance, progress in increasing production of rainfed lowland rice has been slow, and many farmers are still using low-yielding varieties and management practices. Drought, excess water, and poor soils are common constraints to production in rainfed lowland areas. Therefore IRRI and various national programs are placing special emphasis on improving the productivity of rainfed lowland rice areas.

The 1985 International Rice Research Conference (IRRC) focused on problems and potentials of rainfed lowland rice, and was held at Bhubaneswar, Orissa, India. It was a forum for review of past progress and for formulating future collaborative work on rainfed lowland rice.

The present publication forms the proceedings of the conference.

Price: US$ 13.70, plus $ 8.00 airmail or $ 2.00 surface mail postage.

Upland Rice: A Global Perspective. P.C. Gupta and J.C O'Toole. IRRI, Los Baños, 1987, 364 p.

Almost 20 million hectares of the world's rice land are planted to upland or dryland rice. Yields are low, accounting for only 5% of world production. Modern technology has scarcely affected upland rice production.

Because research on upland rice has been limited, the Consultative Group on International Agricultural Research (CGIAR) recently requested all international Centers with rice programs to increase their efforts on upland rice improvement. As a component of this strategy, IRRI initiated an Upland Rice Training Course, which was coordinated by the authors of the present study. They soon realized that scientific literature on upland rice was scarce and often difficult to obtain. This publication is partly the result of their efforts to collect information on every facet of upland rice; their own extensive experience with the crop forms the remainder of the work.

Students and scientists alike will find the book a comprehensive digest of upland rice research and production.

Price: US$ 11.70, plus $ 8.00 airmail or $ 2.00 surface mail postage.

Efficiency of Nitrogen Fertilizers on Rice. IRRI, Los Baños, 1987, 266 p. ISBN 971-104-174-X.

In 1984, cooperators in the International Network on Soil Fertility and Fertilizer Evaluation for Rice (INSFFER) visited Australia, where much relevant research on fertilizer efficiency for rice was being conducted. With support from the Australian Centre for International Agricultural Research (ACIAR), the New South Wales Department of Agriculture, and CSIRO, a workshop was held in April 1985 to discuss recent research on fertilizer efficiency in rice production.

This volume contains the papers presented at the workshop.

Price: US$ 11.80, plus $ 7.00 airmail or $ 2.00 surface mail postage.

Physical Measurement in Flooded Rice Soils: The Japanese Methodologies, IRRI, Los Baños, 1987, 65 p. ISBN 971-104-164-4.

Worldwide demand for rice will increase by 3% annually for the next 15 years. The increased production must be met by growing rice on lands where water is not well controlled, or soils are less fertile, or there are physical constraints such as compacted soil layers. Improved methods of soil and water management for ricelands must be developed and adopted, both to increase food production and to avoid soil erosion and land degradation.

Participants at a 1985 workshop on 'Physical Aspects of Soil Management in Rice-based Cropping Systems' recommended that the existing Japanese methodologies of soil-physical measurement in flooded rice soils, developed over years of careful research, be published in English. Ten authors from Japanese universities and the Japanese National Research Institute of Agricultural Engineering wrote and translated the 10 component chapters of this book that describe measuring methods relating to soil texture, structure, mechanics, and water.

Price: US$ 4.30, plus $ 4.00 airmail or $ 1.00 surface mail postage.

Note: prices for delivery in developing countries are about 70% lower than those mentioned above for developed nations. Prepayment required.

Orders to: Div. H, Communications and Publications Dept., IRRI, P.O. Box 933, Manila, Philippines; *or: Agribookstore, 1611 North Kent Street, Arlington, Virginia 22209, U.S.A.; Triops, Raiffeisenstrasse* 24, D-6070 Langen, Fed. Rep. of Germany; Publ. Int. Corp., 2nd Newfield Bldg., 42-3 Ohtsuka 3-Chome, Bunkyo-ku, Tokyo 112, Japan.

1986 Supplement. Publications of the International Agricultural Research and Development Centers. IRRI, Los Baños, 1986, 167 p. ISBN 971-104-145-6.

This supplement to the 1985 catalog (691 pages) contains titles that are not in the larger catalog. The two catalogs are the only compilations of the publications issued by the 13 Centers supported by the Consultative Group on International Agricultural Research (CGIAR), other International Agricultural Research Centers, and some other institutions.

Collectively, they are probably the largest catalog of titles on Third World agriculture in existence. The 1985 catalog (Publications of the International Agricultural Research and Development Centers) is available from IRRI for US$ 10.20 including airmail postage.

Price: US$ 4.00, including airmail postage. Prepayment is required.

Orders to: Communications and Publications Department, IRRI, P.O. Box 933, Manila, Philippines.

Soil Chemistry and Soil Physics. Papers dedicated to Professor G.H. Bolt. Netherlands Journal of Agricultural Sciences, Volume 35 (1987) No. 17.

This issue contains 17 papers covering various aspects of pure and applied soil chemistry and soil physics. It is dedicated to Professor Bolt at the occasion of his retirement from Wageningen Agricultural University. Professor Bolt, who is President of ISSS Commission II for the period 1986-1990, was attached to the University from 1957, since 1963 as professor.

Price: Dfl. 20.00 plus postage.

Orders to: Administrative Centre, Netherlands Journal of Agricultural Sciences, P.O. Box 79, 6700 AB Wageningen, The Netherlands.

Integrated Environmental Cartography: a Tool for Research and Land-use Planning. MAB Technical Note 16. Unesco, Paris, 1987, 56 p., tables, maps, plus 9 separate maps and a general legend in colour. ISBN 92-3-102347-0.

The examples chosen for this technical note cover a wide range of environments and different forms of human occupation of the land. They are all placed in the context of the developing countries. The integrated nature of the maps will ensure they are a valuable source of information for researchers, land-use planners and decision-makers.

This publication was prepared in cooperation with the International Geographical Union. It is also available in French (La cartographie integrée de l'environnement un outil pour la recherche et pour l'aménagement).

Price: FF 80.00

Orders to: see below.

La Végétation de l'Afrique. Memoire accompagnant la carte de végétation de l'Afrique, 1:5.000.000. Unesco/AETFAT/UNSO, Publié par l'Unesco, 1981. Recherches sur les ressources naturelles XX. F. White. Traduit de l'Anglais par P. Bamps. ORSTOM-Unesco, 1986, 384 p. ISBN Unesco 92-3-201955-8; ISBN ORSTOM 2-7099-0832-8. Version anglaise ISBN 92-3-101955-4 (Unesco).

La nouvelle Carte de Végétation de l'Afrique et le texte qui l'accompagne sont le fruit de quelque quinze années de coopération entre l'Unesco et l'AETFAT (Association pour l'étude Taxonomique de la Flore de l'Afrique Tropicale).

La carte et le mémoire couvrent non seulement la totalité de l'Afrique et la grande îles d'une grande importance écologique dans le sud-est de l'océan Atlantique et dans l'ouest de l'océan Indien, bien qu'il ne puisse y avoir place que pour un traitement très court.

Le but de la carte n'est pas de fournir des informations détaillées d'une quelconque étendue particulière dont bénéficieraient ceux qui y résident, étant donné que ces informations sont généralement disponibles localement sous forme de documents publiés ou non et qu'elles sont non utilisables sur des cartes à cette échelle. Le but est plutôt d'indiquer en termes généraux de la végétation de l'Afrique considérée dans sa totalité. Un autre objectif important est de présenter un cadre à une échelle continentale dans lequel il soit possible de réaliser des études locales plus détaillées et d'établir des comparaisons.

Les cent unités cartographiques figurées sur la carte sont décrites dans le texte sous les vingt phytochories régionales (dix-huit sur le continent africain et deux à Madagascar) où elles se situent. Les limites de ces phytochories sont également indiquées en traits plus épais sur la carte. Elles coïncident dans une large mesure avec les types de végétation régionaux, bien qu'elles aient été établies de façon indépendante.

Le but principal du texte est de décrire les traits saillants de la végétation. La première version était deux fois plus longue que celle qui est publiée à présent, de sorte que, pour des raisons d'économie, de nombreux détails ont été supprimés. De même, on ne dispose que de peu de place pour discuter en détail l'influence du climat, de la géologie, des sols, du feu, des animaux et de l'homme sur la végétation. Lorsque ces influences sont particulièrement frappantes, elles ont été mentionnées dans le texte.

Les types de végétation sont décrits de façon aussi concise que le permet leur complexité. Pour chaque type sont citées les principales sources d'information, publiée ou non, tout comme le sont les références aux photographies caractéristiques et aux profils-diagrammes. On espère que cette information pourra, au moins partiellement, compenser l'absence d'illustrations en dehors des cartes et diagrammes.

Sans être exhaustive, la liste des quelque 2.400 références bibliographiques a été établie de façon à couvrir au mieux tous les aspects traités.

Pour la facilité du lecteur, une seconde liste bibliographique, classée géographiquement, a été jointe. Publié egalement en anglais.

Prix: FF 250,00 (avec la carte).

Commandes à: agents de vente de l'Unesco, où: Les Presses de l'Unesco, 7 place de Fontenoy, F-75700 Paris, France.

Cles de la Taxonomie des Sols. Monographie Technique no. 13, Service d'Assistance Technique pour l'utilisation des sols (SATUS), Washington, 1986, 347 p. ISBN 0-932865-06-2.

La traduction française intégrale des 'Keys to Soil Taxonomy' est le fruit d'un travail d'équipe composée de pédologues belges pour la plupart, sous la direction de A. van Wambeke. Le texte français a été complété par un index anglais-français et français-anglais, ainsi que par les triangles texturaux et un index renvoyant aux définitions des termes utilisés.

Pour les pays en voie de développement, l'ouvrage est gratuit et peut être obtenu par l'intermédiaire du Dr. Hari Eswaran, SMSS Program Leader, SCS, US Dept. of Agriculture, P.O. Box 2890, Washington, DC 20013, U.S.A.

Prix: US$ 8.00.

Commandes à: International Soils, Dept. of Agronomy, Cornell University, Bradfield and Emerson Halls, Ithaca, NY 14853, U.S.A.

Surface Soil Management. Proceedings New Zealand Society of Soil Science – Australian Society of Soil Science Joint Conference, Rotorua, November 1986, 152 p.

This publication contains the texts of 24 papers on different aspects of the relation between management practices and characteristics of soil surface layers. Discussed are degradation of soil structure, surface crusting, restoration of disturbed lands, hydrological conditions, erosion, availability and plant nutrients, and tillage practices. The papers are mostly concerned about New Zealand and Australia.

Price: NZ$ 18.00, including mailing charges.

Orders to: Dr. L.A. Douglas, Agriculture and Forestry Dept., The University of Melbourne, Parkville, 3052 Victoria, Australia.

Proceedings Second International Symposium on Spatial Data Handling. *Seattle, July, 1986. International* Geographical Union, Commission on Geographical Data Sensing and Processing, Williamsville, 1986, ix + 627 p.

The computer-based handling of spatial or geographic data forms a common bond between researchers in a number of different disciplines. Geographers, cartographers, geologists, soil scientists, oceanographers, computer scientists and others are called upon at one time or another to manipulate and display large data sets containing explicit coordinate information.

At the first Symposium held in 1984, the participants strongly endorsed the concept of a continuing series of meetings which would be limited in size and which would address the multidisciplinary, scientific aspects of geographic information systems and spatial data handling. This is the second of the Symposia in the series and an examination of the papers reveals the growing interest in both the technical foundations of spatial data handling and Geographical Information Systems (GIS), and in developing new applications of existing technology. This is for a large part due to the developments in the hardware area, soon overcoming problems of space memory capacity, and computing speeds. The proceedings are organized in 19 themes, of which are mentioned: quadtree representations, manipulation modeling and structures of spatial data; storage and accuracy of digital elevation models; relational database approaches to GIS; digital terrain modeling; map display techniques, new standards approaches applications designs and utilization issues in GIS; information retrieval; terrain analysis and display.

Copies of the Proceedings of the first symposium are available at the cost of US$ 30.00 from: Prof. K. Brassel, Geographisches Institut, Universität Zürich-Irchel, 8057 Zürich, Switzerland.

Price: US$ 40.00, less $ 5.00 if payment is enclosed with order.

Orders to: IGU, Commission on Geographical Data Sensing and Processing, Department of Geography, The Ohio State University, Columbus, Ohio 43210, U.S.A.

