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ASSOCIATION INTERNATIONALE DE LA SCIENCE DU SOL
INTERNATIONALE BODENKUNDLICHE GESELLSCHAFT

Founded 19-05-1924; 7500 individual members; 60 affiliated national Societies.
Fondée 19-05-1924; 7500 membres individuels; 60 Associations nationales affiliées.
Gegründet 19-05-1924; 7500 individuelle Mitglieder; 60 angeschlossene nationale Gesellschäfte.

Seat/Siège/Sitz: c/o International Soil Reference and Information Centre (ISRIC), 9 Duivendaal, P.O. Box 353, 6700 AJ Wageningen, Netherlands. Telegram: Sombroek, ISOMUS, Wageningen.

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Season's Greetings
Meilleurs Voeux
Beste Glückwünsche

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

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COOPERATING JOURNALS

Following the decision of the ISSS Executive Committee at its meeting in Wageningen, September 1984 (see Bulletin no. 66), the President and the Secretary-General have intensified contacts with several international journals in the field of soil science.

With four of them an agreement has been reached on 'Cooperating Journals' status, which is to be confirmed by the ISSS Council in Hamburg, August 1986. This status implies a substantial reduction in the annual subscription rate for all regular ISSS members that wish to avail of a *personal* subscription to such a Journal. These members are honour-bound not to transfer such a personal subscription to the institution by which they are employed. In the same sphere, soil science institutions, universities, departments, library service etc., that are non-member subscribers to the ISSS Bulletin can not make use of the new facility.

In return, the Journals concerned are entitled to carry an undertitle 'a Cooperating Journal of the International Society of Soil Science' with the ISSS logo. Their Publishing Firms can also avail, once per year and at cost, of the computerised system of address labels of the ISSS membership, for forwarding of promotional material on their publications on soil science and related disciplines. They have also an automatic entitlement to display this material at poster sessions of ISSS Congresses, Colloquia and Symposia.

The four international Journals included in the scheme as per January 1st, 1986 are listed on page 5.

Members wishing to take advantage of the offers of these Journals are invited to indicate their choice(s) on the printed form. The completed forms are to be sent to the office of the Secretary-General ISSS, who will forward them to the Publisher concerned four times a year, after confirming that the scientists concerned are paid-up members of ISSS.

JOURNAUX COOPERANTS

A la suite de la décision du Comité Exécutif de l'AISS lors de sa réunion à Wageningen en Septembre 1984 (voir bulletin No. 66), le Président et le Secrétaire Général ont intensifié les contacts avec plusieurs journaux internationaux dans le domaine de la Science du Sol.

Un accord a été conclu avec quatre d'entre eux sur les conditions des 'Journaux Coopérants'; cet accord devra être entériné par décision du Conseil de l'AISS à Hambourg en Août 1986. Ces conditions impliquent une réduction substantielle du tarif de l'abonnement annuel pour tous les membres de l'AISS à jour de leur cotisation qui souhaitent profiter d'un abonnement *personnel* à un tel journal. Ces membres sont obligés par l'honneur à ne pas transférer cet abonnement personnel à l'institution qui les emploie. Dans le même ordre d'idées, les institutions en science du sol, les universités, les bureaux, les services de bibliothèques etc., non-membres souscripteurs au bulletin de l'AISS ne peuvent pas se servir de cette nouvelle facilité.

En retour, les journaux concernés ont le droit de porter le sous-titre 'un journal coopérant de l'Association Internationale de la Science du Sol' avec le sigle de l'AISS. Leurs Maisons d'Edition peuvent aussi profiter, une fois par an et à leurs frais, du système informatisé des étiquettes d'adresses des membres de l'AISS, pour envoyer du matériel de publicité concernant leurs publications dans le domaine de la Science du Sol et des disciplines s'y rapportant. Elles ont également le droit de présenter ce

matériel aux expositions de posters lors des congrès, colloquiums et symposiums de l'AISS.

Pour les quatre journaux internationaux inclus dans ce projet à dater du 1er janvier 1986, voir page 5.

Les membres qui souhaitent profiter des offres des journaux mentionnés sont invités à indiquer leur(s) choix sur le talon imprimé. Les talons dûment remplis sont à retourner au bureau du Secrétaire Général de l'AISS, qui les transmettra quatre fois par an aux Editeurs, après avoir vérifié que les scientifiques concernés sont membres de l'AISS, à jour de leur cotisation.

KOOPERIERENDE ZEITSCHRIFTE

Gemäss Beschluss des Exekutiv-Kommittees anlässlich der Sitzung in Wageningen im September 1984 (siehe Bull. 66) haben Präsident und Generalsekretär die Kontakte mit mehreren internationalen Zeitschriften intensiviert.

Mit vieren von ihnen wurde ein Statut 'Kooperierende Zeitschrift' vereinbart, das zunächts bis zu einer Bestätigung durch den Beirat im August 1986 in Hamburg gültig sein soll. Das Statut umfasst seitens der Verlage beträchtliche Ermässigungen des Jahresbezugspreises für *ein persönliches Exemplar* einer jeden der betroffenen Zeitschriften. Seitens des Mitgliedes enthält es die Verpflichtung, das Exemplar ausschliesslich selbst zu nutzen, es nicht weiterzugeben – insbesondere es nicht der Bibliothek der Institution in der es tätig ist zur Verfügung zu stellen.

Bodenkundliche Institute, Universitäten und andere Institutionen oder Bibliotheken, die als Nichtmitglieder der IBG die Bulletins beziehen, sind von dieser Regelung ausdrücklich ausgeschlossen.

Als Gegenleistung erhalten die betreffenden Verlage das Recht im Untertitel der Zeitschrift die Zeite 'Kooperierende Zeitschrift der Internationalen Bodenkundlichen Gesellschaft' zu führen. Die verlage können ausserdem einmal jährlich auf ihre Kosten einen Satz Komputerausdrucke von Adressenaufklebern aller IBG-Mitglieder erhalten, um Informationen und Werbematerial aus Bodenkunde und Nachbarfächern gezielt zu versenden. Sie erhalten weiterhin das Recht, bei Posterausstellungen der IBG-Kongresse,-Symposien-und-Kolloquien dieses Material zu verteilen.

Die vier in diese Abmachung eingeschlossenen Zeitschriften sind auf S. 5 aufgeführt.

Mitglieder, die dieses Statut ausnutzen wollen teilen dies der Geschäftsstelle des Generalsekretärs mit (s. Vordruck auf S. 5). Durch die Bestellung werden die obengenannten Bezugsbedingungen ausdrücklich anerkannt. Der Generalsekretär wird die eingehenden Bestellungen nach Prüfung der Mitgliedschaft (s. Beitragszahlungspflicht) viermal im Jahr an die betreffenden Verlage weitergeben.