Plant and Soil. Interfaces and Interactions. Developments in Plant and Soil Sciences 28. A. van Diest, editor. Martinus Nijhoff Publishers, Dordrecht, Boston, 1987, xi + 370 p. ISBN 90-247-3535-1 (hardbound).

This volume contains the proceedings of the International Symposium: Plant and Soil: Interfaces and Interactions, Wageningen, August 1986. With this symposium the 100th volume of the well-established journal Plant and Soil was celebrated.

The symposium programme was divided into working sessions dealing with plant nutrition, soil fertility, biological nitrogen fixation, soil biology and root activity, and hydrobiology. The 24 chapters here presented by the editors of Plant and Soil provide an authoritative and up to date review of these subjects. Forty years ago, when the journal was established, plant physiologists and soil scientists were only beginning to discover the interrelations between their disciplines. This volume reflects an equally important, modern interaction between physiologists and geneticists.

In the 40 years of its existence, Plant and Soil has played a central role in the understanding of such interrelationships, and will continue to do so in the years to come.

Price: Dfl. 225.00, US$ 110.00, £ 62.00.

Orders to: In the U.S.A. and Canada: Kluwer Academic Publishers, P.O. Box 358, Accord Station, Hingham, MA 02018-0358, U.S.A; U.K. and Ireland: MTP Press, Falcon House, Queen Square, Lancaster LA1 1RN, U.K.; elsewhere: Kluwer Academic Publishers Group, Distribution Centre, P.O. Box 322, 3300 AH Dordrecht, The Netherlands.

Annotated Bibliography (1944-1983). Soils of the Arabian Peninsula. S.M. Elgawhary. Kingdom of Saudi Arabia/FAO, 1987, 69 p.

This is a comprehensive bibliography including works related to soils of the Arabian Peninsula. Over 100 from the 155 entries are on Saudi Arabian soils. The gist of the contents of the articles is given. A subject matter index is included for easy reference.

Requests to: Mr. S.M. Elgawhary, The National Soil Survey and Land Classification Project, P.O. Box 558, Riyadh 11421, Kingdom of Saudi Arabia.

To Feed the Earth: Agro-Ecology for Sustainable Development. M. Dover and L.M. Talbot. World Resources Institute, Washington, 1987, 88 p. ISBN 0-915825-19-8, ISSN 0880-2582.

This paper defines and describes an ecological approach to agriculture that differs profoundly from the industrial approach that has dominated agricultural research and development for decades. Both have their place, but – as argued here – the main issue is how to incorporate the former into agricultural development.

In declaring the start of the 'Decade of the Tropics' in 1983 the International Union of Biological Sciences (IUBS) noted that knowledge of species structure and function and of interactions among species in groups, communities, and ecosystems in the foundation upon which rests 'the rational management of natural and artificial ecosystems', notably agriculture. Yet, IUBS points out, 'our knowledge of these processes and relationships is almost entirely derived from temperate species', and there is good reason to believe that tropical species and ecosystems are vastly different. The attempted transfer of agricultural systems based on temperate zone biology and developed country economics to developing countries is often a fruitless effort to transplant a good system to an area where it simply won't work.

The idea is not to abandon the methods of industrial agriculture that have been so successful in the economic and ecological conditions for which they were designed, but to determine where such methods as mechanization, use of agricultural chemicals, and monoculture are and are not appropriate, and to develop alternative systems better suited to tropical climates and developing economies. This study lays out steps – stretching from basic research to the mechanics of international assistance – that must be taken if ecologically based agriculture is to contribute all it can to feeding the earth.

Price: US$ 10.00, plus $ 2.00 for postage.

Orders to: WRI Publications, P.O. Box 620, Holmes, PA 19043-0620, U.S.A.

New Publications from FAO

Soil Management: Compost Production and Use in Tropical and Subtropical Environments. FAO Soils Bulletin 56. H.W. Dalzell, A.J. Riddlestone, K.R. Gray and K. Thurairajan. FAO, Rome, 1987, xvi + 177 p. ISBN 92-5-102553-3.

The severe drought and famine in parts of Africa have shown the necessity for adequate soil organic matter to prevent hillside erosion and to retain moisture in the soil for crop growth. The cost of mineral fertilizers and their relative scarcity in some areas has increased the need to recycle waste organic materials as sources of crop nutrients.

This Bulletin provides training material on composting for extension workers and teachers in countries in the tropics and subtropics. The objective is to promote the use of locally available organic materials to increase soil organic matter content for the improvement of soil fertility, and as sources of plant nutrients in conjuntion with mineral fertilizers.

The report explains the basic composting process, suitable organic wastes, practical composting methods, use of the product in a variety of situations and a consideration of economic and social benefits. It also deals with approaches to practical extension work with farmers on the subject.

FAO Watershed Management Field Manual. Vegetative and Soil Treatment Measures. FAO Conservation Guide 13/1. H.M. Schiechtl. FAO, Rome, 1985, xi + 61 p. ISBN 92-5-102310-7.

This Manual consists of eight separate volumes: vegetative and soil treatment measures (vol. 13/1); gully control (vol. 13/2); watershed survey and planning; slope treatment measures and practices; roadway protection measures; landslide prevention measures; torrent control; and water harvesting.

The objective of this manual is to assist professionals concerned with the planning and implementation of watershed management activities by providing practical information supported by examples from a wide variety of situations. However, the watershed situation in each country is unique and it is impossible to provide step by step solutions which will apply in any specific case. The user of the manual is therefore invited to add the local experience and information deemed necessary.

This volume provides practical guidance for vegetative measures for slope stabilization. This may be particularly useful in environments with a wide choice of readily available vegetative material. Measures include revegetation of slopes by living material, slope stabilization by the combined use of dead and living materials, and biotechnical drainage systems.

FAO Watershed Management Field Manual. Gully control. FAO Conservation Guide 13/2, M.P. Geyik. FAO, Rome, 1986, vii + 56 p. ISBN 92-5-102482-0.

The purpose of this document is to provide practical guidance for gully control including a description of the factors affecting gully formation and a classification of gullies. Control measures include diversions and the specifications for various types of check dams and gully plugs.

Strategies, approaches and systems in integrated watershed management. FAO Conservation Guide 14. FAO, Rome 1986, 232 p. ISBN 92-5-102352-2.

Watershed degradation in many third world countries threatens the livelihood of millions of people and constrains the ability of countries to develop a healthy agricultural and natural resource base. Increasing populations of people and livestock, particularly in the steep, mountainous watersheds of Nepal and the Himalaya region, are rapidly depleting the existing natural resource base and the carrying capacity of these lands is being exceeded. As populations continue to rise, the pressures on forests, rangelands, and marginal agricultural lands lead to inappropriate cultivation practices, forest removal, and grazing intensities that, in the extreme case, leave a barren environment that yields unwanted sediment and damaging streamflow to downstream communities.

This document constitutes the proceedings of an expert meeting on strategies, approaches and systems in integrated watershed management held in Kathmandu, Nepal, in 1985.

The purpose of this meeting was to: (i) make an assessment of the accrued knowledge and experience on methods and approaches for achieving watershed management in uplands and mountainous areas of developing countries, and (ii) recommend the most suitable ways to formulate and implement national programmes and to develop specific projects in watershed management in conditions of high population pressure of rural communities practising shifting cultivation, grazing and other uses of forest land.

Following the executive summary are the technical papers and discussion summaries that have been grouped together under common themes. Sessions under the following themes were held: watershed management concepts for developing policy and strategies; watershed management in areas of shifting cultivation and intensive grazing; conceptializing and planning watershed management; economics and institution building; involving the community; watershed management in the Himalayas; and training, research, demonstration projects and other key issues in water management.

Consultation on Irrigation in Africa. FAO Irrigation and Drainage Paper 42. FAO, Rome, 1987, 206 p. ISBN 92-5-102547-9.

The Consultation arose from a recommendation made by the FAO Regional Conference for Africa, held in Harare, in July 1984. The Conference, meeting during a period of acute food crisis resulting from prolonged drought, was keenly aware of the potential that irrigation could offer in increasing and stabilizing agricultural production, reducing the adverse effects of drought, and promoting rural development. It considered that there was a need to examine the irrigation experience on the Continent with a view to incorporating the lessons learned in strategies for future irrigation development. The Conference also felt that there was a need for more exchange of information, discussion and cooperation on irrigation within the African region. It therefore suggested that FAO organize a Consultation to discuss these issues.

The Consultation took place in Lomé, April 1986 and provided an opportunity to exchange views on three principal issues: (1) The present and future role of irrigation in food production in Africa. The present irrigated area is rather small. However, inventories of land and water resources show a great potential for expansion. An analysis is needed of criteria and conditions governing the successful development of this potential. (2) Policy options and strategies to attain irrigation development objectives. A review must be made of experience gained in irrigation development throughout the region and an analysis of factors contributing to or limiting success. This will provide the basis for the formulation of policies and strategies in the various subregions. (3) Follow-up action. National action programmes must provide the tools for the formulation and implementation of country-specific strategies and irrigation development plans. External support needs are to be identified and support mobilized.

The present report contains the highlights from the Consultation, the major conclusions and recommendations and the suggested action programme. Part 2 contains the working documents.

Water Lifting Devices. FAO Irrigation and Drainage Paper 43. P.L. Fraenkel. FAO, Rome, 1986, xiii + 295 p. ISBN 92-5-102515-0.

The primary purpose of this paper is to provide a basis for comparing and choosing between all present and (near) future options for lifting irrigation water on small and medium sized land-holdings (generally in the range of 0.25 ha to say 25 ha). Small land-holdings in this size range are most numerous in many of the developing countries, and extension of the use of irrigation in this small farming sector could bring huge benefits in increased food production and improved economic well-being. It is also hoped that this paper will be useful to those seeking techniques for lifting water for purposes other than irrigation.

This publication has been prepared to help planners and engineers consider the potential and application of alternative sources of energy for prime movers. Research and field application are continuous in many parts of the world, but the degree of success varies. As new information becomes available, systems developed over recent decades, and even long before that, may be modified or refined to take advantage of new ideas and modern technology. It is an old subject, but innovations continue.

Consequently, this publication cannot be regarded as a comprehensive treatise on the subject of alternatives for water lifting devices, nor can it be considered as the final state of the art. It does, however, seek to provide enough technical background on promising systems for possible application in the field, and as a base for further evolution.

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

Geomedical Consequences of Chemical Composition of Freshwater. J. Låg, editor. Norwegian University Press, Oslo, Bergen, 1987, 201 p. ISBN 82-00-07232-0.

Geomedicine is the science dealing with the influence of environmental factors on the geographical distribution of health problems of man and animals. To study geomedical problems, knowledge of medical and environmental subjects is needed in many cases, and, therefore, a very complex field. Improved methods for chemical analyses have given new possibilities for approaching health problems. Natural geographical variations and changes due to pollution have been shown in more details than before. In the present publication some examples from Norwegian conditions are given.

Price: NOK 180.00.

Orders to: Norwegian University Press, P.O. Box 2977 Toyen, N-0608 Oslo 6, Norway.

Scientific Basis for Soil Protection in the European Community. H. Barth and P.L'Hermite, editors. Elsevier Applied Science Publishers, London and New York, 1987, 630 p., 104 tab., 97 ill. ISBN 1-85166-109-3. EUR 10870.

This book represents the proceedings of a seminar on soil protection, held in October 1986 in Berlin, and jointly organized by the Commission of the European Communities, Directorate-General for Science, Research and Development and by the Senate of Berlin.

The objectives of this meeting were to discuss the present state of soil degradation in the Community, to recommend measures to protect and rehabilitate this soil potential and to identify the gaps in knowledge for implementing and monitoring those measures.

The papers presented at the seminar have been regrouped in three major sections, respectively dealing with: (1) Soil protection: a need for a European programme (6 papers); (2) Assessment of the impacts on soil environment (11 papers); and (3) The state of the European soils: recovery, protection and strategies for prevention (11 papers). A closing chapter formulates in extenso the conclusions, recommendations and research needs for the future.

This well-edited book provides the state of the art in soil protection research in the European Community and may therefore be highly recommended to those involved in soil and nature protection in the Europe.

Price: £ 70.00.

Orders to: Elsevier Applied Science Publishers Ltd., Crown House, Linton Road, Barking, Essex IG11 8JU, England. In the USA and Canada: Elsevier Science Publ. 52 Vanderbilt Ave., New York, NY 10017, U.S.A.

W. Verheye, Ghent, Belgium

Monitoring and Evaluation. Guiding Principles. International Fund for Agricultural Development (IFAD), Rome, 1986, 76 p. (available in English, French, Spanish and Arabic).

Monitoring and evaluation (M&E) as a discipline is a relative newcomer to the development field. Although 'monitoring' is as old as management, 'evaluation' began to emerge both at country level land and in the UN system in the early 1950s. Since then, it has evolved slowly and unevenly. Interest and activities in developing M&E within the UN system varied considerably during the 1960s and 1970s. 'Evaluation' efforts when undertaken – such as in connection with development projects or technical assistance activities – were limited in concept and scope. In recent years, this has been changing. There is a growing understanding of the importance of M&E as a tool for effective, objectives-oriented management of development projects and programmes, particularly in agricultural and rural development.

The present publication contains common principles based on the monitoring and evaluation guidelines, handbooks and practices.

The guiding principles are primarily designed to assist planners, decision makers and managers of rural development in the developing countries in designing and setting up effective monitoring and evaluation systems at project, sectoral or national levels, as appropriate. They are presented in simple language and suggest relatively simple methods for M&E and are based on normal administrative practices in the developing countries. Monitoring is seen as a feedback system for problem-solving during project and programme implementation; evaluation as ascertaining that rural development projects and programmes attain their objectives. Another important role of monitoring and evaluation is to learn lessons for project design, and planning and management in the future.

Monitoring and Evaluation of Irrigation Projects. IFAD, Rome, 1987, 67 p. (English).

Following the Guiding Principles mentioned above, detailed guidelines for major sub-sectors such as irrigation, credit, integrated rural development will be prepared. The present publication reports on the Asian Regional Workshop on the Monitoring and Evaluation of Irrigation Projects, held in Manila, November 1985.

Its purpose was to provide a forum to practitioners and users of monitoring and evaluation, i.e. project managers, M&E specialists, and the irrigation departments of national governments to exchange experience and develop a set of practical cost-effective, management oriented guidelines for monitoring and evaluation of irrigation projects, drawing upon their experience in project implementation. Particular importance was attached to beneficiary participation in irrigation projects, the environmental impact of irrigation projects, training in monitoring and evaluation, and the coordination among different implementing units.

Requests for both publications to: M&E Publications, IFAD, Via del Serafico 107, 00142 Rome, Italy.

Intercropping in Tropical Smallholder Agriculture with Special Reference to West Africa. Second ed. K.G. Steiner. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, 1984, 304 p. ISBN 3-88085-176-X.

During the last decade there has been an increasing awareness that the impact of the so-called green revolution on smallholder farming in developing countries has remained rather limited. Due to a lack of resources and increasing prices of commercial inputs the majority of small farmers in the tropics and especially in Africa were not able to benefit from the progress achieved by international agricultural research.

Hence, research gave more attention to the analysis and subsequent improvement of traditional cropping systems and a more efficient use of limited resources. Research results obtained so far made evident that traditional cropping systems are well adapted to the ecological, socio-cultural, and socio-economic conditions of tropical agriculture.

The intensification of traditional cropping systems and especially intercropping is a challenge to researchers and extension officers. These highly complex cropping systems require completely different approaches and new methods. Intercropping systems promote the use of natural resources and at the same time constitute a most appropriate way of raising agricultural production in the tropics and subtropics, especially given the limited availability of external inputs based on fossil energy.

Even though research on intercropping systems has started only recently, a considerable amount of knowledge has already been accumulated and should be used when starting new or reorganizing existing extension programmes for smallholders in the tropics. The present publication is a state-of-knowledge report on intercropping.

Orders to: TZ-Verlagsgesellschaft, Bruchwiesenweg 19, D-6101 Rossdorf-1, Fed. Rep. of Germany.

Fluid Fertilizer Manual. National Fertilizer Solutions Association, St. Louis.

This manual is the one field manual that covers every aspect of the fluid fertilizer business-agronomy, mix plant layout and operation, application, plant food recommendations, advantages of fluid fertilizers, material compatibility and more.

Price: US$ 198.00.

Orders to: National Fertilizer Solutions Association, 10777 Sunset Office Drive, Suite 10, St. Louis, MO 63127, U.S.A.

Erosion Control in the Tropics. Agrodok 11. Agromisa, Wageningen, 1987, 73 p.

Agromisa is a volonteer organization of students of Wageningen Agricultural University and aims at improving the position of socially and economically underprivileged groups in developing countries by transfering knowledge. The present booklet is a practical introduction to the causes and consequences of different forms of soil erosion and ways to prevent it.

Price: Dfl. 5.00, including postage.

Orders to: Agromisa, P.O. Box 41, 6700 AA Wageningen, The Netherlands

Realization of Africa's Potential for Food Production. Conference Synopsis. Technical Centre for Agricultural and Rural Cooperation (CTA), Ede. n.y. 25 p.

This publication is a summary report of a conference of ACP and European Community Ministers, held in Amsterdam, November 1985. The Conference explored practical ways to achieve food self-sufficiency. The discussions centred around papers on the following issues: food aid and agricultural policies; incentives through pricing and marketing policies; export crops and food crops; rapid production increase and sustainability; and agricultural research. The conclusions and recommendations are also included.

Requests to: see below.

Tropical Agriculture Information Sources. Volume 1, European Community. CTA, Ede, 1987, 181 p. ISBN 92-9081-002-5.

This practical directory consists of two sections. The first section contains descriptions of institutes in nine of the EEC countries (Luxembourg has no relevant information services and Spain and Portugal had *not joined the EEC when work began on this Directory: they will be included in subsequent editions).* These descriptions are listed alphabetically. The information given includes addresses, subject scope and details of the services available. The second section consists of four indexes to these descriptions: the information given in the first section is indexed according to the institutes' names, abbreviations, geographical coverage and subject scope. All information centres offering services to external users and which have more than 1000 volumes, or which subscribe to more than 100 periodicals, are listed.

This directory is intended to guide people who are seeking information in order to further the application of science and technology to agricultural development in ACP (ACP = Africa, the Caribbean and the Pacific) countries. Although the Technical Centre for Agricultural and Rural Cooperation (CTA) provides an information service there are clear advantages in encouraging people to seek information directly from appropriate sources. CTA intends this directory to be of particular benefit to agricultural and rural development workers in remote, rural areas who do not have access to library facilities; but it is likely that people working in universities and at research institutes in ACP states will also find it helpful.

A French version is also available. The publications are free of charge.

Requests to: Technical Division, CTA, P.O. Box 380, 6700 AJ Wageningen, The Netherlands.

Berichte XIII. Congress der IBG/Transactions XIII Congress of the ISSS/Comptes-rendus XIII[e] Congrès de l'AISS. Hamburg, 13-28.8.1986. 1-4 Volumes, 1986, 1801 p.; Volumes 5-6, 1987, 1173 p.

The first four volumes contain the texts of the plenary papers (vol. 1, 128 p.) and the extended summaries of all papers presented (vol. 2-4, 1673 p.). Volumes 5 and 6 contain the symposia papers.

The majority of the contributions is in English; papers in other languages also carry on English abstract.
Price: For all 6 volumes Dfl. 75.00 or US$ 40.00, including packing and postage.
Orders to: ISRIC, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

The Soil as a Reactor. Modelling Processes in the Soil. J. Richter. Catena Paperback. Catena Verlag, Gremlingen, 1987, 192 p. ISBN 3-923381-09-3.

In contrast to the artificial reactor of the chemical or civil engineer, the large semi-natural bodies of soils are non-renewable. It is vital to remember that soils are vulnerable, although or even because our western industrialized agriculture produces much more food on a smaller area than some ten years ago. However, whether we use soils properly by trying to get the highest profit through maximum yields seems very questionable. Some soil scientists have pleaded for soils to be regarded as partners of man or even as members of a real man-soil community, not as a mere 'production factor'.

Although agro-ecosystems seem to be much more stable and resilient than forest systems, one should keep in mind that possible theories to explain the Northern hemisphere phenomenon of 'Waldsterben' (moribund forest) were offered only after this malady had become apparent. The best way to anticipate future threats to these life-supporting systems seems to be to adopt the attitude of an ecologist trying to consider all the effects and possible side-effects of manipulating soils. Such an attitude would give preference to field observation over laboratory experimentation, to protection over exploitation (i.e. would discourage the further development of industrialized agriculture), to preservation over destruction, to closed recycling of nutrients over importing/exporting over large distances. So, although this attitude must also be based on knowledge, the methodology seems to be crucial.

The present book is primarily oriented on the aspects of methodology. Starting with the phenomena of the different components of the soils, it describes their physical parameter functions and the mathematical models for transport and transformation processes in the soil. To treat the processes operationally, simple simulation models for practical applications are included in each chapter.

After dealing in the principal sections of each chapter with heat conduction and the soil regimes of material components like gases, water and ions, simple models of the behaviour of nutrients, herbicides and heavy metals in the soil are presented. These show how modelling may help to solve problems of environmental protection. In the concluding chapter, the problem of modelling salt transport in heterogeneous soils is discussed.

This paperback is, with minor changes, a translation of the German text: Der Boden als Reaktor. Modelle für Prozesse im Boden. J. Richter. Ferdinand Enke Verlag, Stuttgart, 1986, 240 S. ISBN 3-432-95731-9, DM 28.–.
Price: US$ 24,00 or DM 38.50.
Orders to: In U.S.A. and Canada: Catena Verlag, P.O. Box 368, Lawrence, KS 66044, U.S.A. Elsewhere: Catena Verlag, Brockenblick 8, D-3302 Cremlingen, Fed. Rep. of Germany.

Soil Conservation and Productivity. Proceedings IV International Conference on Soil Conservation, Maracay, Venezuela 3-9 November 1985. I. Pla-Sentis, editor. Sociedad Venezolana de la Ciencia del Suelo, Maracay, 1987, xxxi + 1215 p. in 2 volumes.

At this conference the latest developments in soil and water conservation practices, while maintaining or increasing the productivity of the soil, were presented. The contributions reported on new advances in methodologies, practices and application of results of laboratory and field experiments, including policies, and technical, economic and social aspects.

Although there is a great diversity among the published papers, not only in subject matters but also in the scientific level or practical value of its contents, it was decided to include most of them because in a way they are representative of the orientation, nature, level and limitations of the studies, and practices in soil and water conservation, carried on in different parts of the world.

The organization of the papers in this book follows the themes of the different sessions: I. General concepts and objectives of soil conservation. Processes of soil erosion. Methods and instruments to study soil and water conservation problems. II. Survey and evaluation of soil degradation problems. Resource survey for planning soil and water conservation projects. III. Evaluation and prediction of soil water erosion risks. IV. Impacts of erosion and conservation measures on soil productivity. V. Evaluation of impacts and costs of soil conservation practices. VI. Indices and models to predict runoff and erosion. VII. Improved management systems and practices for soil and water conservation: Evaluation in large areas. VIII. Improved management systems for soil and water conservation: Evaluation in small plots. IX. Prediction and control of wind erosion.

In each theme, the contributed papers are preceded by the invited keynote addresses. Reviews from rapporteurs follow some of the themes. A general review of the Conference completes these Proceedings.
Price: US$ 35.00, including airmail postage.
Orders to: Soc. Venezolana de la Ciencia del Suelo, Apartado 1208 Las Acacias, Maracay, Venezuela.

Mineral Nutrition of Higher Plants. H. Marschner. Academic Press, London, Orlando, 1986, xii + 674 p. ISBN 0-12-473541-X (paperback), 0-12-473540-1 (hardback).

Mineral nutrients are essential for plant growth and development. Mineral nutrition of plants is thus an area of fundamental importance for both basic and applied science. Impressive progress has been made during the last decades in our understanding of the mechanisms of nutrient uptake and their functions in plant metabolism; at the same time, there have also been advances in increasing crop yields by the supply of mineral nutrients through fertilizer application.

It is the main aim of this textbook to present the principles of the mineral nutrition of plants. Although emphasis is placed on crop plants, examples are also presented from noncultivated plants including lower plants in cases where these examples are considered more suitable for demonstrating certain principles of mineral nutrition, either at a cellular level or as particular mechanisms of adaptation to adverse chemical soil conditions.