ISSS Cooperating Journals – Journaux Cooperants de l'AISS – IBG Kooperierende Zeitschrifte

1. CATENA, an interdisciplinary journal of Pedology-Hydrology-Geomorphology.
   Size: variable number of issues per year, in one volume of about 400 pages.
   Publisher: Catena Verlag, Cremlingen-Dested, Federal Republik of Germany.
   Editor-in-Chief: Prof. Dr. H. Rohdenburg, Braunschweig, FRG.
   Full subscription rate, including surface mailing: DM 248.00.
   Personal subscription price for ISSS members: DM 148.80 (about US $ 58.00; 40% discount).
   A similar discount applies to the issues of the CATENA SUPPLEMENT.
2. SOIL BIOLOGY & BIOCHEMISTRY
   Size: 6 issues per year, in one volume about 700 pages.
   Publisher: Pergamon Press Ltd., Oxford, England.
   Editor-in-Chief: Prof. Dr. J. S. Waid, Bundoora, Australia.
   Full subscription rate, including surface mailing: US $ 210.00.
   Personal subscription price for ISSS members: US $ 42.00 (80% discount).
3. GEODERMA, an International Journal of Soil Science.
   Size: About 8 issues per year, in 2 volumes of about 400 pages each.
   Publisher: Elsevier Science Publishers, Amsterdam, The Netherlands.
   Editor-in-Chief: Dr. R. W. Simonson, College Park, MD, USA.
   Full subscription rate, including surface mailing: Dfl 518.00 (US $ 178.00).
   Personal subscription price for ISSS members: Dfl 170.00 (about US $ 58.00); 66% discount.
4. BIOLOGY & FERTILITY OF SOILS
   Size: Four issues per year, in one volume of about 250 pages.
   Publisher: Springer International, IJmuiden, The Netherlands.
   Editor-in-Chief: Prof. Dr. J. C. G. Ottow, Hohenheim, Fed. Rep. of Germany.
   Full subscription rate, including surface mailing charges: DM 220.00.
   Personal subscription price for ISSS members: DM 175.00 (about US $ 63.00: 20% discount).

Name and full addres/Nom et adresse complète/Name und vollständige Anschrift:

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I wish to take a personal subscription to the following Cooperation Journal(s) of ISSS, under the conditions as outlined on page 3 of ISSS Bulletin no 68.

Je souhaite m'abonner personnellement au(x) Journal(Journaux) Coopérant(s) suivant(s) de l'AISS, sous les conditions mentionnées sur la page 3 du Bulletin 68
Ich wünsche ein persönliches Abonnement zu nehmen auf den/die folgende IBG Kooperierende Zeitschrift(e), unter die Bedingungen genannt am Zeite 4 vom IBG Mitteilungsblatt no 68.

.....

Forward to Secretariat ISSS/A retourner au secretariat de l'AISS/Einsenden zur IBG Sekretariat: P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

XIII-TH ISSS CONGRESS, 13–20 AUGUST 1986, HAMBURG

The organizing committee informs:

TECHNICAL FIELD STUDIES THROUGH CONGRESS EXCURSIONS

Dear colleague, you know from own experience that excursion planning requires signing up legal consequences for buses, hotel accommodation – in our case of excursion B even a Rhine river-boat.

You would help us enormously and avoid dissappointment in case of planned last-minute bookings, if you please make up your mind and finalize your excursion registration as early as possible!

Thank you for your cooperation!

SPACE AVAILABLE FOR GROUP MEETINGS

There are still some rooms available at the Hamburg Congress Centre for meetings of ISSS Working Groups, special interest groups etc., with a maximum of 50–60 persons per room. The deadline for space application is end of March 1986 if the meeting is to be included in the printed Congress programme.

Address: Dr. B. Hintze, Organizing Committe, XIIIth ISSS-AISS-IBG Congress, P.O. Box 302480, D-2000 Hamburg-36, FRG; tel (49) (0) 41234248.

GUIDELINES FOR PRESENTATION OF VOLUNTARY PAPERS AND POSTERS

Oral presentation will be 15 min. and 5 min. of discussion per paper. Since sessions are concurrent this time limit will be strictly adhered to by the chairmen. Equipment provided for oral presentation will include one 35 mm (2′ × 2′) slide projector and a single projection screen and one overhead projector.

Please prepare *slides* that the audience can read even at the back of the meeting room. If ordinary typewriter is used when preparing slides the area used should not exceed 6 × 9 cm on the original table or drawing. Lines of drawing should not be thinner than 0,4 mm strongly drawn.

Overhead transparencies should be used on an area not exceeding 20 cm in height and width. The writing should keep 10 mm height of numbers and letters. Do not use typewriter for transparencies.

Posters exhibitions must be attended by the authors for at least 2 hours. Exact timing will be given later.

Numbers and letters should be easily readable form 2–3 m distance. For captions 25 mm height and 1 mm thickness of line are appropriate. For running text 10 mm height and 0.7 mm line will be adequate. Drawings of coordinate systems should cover a minimum area of 21 × 30 cm (= DIN A4).

CORRECTIONS ON EARLIER INFORMATION

1. The deadline of payment in order to ascertain the printing of abstracts for voluntary papers is wrongly indicated in the invitation program. It should read 30. April as is given in Bulletin No. 67 (p. 12, 14 and 19).
2. The spelling for AISS on the invitation program is erroneous. It reads correctly as given on the inside of the front cover of our Bulletins: 'Association Internationale de la Science du Sol'.

XIII-EME CONGRES DE L'AISS, 13–20 AOUT 1986 A HAMBOURG

Le Comité d'organisation communique:

ETUDES TECHNIQUES DE TERRAIN AU MOYEN DES EXCURSIONS DU CONGRES

Cher collègue! Comme vous le savez aussi par expérience, l'organisation d'une excursion exige de passer des réservations pour les bus, les hôtels – et dans le cas de l'excursion B, pour un bateau navigant sur le Rhin.

Vous nous aideriez beaucoup, et éviteriez les déceptions des réservations de dernière minute, si vous pouviez vous décider et régler au plus vite les formalités d'inscription pour l'excursion.

Merci de votre coopération!

SALLES DISPONIBLES POUR LES REUNIONS DE GROUPE

Il y a encore quelques salles disponibles pour les réunions de Groupes de travail de l'AISS, les groupe d'intérêt particulier, etc., au Centre des Congrès de Hambourg, pour un maximum de 50 à 60 personnes par salle. Le dernier délai pour la demande *d'une salle est fixé à fin Mars 1986 si la réunion est mentionnée dans le programme* imprimé du Congrès.

Adresse: Dr. B. Hintze, Comité d'Organisation, XIIIème Congrès de l'ISSS/AISS/IBG, P.O. Box 302480, 2000 Hamburg 36. RFA. Tel: (49) (0) 41234248.

DIRECTIVES POUR LA PRESENTATION DES COMMUNICATIONS LIBRES ET POSTERS

La présentation orale dure 15 minutes, plus 5 minutes de discussion par communication. Comme les sessions sont simultanées, ce délai sera strictement respecté par le Président de Séance. L'équipement disponible pour la présentation orale se compose d'un projecteur de diapositives 35 mm (2′ × 2′), d'un unique écran de projection et d'un rétroprojecteur.

Veuillez préparer les *diapositives* de façon à ce que l'assistance puisse aussi les lire du fond de la salle. Si l'on utilise une machine à écrire ordinaire pour la réalisation des diapositives, la surface utilisée ne devra pas excéder 6 × 9 cm sur les tableaux ou dessins originaux. L'épaisseur des traits ou dessins ne doit pas être inférieure à 0,4 mm.

Les transparents pour rétroprojecteur doivent être utilisés sur une surface n'excédant pas 20 cm × 20 cm. La hauteur des letters et des chiffres des textes doit être de 10 mm. Ne pas utiliser de machine à écrire pour les transparents.

Les auteurs d'**expositions de posters** sont tenus d'être présents environ 2 heures auprès de leur exposition. Les précisions horaires seront données ultérieurement. *Chiffres et lettres* doivent être lisibles à une distance de 2 à 3 m. Pour les titres, les dimensions appropriées sont de 25 mm de hauteur et 1 mm d'épaisseur de trait. Les dimensions adéquates pour les textes sont 10 mm de hauteur et 0,7 mm d'épaisseur. Les dessins ou les graphiques doivent occuper une surface minimale de 21cm × 30 cm (DIN A4).