Plant nutrition as a subject is closely related to other disciplines such as soil science, plant physiology and biochemistry. In the present book, the author forms a link between these related disciplines on the one hand and environmental sciences on the other. In this book, mineral nutrients in soils are treated only to the extent considered necessary for an understanding of how plant roots acquire mineral nutrients from soils, or how roots modify the chemical soil properties at the soil-root-interface. Fundamental processes of plant physiology and biochemistry, such as photosynthesis and respiration, are treated mainly from the viewpoint of how, and to what extent, they are affected or regulated by mineral nutrients. Crop physiology is included as an area of fundamental practical importance for agriculture and horticulture, with particular reference to source-sink relationships as affected by mineral nutrients and phytohormones.

The book is divided into two parts: Nutritional physiology, and Soil-Plant relationships. In Part One, the main emphasis is placed on short and long distance transport of mineral elements, source-sink relationships and yield physiology, and on the functions of mineral elements including a chapter on the relationships between mineral nutrition and plant diseases and pests. In Part Two, the main topics are the acquisition of mineral nutrients from the soil by the roots and root/soil interactions such as the effects of soil on root growth and the modification of chemical soil properties by root and microbial activities. Particular attention is given to the genetic basis of plant mineral nutrition and to the possibilities and limitations of adaptation to adverse soil chemical conditions, especially in the tropics and subtropics.

Price: £ 22.50 or US$ 39.95 (paperback); £ 49.95 or US$ 89.50 (hardback).

Orders to: Academic Press, 24-28 Oval Road, London MW1 7DX, England; or: Academic Press, Orlando, FL 32887, U.S.A.

Soil Structure and Aggregate Stability. Conference Proceedings No. 13. P. Rengasamy, editor. Dept. of Agriculture and Rural Affairs, 1987, 120 p. ISBN 0-7306-0837-9 (this volume); ISSN 0816-7982 (series).

Soil degradation is a major problem in the world threatening the sustained crop production. Historically, all over the world, more land has been forced out of crop production because of soil degradation than the amount of land in crop production at the present time. It has been estimated that 4 to 7 million ha of the world's crop land is being taken out of production each year and the rate of degradation is accelerating. For example, in Australia, the poor soil structure of the hard-setting duplex soils is a major constraint in agricultural productivity and hence affecting the economy of the farming sector.

The formation of an aggregate by an intimate grouping of a number of primary soil particles into a secondary unit which is stable under agricultural operation is the most important phase of soil structure. Stable aggregate formation requires a cementation or binding together of flocculated soil colloids.

The papers in this publication are the result of a seminar on the subject of soil structure and aggregated stability, held in August 1986 in Tatura. They cover the physico-chemical basis for the structural problems in saline-sodic soils, the inorganic and organic agents in the formation of soil aggregates, clay-humic interactions as related to soil aggregate stability and the role of micromorphology in studies of soil structure. Although the papers do not include all of the aspects of the subject, especially the agronomy of soil structure, they should provide a basis upon which the potential for improvement in agricultural productivity through soil structural management can be evaluated.

Price: US$ 10.00 plus postage.

Orders to: The Director, Inst. for Irrigation and Salinity Research, Tatura, Vic 3616, Australia.

Proceedings Symposium Lowland Development in Indonesia, Jakarta, August 1986. ILRI, Wageningen, 1987, 198 p. ISBN 90-70754-07-X.

The Symposium and Exhibition on Lowland Development in Indonesia were held from 24 August to 3 September 1986 in Jakarta, Indonesia, to improve the knowledge of planning, design, and development of tidal lowlands and to strengthen the cooperation in these fields between Indonesian and Dutch organizations, universities, research institutes, and the private sector.

The symposium covered policy, history, long-term development, finance, education, and training. To prepare for the symposium, universities and institutes of both countries exchanged information and conducted research together. During the symposium, keynote lectures were delivered and the results of the joint research were discussed, both separately and in relation to each other, and experts contributed their specific knowledge with supporting papers.

The exhibition surveyed the past, present, and future of lowland development in Indonesia and The Netherlands, and the research done prior to the symposium.

To structure the symposium, the following themes were identified: I. Land and water management; II. Agricultural aspects; III. Socio-economic aspects; IV. Environmental aspects. In addition, two specific topics were placed on the agenda: Time perspective of the Musi Area; and Related Topics. Within these themes, actual problems and solutions were discussed, as were possible short-term and long-term developments. Attention was given not only to the independent aspects within the themes, but also to an integrated overall development of tidal lowlands.

The present proceedings contain the speeches delivered at the opening and closing ceremonies; the conclusions and recommendations; the keynote addresses; and the list of research papers and supporting papers.
Price: Dfl. 46.00, including postage. Prepayment required.
Orders to: ILRI, Publications Dept., P.O. Box 45, 6700 AA Wageningen, the Netherlands.

Plant Analysis. An Interpretation Manual. D.J. Reuter and J.B. Robinson, editors. Inkata Press, Melbourne and Sydney, 1986. vi + 218 p. ISBN 0-909605-41-6. In plastic dustcover.

The extent, variety, and severity of nutrient deficiencies for crops and pastures in Australian soils has provided a stimulating environment for productive research in plant nutrition for over fifty years. Yet, until recently, Australian researchers and advisors have shown little interest in the development of soil and plant analytical techniques as aids in the diagnosis of nutrient deficiencies in crop and pasture plants.

Perhaps the very severity of the deficiencies combined with the dramatic responses obtained by application of nutrients has focused attention on diagnosis by observation of symptoms and fertilizer response. Indeed, practiced observers working with specific crops in particular regions have had considerable success in using symptoms to diagnose nutrient deficiencies in acutely deficient crops. But increasingly workers have recognised the extent to which plant production may be limited by nutrients even when no symptoms appear. Increasingly too, they have recognised the need to monitor soils and crops for their nutrient status in order to prevent deficiencies developing.

This manual is a direct response to these perceived needs. It assembles carefully selected data for important Australian crops using information gained under Australian conditions wherever possible. Though biased towards Australian data, the manual should have a general appeal to workers in plant nutrition in all countries where the same crops are grown. Indeed, the inclusion of three chapters on general principles governing the collection of samples, the analysis of plant materials, and the interpretation of foliar analyses and symptoms makes a significant contribution to the literature in this field. These essays provide a clear statement of the physiological basis of foliar diagnosis which should enable workers to obtain the maximum value from their data. All interested in diagnosing nutrient deficiencies in crop and pasture plants will find the manual a most valuable document.
Price: US$ 45.00 plus $ 8.00 for postage.
Orders to: Inkata Press, 4 Longbourne Avenue, North Clayton, Vic. 3168, Australia.

Ravine Erosion in India. H.S. Sharma. Concept Publ. Comp., New Delhi, 1980, 96 p.

This book gives a picture of ravine and gully erosion in Central India, and measures to reclaim affected areas. The author indicates the importance of erosion associated with regional uplift, with overgrazing and with climate.
Price: Rs. 50.00.
Orders to: see below.

Land Utilization: Theory and Practice. R.B. Mandal. Concept Publ. Comp., New Delhi, 1982, 341 p.

This anthology of land utilization – theory and practice, highlights the basic concepts and methods of land use studies with special reference to factors, principles, approaches of study, land use models, carrying capacity of the land, land use classification, agricultural efficiency, remote sensing and airphoto interpretation, land conservation and resource measurement, land reforms, agricultural regions and land use planning. Most examples are taken from India.
Price: Rs. 125.00 or US$ 25.00.
Orders to: see below.

Soil Productivity and Crop Potentials. P. Mishra. Concept Publ. Comp., New Delhi, 1984, 274 p.

Agriculture being the mainstay of the Indian economy, it is important to make regional evaluations of agricultural productivity. A comprehensive understanding of the soil is considered to be a prerequisite for understanding of the actual productivity and establishing its potential. It is the aim of this publication to develop proper techniques to aid optimal utilization and management of the soils in a part of Rajasthan, India. It provides an account of past and present agricultural practices and cropping patterns, regional distribution of different soils, with their physical and chemical properties and soil productivity.
Price: Rs. 125.00, US$ 25.00.
Orders to: Concept Publ. Comp., H-13, Bali Nagar, New Delhi 110 015, India.

Mapa General de Suelos del Ecuador 1:1.000.000. L. Mejía Vallego. Memoria Explicativa del Mapa General de Suelos del Ecuador (36 p.). A. González Artieda, F. Maldonado Paredes, L. Mejía Vallego. Sociedad Ecuatoriana de la Ciencia del Suelo, Quito, 1986.

This new map has been prepared on the basis of Soil Taxonomy. It has 36 great groups, subdivided in 61 units on account of differences in climate and physiography. The map shows also 1:8.000.000 maps on geology, geomorphology, humidity and temperature. The explanatory text has information on the preparation and execution of the map and a short description of the orders, suborders and great groups distinguished on the map.

Orders to: Sociedad Ecuatoriana de la Ciencia del Suelo, Apartado no. 9012, Quito, Ecuador.

Surveying Derelict Land. Monographs on Soil and Resources Survey No. 13. E.M. Bridges. Oxford Science Publications. Clarendon Press, Oxford, 1987, viii + 137 p. ISBN 0-19-854566-5 (hardbound).

The landscape which surrounds us has been modified by successive generations, so our heritage is an amalgam of much that is fine and splendid, and also much that is unsightly and dangerous. Land in this second category, which has been spoiled by industrial activity and subsequently abandoned, perhaps because of changes in technology and world economic conditions that rendered processes and plant obsolete, is frequently described as derelict. It may have been contaminated by industrial processes and may now harbour wastes and toxic materials. This book is concerned with the survey of derelict and contaminated land as a stage in the process of land reclamation.

Building stone, gravel, sand, and cement are required for construction, and coal, oil, and gas are required to provide heat and electrical energy. Yet these resources all come from the earth and their extraction and the dumping of waste materials may ravage the countryside. Many countries now have strict regulations concerning mineral extraction and the dumping of waste; even so, some degradation is unavoidable.

Consequently, the extent of derelict and contaminated land continues to increase. Many countries are attempting to restore ravaged land for productive purposes, but in most cases more land is becoming derelict than is being restored. This well written and produced book provides a framework for surveying and assessing derelict land for possible re-use. It shows how official guidelines for acceptable levels of contamination in soils can be used to decide on the most effective treatment of the land, and summarizes the legal framework within which land restoration takes place in the United Kingdom.

Price: £ 35.00.

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

Album Gleb Polski (Album of Polish soils) Polskie Towarzystwo Gleboznawcze Eze, L. Krolikowski et al. Pantswowe Wydawnictwo Naukowe, 1986, 167 p. ISBN 83-01-00317-0.

This album contains 61 colour photographs of soil profiles and landscapes, and an introduction to Polish soils and their geography. A coloured soil map of Poland at 1:2 million with Polish and FAO terminology is enclosed. Most text is in Polish, but a translation into English of many words, facilitates its profitable use by non-Polish speaking soil scientists.

Price: US$ 40.00.

Orders to: DHN Ltd., P.O. Box 410, Miodowa 2, 00-950 Warszawa, Poland.

Global Aspects of Food Production. M.S. Swaminathan and S.K. Sinha, editors. International Rice Research Institute, Los Baños, and Tycooly International, Oxford, Riverton, 1986, xx + 449 p. ISBN 1-85148-009-9.

Recent times have borne witness to unprecedented problems of food supply and nutrition in both qualitative and quantitative terms.

It is therefore surprising to learn that the global food scenario reveals uncomfortable gluts of food grains and animal products in certain countries, and that the global surplus of food stocks reached nearly 300,000,000 tons by the end of 1985. The problems in the area of food scarcity and deprivation are both of a distributive and productive nature. Despite massive international aid, distribution remains a major problem both in terms of international transfers of food and agricultural know-how and primary resources, and also within the still inadequate economic systems of certain developing countries. Production of adequate food supplies in many developing countries is also a major problem, due to a lack of primary resources such as good land and fertilizers, lack of irrigation and many external environmental stresses and factors.

This book proposes that the world's nutrition, and especially the balance between areas of glut and areas of scarcity, could be resolved by the end of this century. The different chapters provide information relevant to an international agricultural system based on principles of ecology, efficiency and equity.

This book does not paint the dismal picture so characteristic of much writing about the global food situation, but instead a picture of hope which approaches the solution to food scarcity and deprivation with an optimism born of the authors' deep understanding of the underlying causes of dislocations in the food production and distribution chain.