RECTIFICATIONS

1. La date limite de paiement pour assurer l'impression des résumés des communications libres ainsi qu'elle a été mentionnée dans le programme d'invitation est inexacte. Il faut lire: 30 Avril, comme indiqué dans le bulletin No. 67 (p. 12, 14 et 19).
2. L'épellation pour AISS sur le programme d'invitation est incorrecte. Elle est correctement mentionnée sur la page intérieure de couverture de nos bulletins: 'Association Internationale de la Science du Sol'.

XIII. IBG-KONGRESS VOM 13–20 AUGUST 1986 IN HAMBURG

Das Organisationskomitee informiert:

FACHTECHNISCHE FELDSTUDIEN MITTELS KONGRESSEXCURSIONEN

Lieber Kollege! Sie wissen aus eigener Erfahrung, dass bei der Planung der Excursionen verbindliche Verpflichtungen gegenüber Busunternehmern, Hotels – und im Falle der Excursion B auch gegenüber einer Rheinschiffahrts-Reederei eingegangen werden müssen.

Sie würden uns sehr helfen, und sich selbst die Enttäuschung im Falle von Spätbuchung ersparen, wenn Sie baldmöglichst die verbindliche Registrierung für die von Ihnen gewünschste Excursion vornehmen würden.

Vielen Dank für Ihre Unterstützung!

ZUR VERFÜGUNG STEHENDEN VERSAMMLUNGSRÄUME

Im hamburger Kongresszentrum stehen noch einige Versammlungsräume zur Verfügung für formelle IBG-Arbeitsgruppen, aber auch für informelle Gruppen die ein spezielles Thema besprechen wollen.

Die Räume sind für höchstens 50–60 Personen gedacht. Spätztens bis ende März 1986 sollten die Räume beantragt werden falls erwünscht wirdt dass der betreffende Sitzung ordnungsgemäss aufgenommen wird im gedruckten Kongressprogramm.

Adresse: B. Hintze, Organisationskommitee, XIII ISSS-AISS-IBG-Kongress, Postfach 302480, D-2000 Hamburg 36, Deutschland. Tel. (49) (0) 41234248.

RICHTLINIEN FÜR DIE PRÄSENTATION DER FREIEN BEITRÄGE UND POSTERS

Die Redezeit bei **mündlichen Vorträgen** beträgt jeweils 15 min. plus 5 min. für eine anschliessende Diskussion. Da die gleichzeitig ablaufenden Sitzungen miteinander abgestimmt sind, werden die Vorsitzenden darauf achten, dass die Zeitvorgaben genau eingehalten werden. Für die Vorträge werden ein 35 mm (2′ × 2′) Diaprojektor, eine Leinwand sowie ein Overhead-Projektor bereitgestellt.

Die vorzuführenden *Dias* müssen so ausgearbeitet sein, dass sie auch in der letzten Reihe des Sitzungsraumes noch lesbar sind. Wenn bei der Vorbereitung der Dias eine normale Schreibmaschine benutzt wird, dürfen Originaltabellen und -skizzen eine Grösse von 6 × 9 cm nicht überschreiten. Die Strichbreite von Tuschezeichnungen sollte nicht weiniger als 0,4 mm betragen.

Bei *Overhead-Folien* darf nur eine Fläche von 20 × 20 cm genutzt werden. Buchstaben und Zahlen sollen eine Höhe von 10 mm aufweisen. Benutzen Sie bitte keine Schreibmaschinen für die Beschriftung der Folien.

Bei **Posterausstellungen** müssen die Autoren für jeweils 2 Std persönlich anwesend sein. Die genauen Zeitangaben hierzu erfolgen noch.

Zahlen und Buchstaben müssen auf dem Ausstellungmaterial noch aus einer Entfernung von 2–3 m gut lesbar sein. Für Überschriften eignet sich eine Schriftstärke von 1 mm und eine Schriftshöhe von 25 mm. Für laufende Texte reicht eine Strichstärke von 0,7 mm und eine Schrifthöhe von 10 mm aus. Zeichnungen und Koordinatensysteme sollten eine Fläche von mindestens 21 × 30 cm (DIN A4) einnehmen.

BERICHTIGUNGEN

1. Der in den Einladungsprogrammen genannte Stichtag für Beitragszahlung um den Druck der freien Beiträge sicherzustellen, ist falsch. Der korrekte Termin lautet: 30. April, nachzulesen im Bulletin Nr. 67 (S. 12, 14 und 19).
2. Der Volltext für die Kurzform AISS im Einladungsprogramm ist falsch widergegeben. Richtig nachzulesen ist er auf der Innenseite des Deckels in jedem Bulletin.

REPORTS OF MEETINGS
COMPTES-RENDUS DE RÉUNIONS
BERICHTE VON TAGUNGEN

Report on an advanced study course
IRON IN SOIL AND CLAY MINERALS
Bad Windesheim, West Germany, July 1–13, 1985

Seventy five scientists and students from twenty countries participated in the two weeks course organized by Dr. J. W. Stucky, Department of Agronomy, University of Illinois, U.S.A.; Dr. B. A. Goodman, Department of Spectrochemistry, The Macaulay Institute Aberdeen, Scotland and Dr. U. Schwertmann, Institut für Bodenkunde, Technische Universität München, West Germany. The programme consisted of lectures, informal discussion sessions, problem solving sessions, poster displays and a field trip.

The lectures delivered by a large number of prominent scientists offered an excellent opportunity to participants to take cognizance of the most recent developments in analytical methods of investigation and characterization of iron in soils and minerals, with emphasis on spectroscopic techniques such as Mössbauer and microbeam. Also, the various roles iron plays in soil science were discussed: structure of major components, physical and chemical properties, weathering, formation and transformation in various environments and characterization and behaviour of iron compounds and complexes.

The posters displayed emphasized properties, behaviour and occurrence of iron and soils of different environments such as in climosequences in southern Brazil and Europe, magnetic susceptibility of Brazilian Latosols, use of remote sensing in studying the distribution of iron oxides, surface charge properties of soils with variable charge and other subjects which encouraged extensive examination and discussions related to the various contributions.

In the informal discussion sessions many present-day problems and achievements were examined and some important recommendations that arose from them are (1) the denunciation of the pyrophosphate extraction of Fe from soils (hihgly unreliable); (2) the appraisal of the Holmgren dithionite-citrate Fe extraction method (equivalent to Mehra and Jackson procedure); (3) the use of FAO-Unesco Soil Map of the World legend as basic system of soil classification in the proceedings of the course; and (4) the need to encourage dialogue between scientists working in investigation and development of new methods and techniques of characterization of iron compounds on the one hand, and those working in soil survey classification and land evaluation on the other hand, such that the divulgation and adoption of new findings and concepts is more rapidly achieved.

In the field trip to upper Bavaria participants got acquainted with occurrence and characteristics of iron oxides in soils of different environments such as brownish goethitic and reddish hematitic Luvisols, lepidocrocite and smectite in Pseudogleys, goethite in pipestems of a Gleysol and goethite in a low moor peat, which by burning transforms into a poorly crystalline maghemite and some hematite as was demonstrated on the spot.

The proceedings of the successful and most enjoyable course will be published as a textbook by PCO-Publication Coordination Office, Elcerlyclaan 2, B-1900 Overijse, Belgium.

Egon Klamt, Porto Alegre, Brazil

Report on the
IVth INTERNATIONAL CONFERENCE ON SOIL CONSERVATION
Maracay – Venezuela, November 3–9, 1985

As a follow-up to former conferences on 'Assessment of Erosion', Ghent, Belgium in 1978, 'Conservation 80', Silsoe, England in 1980, 'Preserve the Land', Honolulu, Hawaii in 1983, the 4th International Conference on Soil Conservation was hosted by the Central University of Venezuela, Faculty of Agronomy, Maracay, Venezuela and organized by the International Soil Conservation Organization (ISCO) and the Venezuelan Society of Soil Science (SVCS), with co-sponsering of ISSS. The conference was attended by more than 200 participants from 31 countries. Among the 120 Venezuelan participants, 40 were undergraduate or graduate students, of both sexes as well, an example to be encouraged – we won't be a male society any longer!

The conference under the theme 'Soil and Water Conservation to Prevent food Shortage' presented the latest developments in soil and water conservation while maintaining or increasing agricultural productivity under different climatic conditions. Special attention was given to impacts of conservation problems and practices on the productivity of rainfed agriculture for the semi-arid and sub-humid tropics. Presentations reported new advances in methodologies, practices and applications of results of laboratory and field experiments, including policies, and technical, economic and social aspects.

The technical sessions spanned a wide range of fields of interest:

- General concepts and objectives of soil conservation. Processes of soil erosion. Methods and instruments to study soil and water conservation problems.
- Survey and evaluation of soil degradation problems. Resource survey for planning soil and water conservation projects.
- Evaluation and prediction of soil water erosion risks.
- Impacts of erosion and conservation measures on soil productivity.
- Evaluation of impacts and costs of soil conservation practices.
- Indices and models to predict runoff and erosion.
- Improved management systems and practices for soil and water conservation: evaluation in large areas.

– Improved management systems for soil and water conservation: evaluation in small plots. Prediction and control of wind erosion.

Contributions were also presented as posters displayed throughout the meeting and time was allocated for general discussion of keynote topics. A mid-week break provided a local field tour in the North-Central Mountainous region of Venezuela. Erosion site trials were visited and soil erosion problems and conservation works observed. Prior to the conference a 5-day excursion brought some of the brave participants into the Eastern Plateaus, then further South in the Orinoco Delta and back over the North Central Plains of Venezuela.

A bus of courageous participants dwelled through the Western Plains, the Andes Range and the Central Western regions of Venezuela during a 6 day postconference field tour. The last-day trip through mangrove channels to the coral island of 'Cayo Sombrero' was a must!

The organizing committee, I. Pla Sentis and his crew, staff and students deserve warm international congratulations for the excellent arrangements and kind hospitality. The advisory committee of ISCO agreed that Thailand could host the next international conference on soil conservation in January 1988.

D. Gabriels, Ghent, Belgium

Report on the TENTH CONFERENCE ON SOIL TILLAGE RESEARCH

Guelph, Canada, July 8–12, 1985

The 10th Conference of the International Soil Tillage Research Organization (ISTRO) was held from 8–12 July 1985 at the University of Guelph, Ontario Agricultural College, Guelph, Ontario, Canada. The conference was attended by 180 tillage research workers, coming from 32 countries.

The theme of the conference, 'Reduced Tillage – Rational Use in Sustained Production', was introduced by Prof. Dr. R. Q. Cannell (Reduced tillage in North-West Europe), Dr. R. Lal (A soil suitability guide for different tillage systems in the tropics) and Dr. R. R. Allmaras (Conservation tillage systems and their adoption in the United States). Full-length versions of these invited review papers have been published in Soil & Tillage Research, Vol. 5 No. 2 (special Issue, April 1985).

In volunteer lecture sessions, 54 papers were presented, classified in 7 groups: 1) Global tillage strategies, 2) Compaction and controlled traffic, 3) Tillage-root environment interactions, 4) Conservation tillage, 5) Tillage and soil physical properties, 6) Implement function and design, and 7) Crop-tillage interactions. In 3 poster sessions, 88 posters were presented on 1) Tillage and plant growth, 2) Tillage, water and soil, and 3) Tillage and profitability.

One afternoon was dedicated to concurrent Workshops on 1) Root growth and tillage, 2) The effects of tillage and traffic on soil structure, 3) Zero-tillage research priorities, and 4) Deep tillage. Reports of these Workshops discussions and about 25% of the volunteer papers and posters will be published in Soil & Tillage Research, Vol. 7 No. 1–3 (Special Issue, April 1986).

A post-conference tour took about 65 participants through southern Ontario, Ohio, Indiana and Michigan, to end up in Guelph on 18 July.

The organizers, Prof. Dr. J. W. Ketcheson and Prof. T. B. Daynard, may look back to a both very attractive and successful 10th Conference of ISTRO.

C. van Ouwerkerk, Haren Gn, the Netherlands

SPATIAL AND TEMPORAL VARIABILITY OF BIOSPHERIC AND GEOSPHERIC PROCESSES

International Workshop in St. Petersburg, Florida, October 28–November 1, 1985

The U.S. National Academy of Sciences on behalf of ICSU, SCOPE and INTECOL organized an international workshop to examine the feasibility of designing a decade-long integrated and transdisciplinary research program that will quantify and interpret the interactions of the biosphere/geosphere with a changing global environment. Fifty-four scientists, including the Secretary-General ISSS, attended this workshop and they represented 17 countries and perhaps as many disciplines. Evaluation of Biosphere interactions is greatly limited by an inability to cope meaningfully with complexities associated with small-scale spatial and temporal heterogeneity in terrestrial, freshwater, marine, and atmospheric environments. Thus, the general objective of this workshop was to identify and describe research needed to solve the scaling problems associated with quantifying and interpreting interactions within the biosphere/geosphere. Specific objectives of the workshop were to : (1) describe how spatial and temporal scales within the biosphere/geosphere are viewed by soil scientists, ecologists, hydrologists, atmospheric scientists, ocean scientists, and geologists; (2) determine how the scales used by each discipline can be integrated between disciplines; (3) determine how the ecologically important processes that occur at local levels and are vitally important to global scale responses can be meaningfully aggregated; (4) evaluate how global scale influences local processes; and (5) articulate research needed to address information gaps identified in 1–4.

The main issue of the conference concerned the possibility of predicting global environmental change from our knowledge of pedogenic, hydrologic, biologic, and ecologic processes occurring at specific of local sites to regional and global scales. The scientific community has not been too successful to date in coping with the complexities of spatial and temporal environmental heterogeneity and associated problems dealing with integration of diverse froms of information.

Processes occurring at the local scale are in many cases well studied and understood. Progress in understanding the influences on global environmental changes that may have occurred in the past or may occur in the future depends on extrapolating the linkages among processes occurring at the local scale to regional and global scales. The variability of biota and ecological processes in both space and time challenge our abilities to make these fundamental extrapolations.