Price: £ 19.95 paperback, £ 29.95 hardbound, plus postage.

Orders to: Cassell, Artillery House, Artillery Row, London SW1P 1RT, England; Taylor & Francis, 242 Cherry Street, Philadelphia, PA 19106-1906, U.S.A.; or: IRRI, P.O. Box 933, Manila, Philippines.

Soil Description. E.A. FitzPatrick, University of Aberdeen, 1986, 107 p.

There are a number of comprehensive and informative books concerned with the field description and mapping of soils that have been produced for the advanced student or professional soil scientist. The present one is intended as an introduction for undergraduate students, and workers who require only simple description of soils may also find it useful.

The description of a soil requires both the description of the soil itself as well as the site and environmental features that have contributed towards its formation. Therefore it is usually a long and fairly tedious process but all of the steps and data are required if the description is going to be fully informative.

The investigation of the soil in the field requires: 1. The examination of specially chosen soil pedo-units to illustrate and develop the concept of soil; 2. Simple mapping exercises to illustrate various types of soil variability; 3. A series of excursions to demonstrate the effect of variations in parent material, climate, vegetation topography and time on soils.

The publication gives information on choosing the site; the description of the site factors; and on digging the soil pit and describing the soil pedo-unit.

Price: £ 5.00.

Orders to: Department of Soil Science, University of Aberdeen, Meston Walk, Aberdeen, AB9 2UE, Scotland, U.K.

Soil Organic Matter. Biological and Ecological Effects. R.L. Tate III. John Wiley & Sons, New York, Chichester, 1987, xii + 291 p. ISBN 0-471-81570-5. Hardbound.

The importance of soil organic matter in the total ecosystem has long been recognized, yet it is the chemical aspects that have always been stressed. This is an exploration of soil organic matter to examine its function and behavior in the ecosystem with an emphasis on its biological characteristics. It provides a comprehensive survey of this essential soil component.

Each chapter starts with an introduction to the subject and builds to a state-of-the-art analysis. Specific ecosystems, such as forests, grasslands, agricultural soils, and organic soils are discussed, and basic biological properties, including soil enzymes, humification, and lignin, are examined.

Major topics include: a study of the nature and source of soil organic matter; important reactions in major ecosystems; biological mediators of soil organic matter transformation; major reactions of soil organic matter in soil; the impact of organic matter reactions on nutrient cycling, soil structure, and trace metal mobility; current environmental pollution and management problems.

Concern for soil organic matter is developing in many areas after years of neglect and ill-treatment. The present book will assist in the promulgation and evaluation of current knowledge and provide directions for future land use, ecosystem management, and reclamation plans.

Price: £ 40.90.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England; or: John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Abstracts on Intercropping. Volume 5, 1986. J. Carls, editor. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, 1987, 224 p.

One of the major activities of the GTZ Project on Intercropping is to make available informations on intercropping and relevant subjects, e.g. traditional farming systems, agroforestry and farming systems research, to rural development projects of the GTZ and to other interested institutions.

To start with a state-of-knowledge report on intercropping was prepared in the years 1980-82 (Intercropping in Tropical Smallholder Agriculture with Special Reference to West Africa, by K.G. Steiner, GTZ-Schriftenreihe 137, 2nd edition, GTZ, Eschborn, 1984, see elsewhere in this bulletin) where the available literature and other additional informations on intercropping, with focus on West Africa, were reviewed.

The collection of literature became the basis of a computerized documentation service that started by the end of 1983 to supply projects with abstracts. The ultimate goal is the establishment of a comprehensive documentation on intercropping and related subjects, not only the latest publications are collected but also older papers that are still of interest. The documentation comprises by now more than 1100 publications and has thus become a valuable collection.

The abstracts are divided into different sections, which are listed on the first page of each issue. Within each section abstracts are ordered alphabetically by author's names. The subject index, based on the keywords, and the crop and geographical indices provide a means of rapidly locating abstracts on specific topics. As there are many cross references, due to the nature of intercropping, the same abstract appears under different subjects.

The present volume comprises abstracts of literature collected throughout 1986. Unfortunately, this worthwhile project expired in 1986. However, GTZ has the intention to keep the documentation available for users.

Requests to: GTZ, Datenerfassung und Auswertung, Postfach 5180, D-6236 Eschborn 1, Fed. Rep. of Germany.

Agricultural Environments. Characterization, classification and mapping. A.H. Bunting, editor. CAB International, Wallingford, 1987, 335 p. ISBN 0-85198-582-3. Hardbound.

This book contains the papers presented at the workshop on the characterization, classification and mapping of agricultural environments which was held in Rome, April 1986. It was organised by the International Agricultural Research Centres of the Consultative Group on International Agricultural Research (CGIAR).

The international centres conduct research on twenty important food crops which together account for 70 percent of the total food consumed in developing countries. The centres need to be able to describe the environments in which they conduct research, and in which the results of their research are intended to be used. For this they need information about climate and weather, terrain and soils, hydrology and living organisms, which affect the production of food crops and livestock. This information is gathered by the individual nations with which the centres cooperate. The nations themselves use it to guide the use of national resources for development, particularly in agriculture and forestry, including the production of many other commodities in addition to those on which the centres work. Primary data on weather and soils are often collected by national institutions, which may be separate from agricultural research.

Because they need quantitative information on environmental factors that determine the distribution of crops, and influence their productivity, most of the centres have undertaken at least some agro-ecological studies. But the approaches they have adopted vary, and the methods used range from informal surveys to advanced computer-based compilation and analysis of data. Clearly there would be advantages if some of the work could be shared among the centres. One of the main purposes of the workshop was therefore to promote an exchange of ideas among the centres, the developing nations with whom they cooperate, and other national and international agencies concerned with the characterization of agricultural environments, on ways to develop closer collaboration in the collection and sharing of data, and in using data for the planning, monitoring and interpretation of agricultural research.

This book provides a comprehensive summary of current developments in the characterization and classification of agricultural environments and their application to practical problems in agricultural research and development. Included is a world map with main climatic and soil regions at a scale of 1:25 million, prepared by FAO.

Price: £ 56.00 in U.K.; £ 62.00 elsewhere.

Orders to: CAB International, P.O. Box 100, Wallingford, Oxon OX10 8DF, England.

Remote Sensing. Principles and Interpretation. Second ed. F.F. Sabins, Jr. W.H. Freeman & Comp., New York, 1987, x + 449 p. ISBN 0-7167-1793-X. Hardbound.

When the first edition of this book went to press in 1977, the basic framework of the science of remote sensing had been established: images were acquired by aircraft in all regions of the electromagnetic spectrum; the Landsat Multispectral Scanner System acquired satellite images of moderate spatial resolution in the visible and reflected IR spectral regions; and digital processing of image data was available. In the nine years since 1977 many new airborne and spaceborne systems have been deployed.

These new systems provide images with improved spectral and spatial resolution. The deployment of thermal IR, radar, and high-resolution cameras on satellites has increased coverage to encompass the entire world. The use of digital image processing systems is becoming commonplace, and many new programs are available. A major goal of this second edition is to communicate these developments. They have been incorporated in the text of the first edition. Added are a chapter on land use and land cover analysis, and examples into all chapters. The text has over 600 images and diagrams, there are 42 colour images.

The text remains sufficiently concise to be covered in a single semester or quarter at the upper-division or graduate level. The book should also be useful for short courses and as a reference for workers in the remote sensing field. No previous training in remote sensing is required. Courses in introductory physics, physical geography, and physical geology would provide useful, but not essential, background for users of this book.

Price: £ 47.95.

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

Bibliography Drip/Trickle Irrigation (Supplement). AES Publ. 84-13. M.R. Goyal and L.E. Rivera. College of Engineers and Surveyors of Puerto Rico, San Juan, 1985, 52 p.

This bibliography contains over 400 references to English publications in the field of drip irrigation. An author and subject index facilitates the retrieval of pertinent publications.

This bibliography is a supplement to Bibliography – Drip/Trickle Irrigation by M.R. Goyal, Special Publication 1175 of Agricultural Experiment Station, Univ. of Puerto Rico, and NAPA Tech. Bull. 3 of the National Agricultural Plastics Association in Manchester, U.S.A., published in 1981. This volume contains about 1000 entries.

Price: US$ 6.00 plus $ 1.25 for postage outside the U.S.A. The 1981 publication is priced at $ 5.00; prepayment required.

Orders to: College of Engineers and Surveyors of Puerto Rico, G.P.O. Box 3845, San Juan, Puerto Rico 00936-3845, U.S.A.

For the 1981 publication: Mr. C. Hoefer, NAPA, P.O. Box 767, Manchester, MO 63011, U.S.A.

Land Evaluation. C. Sys. Algemeen Bestuur van de Ontwikkelingssamenwerking/Administration Générale de la Coopération du Développement, Bruxelles, 1985, 352 p., in 3 parts.

This text is prepared by Prof. C. Sys of the International Training Centre for Post-graduate Soil Scientists (ITC) of the State University of Ghent, Belgium. It contains chapters on all aspects to be considered in land evaluation, e.g. land utilization types, land qualities and land characteristics (part I), methods in land evaluation (part II), and crop requirements for climate and soil. This useful introduction is available free of charge.

Requests to: ABOS, Marsveldplein 5, bus 57, B-1050 Brussel, Belgium.

Micromorphological publications collected by Dr.Ir. A. Jongerius. Stiboka Report 1982. J.G.C. van Yegeren, D. Schoonderbeek, G. Naber and M.J. Kooistra. Stiboka, Wageningen, 1987, 276 p. ISBN 90-327-0225-4.

In the past 25 years a large collection of micromorphological literature was put together by Dr. Jongerius (†) at the Department of Soil Structure and Micromorphology of the Netherlands Soil Survey Institute. This collection consists of many recent micromorphological publications, some early ones, and a number of rare and out-of-print publications.

Micromorphology covers many disciplines, mainly concentrated in soil science and related sciences, but also in biology and archaeology. Also, the subject of the study within one discipline can vary largely and be focussed on for instance chemical compositions, biological activity, or porosity analysis for physical determinations. Consequently, micromorphological literature is published in a wide range of journals and series and is not easy to trace. To increase the accessibility of the collection, the 1500 titles combined in this bibliography have been classified. It incorporates all the literature written by Dr. Jongerius.

The bibliography is bilingual (Dutch and English). Thus, a contribution is made towards a collection of micromorphological bibliographies, which is an initiative of Subcommission B, Soil Micromorphology, of the International Society of Soil Science.

All the references in this bibliography can be made available in photocopy, against a nominal fee.

Price: Dfl. 25.00, including postage.

Orders to: Stiboka, P.O. Box 98, 6700 AB Wageningen, The Netherlands.

Proceedings of a Symposium on Low Activity Clay (LAC) Soils. Las Vegas, November No. 14. Soil Management Support Services, Washington, 1986, 131 p.

Since in 1975 Soil Taxonomy was published, many comments were made on its application, particularly in the intertropical areas. Within the framework of the International Committee on Low Activity Clays (ICOMLAC), headed by Prof. Frank Moormann, discussions took place on this group of soils and in 1983 a draft proposal on their classification was developed. In November 1984 a symposium was held to present the proposal to a wider audience and to determine the state-of-the-knowledge of the LAC soils. The papers presented at this workshop are included in the present monograph.

Orders to: Dr. Hari Eswaran, Program Leader, SMSS, P.O. Box 2890, Washington, DC 20523, U.S.A.

The Properties and Management of Vertisols. M.E. Probert, I.F. Fergus, et. al. CAB International and IBSRAM. CAB International, Wallingford, 1987, 36-p. ISBN 0-85198-601-3.

Although Vertisols cover a small part of the world's surface, they are important in semi-arid agriculture because in this environment they are among the most productive soils. In some parts of the world they have been cropped for centuries, perhaps for over 1000 years in parts of India. That they are capable of sustained, but low, production over long periods indicates their stability under extensive use rather than a high degree of fertility, but there has been a cost in terms of severe erosion. They pose special problems for the cultivation of crops, so much so that their potential production is seldom attained.

The present publication discusses the occurrence and distribution of Vertisols; their characteristic properties, e.g. water relations, surface structure, organic matter and nutrient status; and their management systems. The useful bibliography contains over 260 references.

Orders to: CAB International, P.O. Box 100, Wallingford, Oxon OX10 8DF, England.