The scaling problem is significant particularly for advancing our understanding of the global metabolic capacity, on which the world's food and fiber production depends. The ability to predict changes in global cycles of nutrients and water, which strongly influence the global metabolic capacity, is essential for the future as increasingly more areas of the earth are influenced by human activities. Processes such as CO_2 exchange, transport of water and sediment (erosion), land/atmospheric gaseous exchanges, and the role of biota in nutrient cycles, are examples of reasonably well understood phenomena at the level of the site for short periods of time (hours to months), but there is far less certainty in extrapolating this understanding to larger spatial scales over long periods of time. Furthermore, beyond recognizing that modeling and remote sensing will be essential tools for extrapolating short-term, site-scale process information to different spatial and temporal scales, little agreement exists about how to actually use these potentially powerful technologies. In this connection, data bases, such as soil inventories and topographic surveys, may have to be digitized and put on a common geographic information system to permit integration and isolation of aggregates of similar units that can be used in process studies.

Global models of elemental and water cycles, productivity, and matter transfers

between land/atmosphere, land/water, and water/atmosphere interfaces must eventually incorporate the coupling and remote sensing technologies will obviously be vital means to help achieve the couplings, especially at larger scales. However, existing ecologic, hydrologic, and atmospheric models and remote sensing images all operate at different scales. For example, soil surveys and ecological studies have principally been done at the (hectare or tens of hectares) site level; hydrologic models use watersheds as the basic units; and atmospheric models simulating global climate use cell sizes with a horizontal resolution on the order of hundreds of kilometers. The scales used in modeling the biologic and physical processes must be compatible if we are to meaningfully interpret and understand global environmental change especially as it relates to natural and human-made resources.

This conference was a very successful first step in delineating both the problems associated with attempting this type of integration and the research approaches that could be used. The proceedings of the meeting will be published in the SCOPE series (Publisher John Wiley & Sons Ltd.) and will be available in the fall of 1986.

J. W. B. Stewart, Saskatoon, Canada

INTERNATIONAL SYMPOSIUM ON LOESS RESEARCH

Xian, Shaanxi Province, China, October 5–13 1985

A symposium, preceded by a five-day field visit, was held in Xian under the auspices of the Chinese Quaternary Research Association. The organisation of the meeting was capably handled by Professors Liu Tungsheng and Wu Zirong, assisted by many of their colleagues from the Institute of Geology and the Laboratory of Loess Research of the Academia Sinica. The pre-symposium field trip was to the Loess Plateau, where the participants, including approximately 20 overseas scientists, were able to examine one of the most notable sequences of continental Quaternary geology. Gully exposures, up to 140 m deep, expose loesses dated from 2.4 million years to Holocene deposits, as well as numerous palaeosol layers. Thanks to meticulous studies conducted over the last 30 years by Chinese scientists, assisted in more recent times by foreign specialists, the loess sequence and its palaeosols are now relatively well documented and characterised in terms of their sedimentology, magnetostratigraphy, palynology, palaeontology, geochemistry and palaeopedology.

The Loess Plateau is also of major concern to the Chinese because of accelerated soil erosion. Mass wasting features in the form of landslides, slumps and mudflows are ubiquitous and rates of soil loss from slope wash and gully erosion are often extreme in the intensely cultivated landscape. Consequently, the visits to soil erosion/conservation experimental sites were highly rewarding and sparked off considerable debate regarding the erosional effects of the long history of cultivation (*ca* 6000 years) versus geological erosion rates.

The field excursion was followed by 3 days of formal sessions in Xian, with 80 papers presented on topics ranging from loess formation, and loess soils to the engineering properties of loess. A monograph containing selected papers will be published by the organisers in 1986. This monograph will contain many of the contributions of the overseas visitors regarding aeolian deposits from both hot and cold environments.

The meeting was a marked success, not only from the point of view of bringing together workers interested in aeolian deposits and their soils from a wide range of countries (Australia, Belgium, China, France, W. Germany, Hungary, Israel, New Zealand, Switzerland, U.K. and U.S.A.), but also because it enabled scientists from diverse disciplines to get together and look at aeolian sediments in great detail.

C. J. Chartres, CSIRO Division of Soils, Canberra, Australia

Report on an INTERNATIONAL CONFERENCE ON SOIL DYNAMICS

June 17–19, 1985, Auburn, Alabama, USA

The 50th anniversary of the National Tillage Machinery Laboratory (NTML) in Auburn, Alabama-USA, was celebrated by an International Conference on Soil Dynamics at NTML and Auburn University from 17–19 June. The basic soil dynamics research by Dr. Mark Lovell Nichols of the Department of Agricultural Engineering, Alabama Polytechnic Institute, in the period from 1919 to 1935, was the basis for the establishment of the NTML. The initial success of the Nichols program resulted in the USDA appointing an advisory council on Research in Mechanical Farm Equipment to determine general needs and research goals to contribute to the solution of problems of operating machines on soil. The Bureau of Agricultural Engineering, USDA,, established a regional research project entitled 'Cotton Production Machinery Project' at Auburn to build on the Nichols work. In mid 1933, a suggestion by J. W. Randolph, head of the Cotton Production Machinery Project, to secure Public Works Administration funds to build a special laboratory was considered and then implemented by the construction of the Farm Tillage Machinery Laboratory in Auburn. The staff of the Cotton Production Machinery Project became the staff of the new laboratory, which is now known as NTML.

Soil dynamics may be defined as the discipline that describes the relation between high speed mechanical forces applied by machines to the soil and the resultant rapid response of the soil in dynamic behaviour. It emerged as a comprehensive discipline from:

1. The historical development of soil cultivation methods,
2. Soil mechanics as applied by civil engineers,
3. Land locomotion as applied by military research.

NTML has been nationally and internationally recognized for its research in soil-machine systems and basic work in soil dynamics.

The celebration conference was attended by approximately 200 participants from more than 20 countries. At the conference Dr. Mark Lovell Nichols and Academician Vasilii Prokhorovich Goryachkin were recognized as 'pioneers in soil dynamics' in USA and USSR, respectively. Over 80 papers were presented, orally or in poster sessions. The Conference Proceedings are published in 5 volumes: commemoration of the 50th Anniversary of NTML, soil dynamics as related to Tillage Machinery Systems, as related to cropping systems, as related to traction and transport systems, and traction and transport as related to cropping systems.

A. J. Koolen, Wageningen, the Netherlands

Report on an INTERNATIONAL CONFERENCE ON CONTAMINATED SOIL

Utrecht, the Netherlands, November 11–15, 1985

Soil contamination is a hazard in many industrial countries and is rapidly becoming a world-wide problem. Many national governments have legislated to restrict contamination of water and air during the past forty years and pressure is mounting for similar protection for the soil. Traditionally, the soil was used to re-cycle organic wastes from both town and countryside, but many modern industrial processes involve highly toxic chemicals, the residues of which are consigned to landfill or otherwise dumped. Contaminated soils have been identified on 6000 sites in the Netherlands, 1000 of which

require urgent remedial action to avoid hazards to human health. similar problems are acknowledged by official sources in many other countries. In the USA, 240 million tons of hazardous wastes are generated each year and 18,000 potentially hazardous sites have been identified.

An international conference on Contaminated Soils was organised by the Netherlands Organisation for Applied Scientific Research (TNO) between 11 and 15 November, 1985. Over 400 delegates from more than a dozen countries attended the meeting which was held in the Congress Centre of the Royal Netherlands Industries Fair in Utrecht.

The opening plenary session of the conference was addressed by Mr P. Winsemius, Netherlands Minister of Housing, Physical Planning and the Environment and participants were shown the premiere of 'Don't play the ostrich' a film which drew upon Dutch experience in handling contaminated soils. During the conference, three parallel sessions offered a wide range of scientific papers. The first included the behaviour of contaminants, their impact on public health and the environment and the role of governments and other authorities in dealing with contaminants. The second was concerned with site investigation, sampling and analysis, the management of remedial action and safety. The third session considered case studies and techniques used to effect reclamation.

Many contributions had direct relevance to normal soils as these must represent the baseline against which contamination is measured. the behaviour of inorganic constituents, degradation of oil, studies of the availability and behaviour of heavy metals in natural soils, and the significance of soil heterogeneity in the spread of pollutants were contributions of interest to pedologists. The assessment of contaminated soils on site and in the laboratory and the impact of contaminants on groundwater are areas where the expertise of the soil scientist can be employed. The available methods of decontamination appear to result in a soil material requiring restructuring and additional organic matter prior to its future use.

The closing plenary session began with a consideration of how the most appropriate remedial methods should be selected; a process which should include consideration of the type of soil, the contaminants, the future use of a site and the potential impact of any residual contaminants on the site occupants. The Dutch Ministry of Education and Science regards soil protection as a priority area of research which it is prepared to fund, and the European Economic Community is actively improving the legal framework for enhanced soil protection.

The papers selected for oral presentation by an international scientific committee are printed in a 923-page book entitled *Contaminated Soil* edited by J. W. Assink and W. J. van den Brink and published by Marinus Nijhoff. Other contributions formed an extensive poster display which delegates could inspect at leisure. Excursions to contaminated sites and to inspect soil cleaning plants were also available.

The Netherlands Organization for Applied Scientific Research and the Netherlands Government are to be congratulated for their recognition of an embarassing problem, their determination to do something about it and their admirable concern for soil protection. This international conference on contaminated soil enabled an exchange of expertise which was of great help to those countries with similar problems.

E. M. Bridges, Swansea, U.K.

Report on the
INTERNATIONAL SYMPOSIUM ON THE ASSESSMENT OF SOIL SURFACE SEALING AND CRUSTING
Gent, Belgium, September 23–27, 1985

The symposium, organized by the Department of Soil Physics, State University of Gent in cooperation with Commission I of the ISSS and supported by the National Science Research Fund, Belgium and the Flanders Research Center for Soil Erosion and Soil Conservation, was attended by 110 participants from about 30 countries. The organizing Committee consisted of Prof. Dr. Ir. M. de Boodt of the State University of Gent (Chairman), Prof. Dr. J. de Ploey of the Catholic University of Leuven (Member), Prof. Dr. L. Peeters of the Free University of Brussels (Member), Dr. Ir. F. Callebaut of the University of Gent (Secretary) and Dr. Ir. D. Gabriels of the State University of Gent and the National Science Research Fund N.F.W.O. (Secretary).

During the opening session, Prof. de Boodt emphasized the importance of proper soil surface conditions, especially for young seedlings, and the continual search for appropriate chemical amendments helping to create and to long enough maintain such conditions. Dr. W. G. Sombroek, Secretary-General of the ISSS gave a welcome address and, upon request of the organizing committee, presented a short technical introduction on the assessment of soil surface sealing and crusting, including an overview of the worldwide occurrence, the causes and the consequences. He expressed the hope that 'a comprehensive and authorative monograph on all aspects of the problem would emerge from this symposium'. However, to achieve that goal a more directed effort by a smaller number of people may still be needed in the future.

The following topics were covered during the symposium:
1. Genesis and morphology of soil surface seals and crusts;
2. Effect of soil surface sealing and crusting on water erosion;
3. Methodology to characterize soil sealing and crusting;
4. Mechanical resistance of soil surface seals and crusts;
5. Effect of soil surface sealing and crusting on water and gas transfer;
6. Quantifying the impact of soil surface sealing and crusting on seedling emergence.
7. Managing of soil surface sealing and crusting.

The contributions to the symposium show that the complexity of causes and consequences of crusts evokes two types of responses. Some seek to develop and experimentally test models for some aspects using appropriate soil physical and soil mechanical theory, e.g. the influence of seals upon infiltration and upon exchange of gases between the soil and the atmosphere, the piercing or breaking of crusts by seedlings. Others attempt to mimic such processes, or even more complicated ones such as formation of seals/crusts and erosion of soil by water. The former approach requires detailed information on various physical properties. The latter approach characterizes a complex process in a particular soil under a given set of circumstances by a single number. It appears that most insight has and will come from integral studies in which micromorphology is combined with detailed studies of soil mechanical, physical and chemical processes. Of course, simple empirical tests will always be needed for correlative studies and field surveys. The symposium successfully exhibited promising elements for future integral studies.

A daylong excursion was a welcome interlude of the four days of lectures and discussions. It included a visit to the long-term field study of soil erosion and colluviation on arable fields on loess at Huldenberg, a demonstration of a field rainfall simulator at the Research Station of Ornamental Plants at Melle, and the stabilization of 220

ha of sand by hydroseeding at the inner harbour of Zeebrugge, an early evening visit to the historical city of Brugge, and a reception and dinner at the Town Hall of the medieval village Damme. The rich heritage of Gent was evident during three early evening receptions and/or guided tours offered by the University and by the Town of Gent.

In conclusion, the organizers and the participants can look back at a splendid week, both scientifically and culturally.

P. A. C. Raats, Haren, The Netherlands

Report on an AFRICAN WETLANDS UTILIZATION CONFERENCE

Ibadan, Nigeria, November 4–8, 1985

An International Conference on Wetland Utilization for Rice Production in Africa was held at the International Institute for Tropical Agriculture, Ibadan, Nigeria, 4–8 November, 1985. This was followed by a study tour to the Bida area, Nigeria, 9–11 November.

There were about 120 participants, most from different African countries and about 20 from China, Japan, the Philippines, Italy, Belgium, the Netherlands, USA and Canada.

Invited lectures and case studies covered characteristics of wetland soils and environment, land development and water management, cropping systems, crop improvement and adaptation, plant protection and nutrition, and aspects of mechanization and technology transfer. The final session dealt with social and economic aspects of the development of rice land in Africa.

Three lectures covered the occurrence and distribution of wetlands, present land use, and strategies and approaches on wetland rice improvement in tropical Africa.

A paper on the classification of wetland soils discussed the improvements and further subdivision of the aquic soil moisture regime recently proposed by ICOMAQ, and advocated a separate classification of surface-water (flooding) regimes, based on the recent IRRI publication (Terminology for rice growing environments, 35 p. ISBN 9711041197, IRRI, 1984).

A paper on rice soil evaluation for soil fertility discussed the recent modification of the FCC system for wetland soils and the Japanese system of fertility classification based on principal component analysis of chemical data on the ploughed layer.

Hydrological considerations of small-scale wetland development for rice cultivation were reviewed and agrohydrological characteristics of small inland valleys were discussed.

One paper dealt with the occurrence and hydrology of iron toxicity in an inland valley. An extensive review covered the use of Azolla for nitrogen nutrition of rice and other crops in Africa.

The conference Proceedings, to be published by Wiley, are expected to be available in 1986.

Robert Brinkman, Wageningen, the Netherlands

Report on the FIRST INTERNATIONAL CONFERENCE ON GEOMORPHOLOGY

Manchester, England, September 15–21, 1985

While in several countries separate associations of geomorphologists exist, e.g. the very active British Geomorphological Research Group (BGRG), until now geomorphologists did not have a roof organization for international meetings. They usually constituted a significant part of IGU and INQUA congresses. Thus the First International Conference on Geomorphology, Manchester, September 1985, sponsored by the BGRG was eagerly awaited. It was attended by some 700 participants from over 50 countries. The largest foreign delegation, with some 40 delegates, was from China where landscape studies are now pursued intensively. Other planned-economy countries were less well represented. The organization was exemplary but the several uncoordinated parallel sessions prevented easy transfer from room to room.