Laterites. Some aspects of current research. Zeitschrift für Geomorphologie, Supplementband 64. M.J. McFarlane, editor. Gebrüder Borntraeger, Berlin and Stuttgart, 1987, 180. ISBN 3-443-21064-3 (this volume). ISSN 0044-2798 (series).

This volume contains the Proceedings of the Laterite Workshop, First International Geomorphological Conference, Manchester, 1985. The papers illustrate not only the interdisciplinary approach to the study of laterites, but also the pattern of information exchange which characterized the later stages of the International Geological Correlation Programme IGCP-129, Lateritisation Processes. This interdisciplinary project ran for eight years, terminating in 1984, and is concerned with aspects of the geology, geochemistry and geomorphology of laterites and their fabric and engineering behaviour. All contributions are followed by the discussions.

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

Publications from the International Board for Soil Research and Management (IBSRAM).

Management of Acid Tropical Soils for Sustainable Agriculture (IBSRAM Proceedings no. 2). Proceedings of an IBSRAM inaugural workshop held in Yurimaguas, Peru and Brasilia, Brazil, 1985, 299 p. (US$ 15.00).

This is the first volume of papers on the management of acid tropical soils, and is intended to give a wide-ranging view of the situation in various parts of the world. Part I gives a review of regional problems in Southeast Asia, Africa, and Latin America; and Part II gives an account of the soil problems involved in increasing the productivity of acid tropical soils, and also considers socio-economics, transfer-of-technology, and donor agency issues. The volume concludes with a rationale for IBSRAM networking arrangements and a report of working group resolutions.

Tropical Land Clearing for Sustainable Agriculture (IBSRAM Proceedings no. 3). Proceedings of an IBSRAM inaugural workshop held in Bangkok, Thailand, 1985, 226 p. (US$ 15.00).

These proceedings start with the basic concepts of land clearing and agricultural development in the tropics. The papers include contributions on the reclamation of degraded lands and development on volcanic ash soils and specific examples of clearing and development in a series of case studies from Indonesia, Malaysia, Papua New Guinea, Peru, Nigeria, and Latin America. The recommendations and conclusions of the participants at this inaugural workshop are also included.

Land Development and Management of Acid Soils in Africa / Défrichement – Mise en Valeur des Sols Acides (IBSRAM Proceedings no. 4). Proceedings of the IBSRAM Session of the First Regional Seminar on Lateritic Soils, Materials and Ores, held in Douala, Cameroon, 1986, 183 p. (US$ 10.00).

These proceedings contain papers on land clearing and the management of acid tropical soils, but with special reference in this volume to the situation in Africa. There is an introductory paper on IBSRAM's role in implementing network projects on these topics, followed by site selection (2 papers), various aspects of site characterization (8 papers), and the adaptation of experimental designs to site characteristics (2 papers). Papers are partly in English, partly in French, and translations of the abstracts and resumés of all the papers are provided. Appendices include the resolutions of the IBSRAM session and guidelines for the project proposals of the national cooperators.

Soil Management under Humid Conditions in Asia (ASIALAND) (IBSRAM Proceedings no. 5). Proceedings of the First Regional Seminar on Soil Management under Humid Conditions in Asia and the Pacific, held in Khon Kaen and Phitsanulok, 1986, 466 p. (US$ 15.00).

Part I of these proceedings surveys IBSRAM's actual and potential role in crop and soil management research in Asia. There are sections on site selection, site characterization, the chemical and physical problems of Asian soils (acidity, upland soils, erosion), in addition to papers on cropping systems and the design of experiments. A total of 27 papers are presented in this volume, and the seminar resolutions are also included.

Management of Vertisols under Semi-Arid Conditions (IBSRAM Proceedings no. 6). Proceedings of the First Regional Seminar on the Management of Vertisols under Semi-Arid Conditions, held in Nairobi, Kenya, 1986, 344 p. (US$ 15.00).

The 24 papers in this volume address the special problems involved in using Vertisols for maximum agricultural production in various semi-arid areas of the world, mostly with reference to Africa, Australia and India. The seminar programme provided papers on the IBSRAM network approach, site selection, site characterization, management systems, considerations of soil variability, fertilizer management and irrigation, and on the sustainability of improved systems. The appendices include both the working group reports and the seminar resolutions.

Land Development and Management of Acid Soils in Humid Africa. Report of the Second Regional Workshop, held in Lusaka and Kasama, Zambia, 1987, 36 p. (free of charge).

This is the latest in a series of reports which describe in summary form the activities of various seminars and workshops organized by IBSRAM since the beginning of 1985. These reports include brief accounts of network project proposals, working group recommendations, and final conclusions regarding network formation.

IBSRAM Highlights, 1986 (free of charge).

This booklet describes some of the main events in IBSRAM's activities during 1986, and outlines the important features of IBSRAM's approach to soil management and to network cooperation.

Prices: see above. Prepayment required.

Orders to: IBSRAM, P.O. Box 9-109, Bangkhen, Bangkok 10900, Thailand.

Loess and Environment. Catena Supplement 9. M. Pécsi, editor. Catena Verlag, Cremlingen, 1987, 144 p. ISBN 3-923381-08-5 (this volume); ISSN 0722-0723 (series).

This volume contains selected papers published on the occasion of the 12th International Congress of INQUA, held in Ottawa, 1987, and pays tribute to Prof. H. Rohdenburg, founder of the journal Catena, who suddenly died recently. There are several recent developments, scientific and practical demands which underline the need for a comprehensive approach to loess research. It should be emphasized that fertile soils formed during the Holocene on loess and other loose materials accumulated under the different Pleistocene environments; 80 percent of world corn output is harvested from these soils. At the same time, the cultivation of loess regions easily leads to the erosion of the soil and the porous sediment; under technical establishments collapse occasionally occurs, along with compaction and landslides. For this latter reason, the design and foundation of constructions necessitate special care and involves extra costs. The characteristic properties, structure and material composition, and origin of loess, the overlying soils and the intercalated paleosols between loess horizons, fossil plants, animals and early man remains, their dating, paleoenvironments and, last but not least, the problems of providing the buildings on loess terrain with safe foundations are all important issues studied by a host of experts in various disciplines.

A forum to such interdisciplinary topics is provided in this volume, where the papers published present some recent methods in loess research for various purposes, the results of instrumented analyses, laboratory and field experiments and the application of the achievements in local studies and also in regional or continental comparison.

Price: US$ 75.00 or DM 120.00.

Orders to: In U.S.A. and Canada: Catena Verlag, P.O. Box 368, Lawrence, KS 66044, U.S.A.; elsewhere: Catena Verlag, Brockenblick 8, D-3302 Cremlingen, Fed. Rep. of Germany.

Plant Analysis as a Guide to the Nutrient Requirements of Temperate and Tropical Crops. P. Martin-Prével, J. Gagnard and P. Gautier. Lavoisier Publ., New York, 1987, xx + 722 p. ISBN 2-85206-3640-6. Translated from French by M.R.J. Holmes.

This extensive work, composed of contributions by twenty-seven specialists, consists essentially of two parts. A general part deals with the history of plant analysis, with plant nutrition, causes of variation in plant and leaf composition, relations between plant composition and environment, sampling, storage and pretreatment, reference analytical procedures for the major and a number of minor elements (N, P, K, Na, Ca, Mg, Fe, Mn, Zn, Cu) as well as the interpretation of analytical results. The second part contains individual chapters on the analysis of over forty different crops of both temperate and tropical climates. The chapters give a full account of the relevant information such as an introduction, choice of sample, date of sampling, sampling procedure and sample treatment, interpretation of data, conclusions and references. Some examples of the crops are: apple, pear, peach, olive, avocado, coconut, coffee, cacao, rubber, forest species, cotton, rice.

This comprehensive book will be welcomed by any worker involved in plant nutrition and soil and the relationship with the elemental composition of plants.

Price: FF 665.00 or US$ 112.00. If prepaid no charge for surface mail.

Orders to: Technique et Documentation, 11, rue Lavoisier, F-75384 Paris Cedex 08, France; or: Lavoisier Publ., 175 Fifth Avenue, New York, NY 10010, U.S.A.

L.P. van Reeuwijk, Wageningen, The Netherlands.

New Journals/Nouveaux Périodiques/Neue Zeitschrifte

Trends in Ecology and Evolution. A. Sugden, editor. Elsevier Science Publishers, Amsterdam, New York. ISSN 0169-5347.

This new journal contains polished, concise and readable reviews, commentaries, discussions and letters, thus serving as an invaluable source of information for researchers, lecturers, teachers, field workers and students. Unique features are: a blend of reviews, comment, hypothesis, discussion and news aimed at researchers, lecturers and advanced students; wide ranging coverage of significant advances in all research relevant to the ecology/evolution theme; authoritative treatment of areas of interaction between national and international legislation and ecological policy; a forum for all concerned with the integrated study of biology of all organisms and their environments.

Subscription price: (1987) library edition in U.K., Europe, U.S.A. and Canada Dfl. 435.00; elsewhere Dfl. 455.00. Personal edition U.K. £ 26.00; U.S.A. and Canada US $ 46.00; Europe Dfl. 122.00; Japan Yen 14.300; elsehwere Dfl. 135.00.

Orders to: see below.

Journal of Contaminant Hydrology. R. W. Gilham, G. Matthess, P. L. McCarty and P. S. C. Rao, editors. Elsevier Science Publishers, Amsterdam, New York. ISBN 0168-1656.

Publishing scientific articles pertaining to the contamination of groundwater, thus providing a commom forum for all scientists involved in investigations on groundwater contamination. Emphasis is on investigations of the physical, chemical and biological processes influencing the behaviour of organic and inorganic contaminants in the unsaturated and the saturated zone. Coverage includes: experimental investigations of contaminant sorption, diffusion, transformation, volatilization, and transport in the unsaturated and saturated zones; characterization of soil and aquifer properties only as they influence contaminant behaviour; development and testing of mathematical models of contaminant behaviour; innovative techniques for restoration of contaminated sites; and development of new tools or techniques for monitoring the extent of soil and groundwater contamination.

Subscription price: (1987) Dfl. 270.00.

Orders to: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, The Netherlands; or to: Elsevier Science Publishers, P.O. Box 1663, Grand Central Station, New York, NY 10163, U.S.A.

Beiträge zur tropischen Landwirtschaft und Veterinärmedizin. G. Franke, Chefredakteur. Karl-Marx-Universität, Leipzig, GRD. ISSN 0301-567X.

This quarterly journal is already in its 25 year of publication. It contains articles on tropical agriculture and husbandry, and a relatively large proportion is on soil science. Articles are in English, German, French or Spanish and carry abstracts in these languages and Russian.

Subscription price: DM 20.00 plus postage.

Orders to: Buchexport-Volkseigener Aussenhandelsbetrieb der DDR, Leninstrasse 16, 7010 Leipzig, German Democratic Republic.

International Analyst. R. Macrae, editor. Maclaren Publ. Ltd., Croydon. ISSN 0951-3051. Monthly.

This new monthly journal addresses the everyday problems facing the analyst and the laboratory manager. The journal will cover a wide range of material, with emphasis on: (1) review of methods and techniques; (2) short, orginal papers and technical notes, illustrating the application of analytical methods in a field of general interest; (3) information on instrumentation, including products news and user surveys; (4) validation of analytical data; (5) company profiles; (6) conferences and other events. Distributed free of charge on controlled circulation. For non-qualifying readers, subscriptions £ 25 in the U.K., £ 40 elsewhere.

Requests and orders to: International Analyst, P.O. Box 109, Croydon CR9 1QH, England.

Environmental Geochemistry and Health (Incorporating Minerals and the Environment). B. E. Davis, editor. Science and Technology Letters, Kew. ISSN 0142-7245. Quarterly.

This journal, incorporating Minerals and the Environment, represents a new development in scientific communications. Accompanying the growth of the subject it has evolved from a journal devoted to the environmental effects of mining operations to become an international forum concerned with the consequences of inorganic components of soil, air and water on epidemiology and public health. It is therefore of interest to a large international community of scientists, physicans and engineers.

Since 1979 Minerals and the Environment has been the internationally recognised forum for the discussion and review of results and theories involved in the interface between mining operations and the surrounding environment. Increasing recognition that the inorganic components of soil, air and water may have an important effect on animal (including human) health – irrespective of whether they came to be present naturally or as a result of the exploitation of natural resources, was reflected in papers published. This change in emphasis is now reflected in a change of title.

The journal provides a forum for publishing both individual and integrated studies in this rapidly developing multi-disciplinary field. Papers will be considered if they contain original research from any discipline which contributes to a better understanding of how the chemical composition of rock, soil, natural waters

or air affects the growth and health of plants and animals, including man. Contributions which demonstrate a direct link between environmental geochemistry and health will be especially welcome. This quarterly is the official journal of the Society for Environmental Geochemistry and Health.
Subscription price: £ 46.00 or US$ 92.00; £ 25.00 or US$ 38.00 for individuals.
Orders to: Science and Technology Letters, 12 Clarence Road, Kew, Surrey TW9 3NL, England; or; Science Reviews Inc., 707 Foulk Road, Suite 102, Wilmington, DE 19803, U.S.A.

Journal of Rural Studies. Quarterly. P. J. Cloke, editor-in-chief. Pergamon Press, Oxford, New York.

The Journal focuses on those areas encompassing extensive land-use, with small-scale and diffuse settlement patterns and communities linked into the surrounding landscape and milieux. Particular emphasis is given to aspect of planning, policy and management, and the journal is international and interdisciplinary in scope and content. It publishes up-to-date research from a wide range of multidisciplinary interests, including geography, economics, sociology, demography, agriculture and planning. This interdisciplinary approach is completed by comparative analysis in order to provide cross-national and region perspectives. From time to time, short communications, book reviews, a calendar of events, and conference reports are also published.
Subscription price: (1987) DM 345.00, two-year rate DM 655.50.
Orders to: Pergamon Press, Fairview Park, Elmsford, NY 10523, U.S.A.; or to: Pergamon Press, Headington Hill Hall, Oxford, OX3 OBW, England.

Remote Sensing of Environment. An Interdisciplinary Journal. M. E. Bauer, editor-in-chief. Elsevier Science Publ. Comp., New York. ISSN 0034-4257.

This journal will as of 1987 be published in three instead of two volumes. The increased coverage includes more information on atmosphere effects, canopy radiation modelling, estimation of evapotranspiration and soil moisture, Landsat Thematic Mapper data analyses, microwave backscattering, and vegetation spectral responses. In 1987 three special issues will appear.
Subscription price: (1987) US$ 348.00, postage outside the U.S.A. US$ 22.00.
Orders to: in North America: Elsevier Science Publ. Comp., P.O. Box 1663, Grand Central Station, New York 10163–1663, U.S.A. Elsewhere: Elsevier Science Publ., P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

Soil Survey and Land Evaluation. D. Dent and A. Young, editors. Geo-Abstracts, Norwich. ISSN 0206-9088.

This well-established journal is doubling in size in 1987 to about 200 pages, still with three issues per year. First published in 1981, the original reasons for the journal remain: field survey can be an isolated activity. Many professionals spend long periods out of touch with colleagues. They belong to many different organizations and contacts between these are not always as close as they could usefully be; there is a broad spectrum of activities, commencing with identification of a planning or management problem concerned with the land, continuing through surveys and land evaluation; and applications in the development of a land use or management plan, design of engineering works, land settlement schemes and in many other ways. There is a real need for specialists in these different fields to communicate and learn from each other; and this is a time for rapid developments in methods of survey, evaluation and planning, and the journal is the only place where publications in this diverse field are gathered together.

The journal includes substantive papers, state-of-the-art reviews, technical notes, country reports, letters, selected book reviews, and occasional editorials. These are by no means limited to soil survey. Papers relevant to any aspect of resource surveys and land use planning are welcomed.
Subscription price: (1987) £ 20.00 within the EEC, £ 22 elsewhere. Individual members of subscribing institutions and ISSS members have a 25% discount.
Orders to: Geo-Abstracts Ltd., 34 Duke Street, Norwich NR3 3AP, England.

Natural Hazards. An International Journal of Hazards Research and Prevention. Editors: M. I. El-Sabh, G. Schneider and Y. Fujinawa. D. Reidel Publ. Comp., Dordrecht.

This new journal, the first issue of which will appear in 1988, is devoted to research work on the physical aspects of natural hazards, the statistics of forecasting catastrophic events, risk assessment, and the nature of precursors of natural and/or technological hazards.

Although hazards can originate from different sources and systems (atmospheric, hydrologic, oceanographic, volcanologic, seismic, neotectonic), the environmental impacts are equally catastrophic. This circumstance warrants a tight interaction between the different scientific and operational disciplines, which should enhance the mitigation of hazards.

Hazards of interest to the journal are included in the following sections: General; Atmospheric, Climatological; Oceanographic, Storm Surges; Tsunamis; Floods; Snow Avalanches; Landslides; Erosion; Earthquakes, Volcanoes; Man-made, Technological; Risk Assessment.

Emphasis is on both analytical and statistical technique, and case studies. Occasional state-of-the-art reviews will be welcomed. Additional features include: record of recent hazards, letters to the editors, calendar of events, and 'Hazards Forum', in which latter section policy makers invited to contribute on social and political aspects of natural hazards.
For more information contact: D. Reidel Publ. Comp., P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

New Forests, An International Journal. Biology, Biotechnology, and Management of Afforestation and Reforestration. M. L. Duryea, editor-in-chief. Martinus Nijhoff Publishers, Dordrecht.

This new quarterly journal publishes papers dealing with fundamental and applied aspects of afforestation and reforestation for an audience comprising forest scientists, foresters, nursery managers, conservationists, and students in temperate and tropical countries. Emphasis is placed on papers presenting the results of original research or the development of a theory of technique, although occasional reviews on important topics are also welcome. Papers focus on such subjects as the physiology, genetics, ecology, economics, protection, and management of the six states of afforestation and reforestation: propagation methods: sexual and asexual; nursery cultural practices; handling, planting, and stock quality; matching stock types, species, and seed sources to sites; site preparation; early stand growth and development.
Subscription price: (1987) Dfl. 216.00 for institutions; individual rate upon request.
Orders to: In U.S.A. and Canada: Kluwer Academic Publ. Group, 101 Philip Drive, Norwell, MA 02061, U.S.A.; U.K., Ireland and Middle East: Falcon House, Queen Square, Lancaster, LA1 1RN, England; elsewhere: P.O. Box 322, 3300 AH Dordrecht, The Netherlands.

Stygologia. International Journal of General and Applied Groundwater Research. J. H. Stock and L. Botosaneanu, editors, E. J. Brill, Leiden. Quarterly.

This journal presents results of all kinds of studies devoted to subterranean waters, irrespective whether of continental or marine origin. Cave and other karst waters, phreatic waters and their outlets in porous substrates, hyporheal and marine interstitial waters, as well as new developments in processing such water resources, fall within the scope of the journal.

It aims at being a focal point for scientists of different disciplines, both biological (e.g. microbiology, physiology, ecology, marine biology, limnology, population dynamics, taxonomy, evolution theory) and non-biological (karstology, speleology, hydrogeology, hydrology, hydrochemistry).

Descriptive and experimental results, which are essentially new and not published elsewhere, as well as review articles, will be considered for publication. Applied studies will be considered if general principles are elucidated and/or basic biological and other scientific results are used for applied purposes.
Subscription price: (1987) Dfl. 196.00 or about US$ 100.00, incl. postage.
Orders to: E. J. Brill, P.O. Box 9000, 2300 PA Leiden, The Netherlands.

Geoarchaeology. An International Journal. J. Donahue, editor-in-chief. John Wiley & Sons, New York. Quarterly.

This is the only international journal devoted exclusively to illuminating the methodological and theoretical relationships between archaeology and the earth science. It focused on the application of the geological sciences as a means of extending our knowledge of archaeological materials and publishes: original research report on the environmental setting of archaeological sites and materials analysis of artifacts; general syntheses that discuss broader aspects of archaeology; and methods papers that describe new techniques and equipment.

Additionally, this quarterly journal publishes any research, review or technical paper that promotes a deeper understanding of the interconnections between archaeology and the earth sciences.
Subscription prorice: (1987) US$ 96.00.
Orders to: John Wiley & Sons, Subscription Dept., 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Applied Clay Science. F. J. Eckardt, J. G. Gillott and R. Kühnel, editors. Elsevier Science Publishers, Amsterdam, New York. ISSN 0169-1317.

This is an international publication medium for research papers, reviews and short communications in the field of applied clay science in a broad sense. The scope includes: clay product preparation; chemical, mineralogical, geochemical and geophysical properties of clay minerals; the role of clays and clay minerals as process aids; and geotechnical, agricultural and environmental applications of clay science.
Subscription price: (1986/87) Dfl. 240.00.
Orders to: Elsevier Science Publishers P.O. Box 211, 1000 AE Amsterdam, the Netherlands; or to: Elsevier Science Publishers, Journal Information Center, 52 Vanderbilt Avenue, New York, NY 10017, U.S.A.

Textures and Microstructure. H. J. Bunge, editor. Gordon and Breach Science Publishers, New York, London. ISSN 0730-3300. Quarterly.

This international, multidisciplinary journal aims to provide a medium of communication for materials scientists, metallurgists, mineralogists, geologists, crystallographers and engineers of various disciplines who have an interest in the textures and microstructures of crystalline solids of metals, ceramics, soils and ice. The journal publishes papers and short communications on original research that contribute to the understanding of texture and microstructure development, and of anisotropic properties of crystalline solids related to preferred orientation, the interrelationship between textures and technological applications of materials, as well as between textures and geological processes. In addition to research papers, the journal includes solicited and unsolicited comments on published works and reviews.
Subscription price: (1987) US$ 412.00 (corporate); $ 254.00 (university); $ 126.00 (individual).
Orders to: Gordon and Breach Science Publishers, P.O. Box 786 Cooper Station, New York, NY 10276, U.S.A.; or; P.O. Box 197, London WC2E 9PX, England.

Hydrological Processes. An International Journal. M. G. Anderson, editor. John Wiley & Sons, Chichester.

This new international journal is devoted to the rapid publication of scientific and technical papers on hydrology. The essential thrust of the journal will be towards environmental hydrology. Field processes and their modelling and forecasting will be emphasised. Original research papers on physical, chemical and mathematical hydrology will be included, together with review articles and short communications.

Topics reported will be on: evapotranspiration; field instrumentation (both hillslope and channel); runoff processes; catchment and watershed experiments; catchment modelling (both statistical and mathematical); water quality and water chemistry; snow and ice hydrology; arid and semi-arid hydrology; erosion and sediment yield; solute transport in the unsaturated zone; and groundwater.

Subscription price: £ 65.00 in U.K., elsewhere US$ 110.00.

Orders to: Dept. DW/HYP, John Wiley & Sons, Journal Department, Baffins Lane, Chichester, Sussex PO19 1UD, England; or: Dept. 'C', John Wiley & Sons, 605 Third Avenue, New York, NY 10158, U.S.A.

X-Ray Spectrometry. An International Journal. J. V. Gilfrich, editor-in-chief. John Wiley & Sons, Chichester, New York.

This well-known journal increased its frequency with volume 16 in 1987 from 4 to 6 issues. The journal is devoted to the rapid publication of papers dealing with the theory and application of x-ray spectrometry.

Subscription price: (1987) £ 185.00 in U.K. US$ 345.00 elsewhere, including postage.

Orders to: DBW/XRS, John Wiley & Sons, Baffins Lane, Chichester, Sussex, PO19 1UD, England; or: Subscription Dept. 'C' John Wiley & Sons, 605 Third Avenue, New York, NY 10158, U.S.A.

Agricultural Economics. The Journal of the International Association of Agricultural Economics. D.D. Hedley, editor-in-chief. Elsevier Science Publishers, Amsterdam.

This is a new international journal devoted to serving agricultural economists all over the world. It will provide a focal point for the publication of work on research, extension, consulting, advising, entrepreneurship, administration and teaching, in the following fields: (1) disciplinary work – improvement of theories, techniques and descriptive knowledge of economics and its contributing disciplines such as statistics, mathematics, and philosophy; (2) multi-disciplinary subject matter areas – energy, technical change, institutional change, natural resources, farm management, rural communities, marketing, human development and the environment, areas which are important to organised groups of public and private decision-makers facing well-defined sets of problems; and (3) problem solving – the definition, solution and management of specific practical problems.

Subscription: Dfl. 225.00 or US$ 109.75, including postage.