Though the general theme of the conference was 'Geomorphology, Environmental Management and the Developing World', the traditional geomorphological topics – floodplains, fans, deltas, drumlins, karst, to basin sediment systems and long term landform evolution – held the prime interest of the participants. Secondary emphasis was on environmental management, land resources evaluation and conservation. Thus there were many papers and posters on weathering, laterite, Quaternary soils and loess, on soil erosion processes, erosion rates in natural and man-induced landscapes, and on land conservation. A workshop on digital map preparation was co-chaired by W. G. Sombroek of ISRIC. Proceedings will be published as special numbers of various journals and as additional volumes by J. Wiley.

Probably some 15% of all papers and posters involved some aspects of the soil sciences. The impact of several recent, non-agriculturally oriented, soil textbooks or monographs is clearly evident in the research methodology used and in the better grasp of the nature of soils in natural and man-affected landscapes. Hopefully this trend will continue. However, soil taxonomy and some technical soil terms still pose communication problems. The application of soil moisture regime concepts in the study of soil erosion processes is becoming more prevalent.

The future of international collaboration in geomorphology was discussed intensively and it was decided to hold the Second International Conference on Geomorphology in 1989 in West Germany, probably in Frankfurt. In the meantime a small steering committee will discuss and propose the future organizational form. An international Newsletter will be produced by the BGRG for which interested persons can apply (c/o Prof. D. Brunsden, Geography, King's College, University of London). Soil-landscape researchers, land use and conservation, and soil erosion specialists should collaborate with the new group.

D. H. Yaalon, Jerusalem, Israel

By courtesy of Mr A. H. Rachocki, author and copyright holder of 'Dr Wire's Geo-story'.

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

ISSS Working Group ZO – IUBS Commission on Soil Zoology

9th INTERNATIONAL COLLOQUIUM ON SOIL ZOOLOGY
Moscow, USSR, August 16–20, 1985

The 9th International Colloquium of the ISSS/IUBS Soil Zoology Committee assembled in Moscow, USSR, on August 16–20, 1985 under the motto 'Soil fauna and soil fertility'. The meeting was held upon invitation of the USSR Academy of Sciences.

The motto of the Colloquium emphasized the applied approach in modern soil zoological investigations and the significance of soil animals in maintaining the soil fertility level.

The President of the Soviet Organizing Committee and head of the Soviet school of soil zoology, Academician M. S. Ghilarov, who had initiated the invitation to Moscow, passed away just a few months before the Colloquium. Upon request of the Soviet Organizing Committee, supported by Chairman of the International Soil Zoology Committee, Professor K. E. Lee of Australia, the 9th Colloquium was dedicated to the memory of M. S. Ghilarov, the founder of soil zoology in the USSR.

Six topics were selected for the Colloquium sessions:

1. The role of soil animals in soil fertility.
2. Biotic relations of soil invertebrates.
3. The role of soil animals in the biogenic turnover.
4. Ecophysiology of soil invertebrates.
5. Anthropogenic impact and soil invertebrates.
6. Bio-indication and other problems of soil zoology.

The contributions to these topics were accepted on the basis of the abstracts sent earlier to the Organizing Committee.

The opening of the Colloquium was held with a greeting speech of President of the Organizing Committee, Corresponding Member of the USSR Academy of Sciences O. A. Skarlato. About 300 soil zoologists, representing 31 countries, participated in the Colloquium, including 200 specialists from the USSR.

The session discussed the lectures devoted to the most general and actual problems. The highest interest was caused by materials dealing with an analysis of the structure and dynamics of soil invertebrate populations and a quantitative evaluation of their participation in soil formation processes. A considerable part of the contributions was presented as posters.

In the scope of the Colloquium, the 6th International Symposium on *Apterygota* was held on August 21–22, which dealt with 25 lectures and posters. Modern problems of taxonomy and ecology of *Apterygota* were the main item of discussion.

The sessions of the Colloquium took place in the buildings of the Moscow State University, with financial support of the USSR Academy of Sciences.

Publication of the reports and discussions of the Colloquium is planned for 1986 as a separate Proceedings volume.

B. R. Striganova, Moscow, USSR
Vice-President of the Organizing Committee

The tenth Colloquium on Soil Zoology will be held at Bangalore, India in 1988, with Prof. G. K. Veeresh as Chairman of the local Organizing Committee. The eleventh Colloquium is likely to be organised at Jyvaskyla, Finland in 1991 by Prof. V. Huhta.

ISSS Subcommission A

INTERNATIONAL SYMPOSIUM ON THE RECLAMATION OF SALT-AFFECTED SOILS

Jinan, China, May 13–21, 1985

The International Symposium on Salt-Affected Soils held in Jinan, China was organized by Beijing Agricultural university and the Chinese Academy of Agricultural Sciences under the aegis of the Ministry of Agriculture, Animal Husbandry and Fishery of the People's Republic of China.

Minister He Kang of the Ministry of Agriculture, Animal Husbandry and Fishery of China was Honorary Chairman of the symposium and Mr. Zang Chengyao, Deputy Director of the Ministry's Science and Technology Commission was Chairman.

Present at the symposium were 56 scientists from China and 22 scientists from Australia, Canada, Hungary, Iraq, Japan, the Netherlands, Thailand, the United States, the Soviet Union, Yugoslavia and from FAO. The participants expressed sincere thanks to minister He Kang for his support and concern for the convening of the symposium, to the People's Government of Shandong Province for its hospitality and to the Organizing Committee for its outstanding efforts.

On the evening of May 12th, Minister He Kang hosted a grand banquet in honour of the symposium participants. On May 13th they started a four-day scientific tour and visits to the Experiment Station for the Improvement of Salt-Affected Soil in Quzhou, Hebei Province, run by Beijing Agricultural University and the two stations of the Chinese Academy of Agricultural Sciences respectively in Lingxian and Yucheng, Shandong Province. During the visits, the Chinese soil scientists working there briefed the visitors on the different types of salt-affected soils and the conditions for their occurrence, methods for their utilization and improvement and results, as well as the results and experience they had achieved in their research.

At the official Opening Ceremony on May 17th, speeches were held on behalf of the Minister, the Governor and the Chinese Academy of Agricultural Sciences. After Professor Donald R. Nielsen, Chairman of the Soil Science Society of America and Past Chairman of ISSS Commission I, spoke as representative of the foreign delegates, the three-day sessions of academic reports and discussions started. On the morning of May 21st, group discussions were held, appraising the symposium and putting forward recommendations. Scientists from China, Thailand and Yugoslavia and the Chairman of the Conference, Mr. Zang Chengyao spoke at the closing ceremony.

There were in total 49 articles submitted to the symposium and included in the Proceedings. Moreover, seven posters were displayed and Beijing Agricultural University prepared an exhibition of salt-affected soil samples in China.

Three main aspects were discussed at the symposium:

Genesis and cartography of salt-affected soils: soil salinization as a world-wide problem; and land evaluation of salt-affected soils; China's saline soils and their reclamation and utilization; regional soil salinization and its characteristics; soil classification and soil survey, and cartography by using remote sensing techniques.

Physical and chemical properties of salt-affected soils, and water and salt movement: water and salt movement of salt-affected soils in the world and in semi-humid monsoonal climate zones; water and salt movement of salinized soils; soil spatial variation, and ion exchange of salt-affected soils.