Orders to: in the U.S.A. and Canada: Elsevier, P.O. Box 1663, Grand Central Station, New York, NY 10163, U.S.A. Elsewhere: Elsevier, P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

IIMI Review. International Irrigation Management Institute, Digana Village. J. Colmey, editor.

The International Irrigation Management Institute (IIMI) is the first international research institute whose efforts are devoted solely to the subject of irrigation management in the developing world. Its mandate is to strengthen national efforts to improve the performance of irrigation systems. It does this through identifying, developing, and disseminating improved irrigation practices and methods. No other international institution has either the mandate or the organizational framework to meet the increasing need for new management techniques, new training methodologies, and new information necessary to improve and sustain irrigation performance in developing countries.

The Review mentioned here is the newest addition to IIMI's list of ongoing publications. Published three times a year, it is intended to inform irrigation management professionals, researchers, and others who may be interested in IIMI and its efforts to improve and sustain irrigation performance in developing countries.

Readers are invited to submit their comments on its contents or on any other subject relevant to Institute activities. Future issues will publish these comments under an appropriate heading, thus enhancing IIMI's worldwide network of irrigation professionals. The Review is a free publication.

Requests to: Editor, IIMI Review, IIMI, Digana Village via Kandy, Sri Lanka.

Soils Newsletter. Joint FAO/IAEA Division of Isotope and Radiation Applications of Atomic Energy for Food and Agricultural Development. International Atomic Energy Commission, Vienna.

The joint FAO/IAEA Division is responsible for applications of nuclear and related biotechnology in food and agriculture. The Soils Newsletter, which is already near to its 10th volume, contains information on ongoing research projects, technical cooperation programmes, training courses and fellowships, reports and announcements of meetings, and listing and reviews of new publications.

The Newsletter is free of charge, and especially meant for heads of groups or libraries who can circulate it to interested associated staff.

Requests to: Head, Soil Fertility, Irrigation and Crop Production Section, Joint FAO/IAEA Division, P.O. Box 100, A-1400 Vienna, Austria.

Solutions Magazine. National Fertilizer Solution Association. St. Louis.

This journal is published seven times a year, and contains timely and informative stories of interest to the fluid fertilizer industry; technical articles to keep abreast of industry-wide developments; profitable ideas which can be adapted to individual operations; and a marketplace for services and products available to the entire industry.

For persons in the fertilizer or agrochemical industry, the journal is free of charge.
Requests to: Solutions Magazine, at the address given below.

Journal of Fertilizer Issues. Fluid Fertility and Agronomy Research. National Fertilizer Solutions Association, St. Louis.

The Journal contains the latest information concerning the management of fluid fertilizers and crop nutrition. The research and review articles focus on field results with the aim of providing an understanding of commercial crop production inputs to increase effective fertilizer management. The articles are written in English units to explain the materials, methods, and results.
Subscription price: US$ 40.00, plus $ 12.00 for shipping outside North America.
Orders to: Journal of Fertilizer Issues, Fluid Fertilizer Foundation, 10777 Sunset Office Drive, Suite 10, St. Louis, MO 63127, U.S.A.

Research and Development in Agriculture. C.T. Whittemore, chief editor. Longman, Harlow. ISSN 0264-5467.

One of the major roles of the agricultural innovator and developer is to assemble information into a package or system which is capable of integration into enterprises such as improving financial margins or increasing biological or mechanical efficiency. It is to promulgate the holistic and integrative nature of research and development in agriculture that this journal has been founded. Its purpose is to provide a place for the publication of material which is relevant to the basic premise that studies in the agricultural sciences only reach fulfillment when, by their successful application, they have contributed to the enhancement of agricultural progress in the world.
Subscription price: £ 50.00 or US$ 100.00.
Orders to: Longman Group, Subscriptions (Journals) Dept., Fourth Avenue, Harlow, Essex CM20 2JE, England.

Geomorphology. An International Journal on Pure and Applied Geomorphology. M. Morisawa, editor-in-chief. Elsevier Science Publishers, Amsterdam. ISSN 0169-555X.

This new quarterly journal will illustrate the scope of geomorphology as an established earth science. It will publish review articles, research papers, book reviews and letters related to pure and applied geomorphology. The scope will include such topics as: modelling of landforms; landform studies on all scales; extraterrestrial landforms; geomorphological processes; applied geomorphology; tectonic geomorphology; and climatological geomorphology.
Subscription price: (1987) US$ 132.00 or Dfl. 271.00, including postage.
Orders to: In U.S.A. and Canada: Elsevier Science Publishers, 52 Vanderbilt Ave., New York, NY 10017, U.S.A. Elsewhere: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

Functional Ecology. P. Calow and J. Grace, editors. British Ecological Society and Blackwell Scientific Publications. Quarterly.

This new journal publishes short, original papers in a wide range of ecological topics, but particularly emphasizing the fields of physiological, biophysical and evolutionary ecology. Papers may describe experimental, observational or theoretical studies on terrestrial, freshwater or marine systems. The Editors are especially keen to publish papers that blend between these subject areas. Work that is purely descriptive and/or concerned exclusively and specifically with the population dynamics of organisms will not be accepted unless it sheds light on those specific areas mentioned above. The journal publishes Standard papers – reporting original research; Technical reports – on methods, techniques and apparatus of general interest; Essay review – short reviews on topical subjects of general interest; and Forum papers – short articles presenting new ideas, opinions or responses to published material, with a hope of stimulating lively debate.
Subscription price: (1987) £ 77.00 (UK), US$ 165.00 (U.S.A. and Canada), or £ 92.50 (elsewhere).
Orders to: Blackwell Scientific Publications, P.O. Box 88, Oxford, England.

Applied Geochemistry. Journal of the International Association of Geochemistry and Cosmochemistry. B. Hitchon, editor. Pergamon Press, Oxford, New York.

This international journal is devoted to original research papers in geochemistry and cosmochemistry which have some practical application to an aspect of human endeavour, such as the search for resources, their upgrading, preservation of the environment, agriculture and health. Papers on inorganic, organic and isotope applications are therefore welcome provided they meet the main criterion. Topics covered include: (1) the search for energy resources; (2) the search for mineral resources, both metalliferous and non-metalliferous; (3) the upgrading of energy and mineral resources where there is a direct geochemical application; (4) the use of geochemical knowledge for the protection of the environment from pollution; (5) agricultural aspects of geochemistry.

Subscription price: (1987) DM 270.00; (1987 and 1988) DM 513.00.
Orders to: In U.S.A., Central and South America: Pergamon Press, Fairview Park, Emlsford, NY 10523, U.S.A. Elsewhere: Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, England.

Re-launching of Park Magazine.

Park Magazine, which was an important information source for resource managers and specialists in the field of national parks and protected areas management, has been re-established after its publication was suspended almost a year ago. The 'new' Parks now has Tony Mence of the IUCN Conservation Monitoring Centre, Cambridge as its editor, and is prepared and published with support of World Wildlife Fund (WWF), Unesco, Parks Canada, United States National Parks Service and the New Zealand Department of Lands and Survey.

Major features of the first new issue are the World Heritage Report - 1985 and a number of articles highlighting the role of protected areas in promoting environmentally sound development.
Inquiries to: Parks, IUCN Conserv. Mon. Centre, 219(c) Huntingdon Road, Cambridge CB3 0DL, UK.

NEWS FROM THE ISSS SECRETARIAT AND TREASURY
NOUVELLES DU SECRETARIAT ET DE LA TRESORERIE DE L'AISS
MITTEILUNGEN DES IBG-SEKRETARIATS U.D. KASSENVERWALTUNG

Following-up on the decisions of the ISSS Hamburg Council, and after written consultation of the ISSS Executive Committee, the membership of the three Standing Committees can now be announced:

Committee on Statute and Structure (CSS), to ensure correct application of Statutes and Bylaws of ISSS, and to propose changes in the organisational structure as required.

Chairman: Prof. Dr. E. G. Hallsworth, 30 Fowlers Road, Glen Osmond, S.A. 5064, Australia.
Members: Prof. Dr. R. Dudal (Belgium), Dr. S. El-Swaify (USA-Hawaii), Prof. Dr. I. P. Garbouchev (Bulgaria), Dr. N. N. Goswami (India), Dr. F. N. Muchena (Kenya), Prof. Eng. I. Pla-Sentis (Venezuela), Prof. Dr. E. Schlichting (FRG), Dr. W. G. Sombroek (ISSS Secretariat), Prof. Dr. R. Tavernier (Belgium), Dr. P. B. Tinker (UK), and Dr. G. Varallyay (Hungary).

Committee on International Programmes (CIP), to liaise with international organisations and to promote joint programmes.

Chairman: Prof. Dr. H.-W. Scharpenseel, c/o Ordinariat für Bodenkunde, Univ. Hamburg, Allende-Platz 2, D-2000 Hamburg 13, FRG.
Members: Dr. I. P. Abrol (India), Dr. R. W. Arnold (USA), Dr. D. J. Greenland (UK), Prof. Dr. V. Kovda (USSR), Prof. Dr. P.A. Sanchez (USA/Peru), Dr. W. G. Sombroek (ISSS Secretariat), Prof. Dr. Y. Takai (Japan), Dr. P. B. Tinker (UK),. Dr. G. Vachaud (France), Dr. G. Varallyay (Hungary) and Prof. Dr. D. H. Yaalon (Israel).

Committee on Standardisation (CST), to liaise with the International Standardisation Organisation (ISO, Geneve-Switzerland) and its Technical Committee on Soil Quality (ISO/TC 90, NNI, Delft, the Netherlands).

Chairman: Prof. Dr. H. P. Blume (Comm. V) c/o Inst. für Pflanzenernährung und Bodenkunde, Olshausenstraße 40, D-2300 Kiel 1, FRG.
Members: Dr. C. Dirksen (Netherlands, Comm. I), Dr. P. Arnold (UK, Comm. II),. vacancy (Comm. III), vacancy (Comm. IV), vacancy (Comm. VI), Prof. Dr. A. Herbillon (France, Comm. VII), vacancy (Subcomm. A), Prof. Dr. G. Stoops (Belgium, Subcomm. B), Dr. M. Romkens (USA, Subcomm. C) and Dr. M. B. Bouché (France, Subcomm. D). Technical Secretariat with Labex programme of ISRIC-Wageningen.

LIFE MEMBERSHIP

The following soil scientists have now become life-member of ISSS:
Les pédologues suivants sont devenus membres à vie:
Die folgenden Bodenkundler sind Mitglieder auf Lebenszeit geworden:

Dr. E. Pushparajah, RRI –Malaysia
Prof. Dr. R. Dudal, KU Leuven – Belgium
Dr. A. Osman, ACSAD - Syria
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Dr. N. Fedoroff, I.N.A. Paris-Grignon, Gólogie-Pédologie, 78850 Thiverval-Grignon, France

C. **Soil Conservation and Environment/Conservation du sol et environment/Bodenerhaltung und Umwelt**
Dr. S. A. El-Swaify, University of Hawaii, Dept. of Agronomy & Soil, 1910 East-West Road, Honolulu HI 96822, USA

D. **Soil Zoology/Zoologie du sol/Bodenzoologie** (with/avec/mit IUBS)
Dr. K. E. Lee, CSIRO, Division of Soils, Private Bag 2, Glen Osmond S.A. 5064, Australia

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Dr. J. Dumanski, Land Resources Research Institute, Agric. Canada, Ottawa, KIA OC6, Canada.

DC **Desertification/Désertification/Verwüstung** (Subcomm. C)
Prof. Dr. H. E. Dregne, Texas Technical Univ. P.O. Box 4169, Lubbock, TX 79409, USA

PP **Paleopedology/Paléopédology/Paläopedologie** (Comm. V. & INQUA)
Dr. J. A. Catt, Rothamsted Exp. Station, Harpenden, Herts, AL5 2JQ, England.

RS **Remote Sensing for Soil Surveys/Pédologie et Télédétection/Fernerkundung für Bodenkartographie** (Comm. V)
Mr. F. W. Hilwig, ITC, P.O. Box 6, 7500 AA Enschede, Netherlands

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AS **Acid Sulphate Soils/Sols sulphatés acides/Saure Sulfatböden** (Comm. VI)
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Prof. J. Låg, Dept. of Soil Science-AUN, P.O. Box 27, 1432 Ås-NLH, Norway

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