Utilization and reclamation of saline soils: general theory of the utilization and reclamation of saline soils; utilization and improvement in different regions; improvement with chemical and agricultural techniques; physical and biological improvement; drainage techniques, and irrigation with brackish water.

Salt-affected soils account for 10% of the land surface area of the globe, involving over 100 countries. As they are important source for agricultural production, they need to be utilized rationally and reclaimed effectively, in order to enhance farm production and improve the farmers' living in these areas. At the same time, dozens of millions of hectares of land become wasted due to secondary salinization resulting from irrational irrigation. Soil salinization is a world-wide problem having important bearing on the conservation of human resources and environment.

Only by promoting international cooperation and technical exchange can there be good solutions. Therefore, the symposium suggested that technical exchange in soil science be intensified and appealed to the International Society of Soil Science, FAO, UNEP and other international organizations to organize relevant seminars and workshops.

After discussions and the field trip to the Huang-Huai-Hai Plain, the conference thought positively of the theory elaborated by Chinese scientists on the water and salt movement of salt-affected soils in semi-humid monsoonal climate regions and of the integrated approach for improvement of such soils by irrigation, drainage and water management, and agricultural and forestry development. Foreign soil scientists considered that the Chinese people can be proud of their achievement in the reclamation and utilization of salt-affected soils and China's success in this field impressed the foreign delegates. However, like in many other countries in the world, there is room for improvement as to how to apply the testing and research results in practice so as to better integrate control measures. This was reflected in a number of detailed technical recommendations, drawn up at the end of the meeting, concerning: resource assessment and technical exchange; reclamation techniques; and intensification of cooperation in soil science between China and the world.

Donald Nielsen, Davis-Ca, USA

ISSS Commissions IV and VI

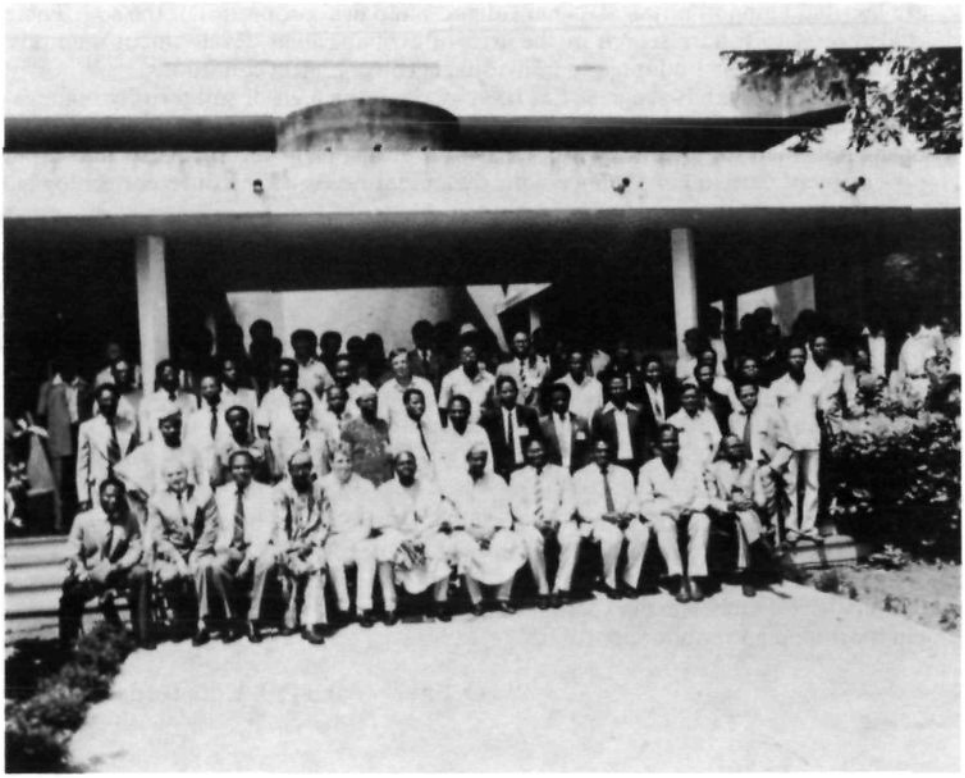
INTERNATIONAL CONFERENCE ON SOIL FERTILITY, SOIL TILTH AND POST-CLEARING LAND DEGRADATION IN THE HUMID TROPICS

Ibadan, Nigeria, 21–26 July, 1985

An International Conference on Soil Fertility, Soil Tilth and Post-Clearing Land Degradation in the Humid Tropics was held at the Conference Centre, University of Ibadan, Ibadan, Nigeria from 21–26 July, 1985. It was jointly organised by the International Society of Soil Science and the Soil Science Society of Nigeria.

About 120 soil scientists and agronomic experts from various parts of the world participated in the conference, including the ISSS Treasurer Dr. D. Gabriëls. During the field excursions and the various technical sessions at which about 50 scientific papers were presented, the participants deliberated upon the problems of soil fertility management with particular emphasis on land clearing techniques and the minimisation of post clearing land degradation.

A one-day field tour led the participants to a commercial farm owned by Texaco Oil Company, about 100 km north of Ibadan. The main crop grown there is cassava. The land where this farm is situated has many soil management problems which the management did not take into account before opening up the land. Because of the rapid degradation of the soil, the company is about to abandon the place and acquire a more suitable land. It however afforded the participants a chance to see a peculiar land management problem in the tropical environment and this is associated with the climatic conditions and the soil parent material.



From this farm the participants went back to the International Institute of Tropical Agriculture (IITA), which is only a few km's away from the University where the conference was held. The group was well received by the Management of the Institute. During an illustrated lecture and a field tour of the experimental plots, the participants were intimated about the various management techniques and the farming systems that the Institute is studying.

The conference recognized the importance of proper soil management for sustained agricultural productivity, especially bearing in mind that the soil is a non-renewable resource. Thus, the improvement of productivity on existing land offers the most economical and viable means of accelerating agricultural production in the tropical environment.

It was observed that the problem of large scale agricultural production involving mechanized land clearing, as against small scale subsistence farming, is primarily that of soil conservation and the adoption of appropriate – functional management technology.

The conference endorsed the following recommendations for implementation as a matter of policy by the various governments in tropical areas:

- Soils Surveys, land evaluation and land use planning should be the basis of site selection for large scale agricultural production projects.
- There is need for a general land capability assessment programme to aid the articulation of appropriate alternative uses of land resources.
- Substantial proportion of the financial disbursements to the agricultural sector should be committed to the development of tools and appropriate machines that are less damaging to physical, chemical and biological properties of the soil. There is also need to fund research in the area of evolving land development methods, that are site specific – adapted to individual agro-ecological conditions.
- Considerable research progress has been made in the area of soil fertility management and efficiency of fertilizer use. These research results should be brought to bear upon the food production policies of the various governments so that input procurements are in consonance with the actual needs of the different ecological zones.

Substantial research gaps exist in the areas of land clearing and development for increased food prodution of the humid tropics. There is therefore an urgent need to intensify efforts in the following areas:

- Design of appropriate land clearing technology that are site specific to various landscape conditions.
- Development of appropriate farming systems and land management with emphasis on post-clearing tillage operations and soil conservation.
- Exploring the possibility of utilizing soil wastes in the manufacture of organic fertilizers.

This was the first time that the Nigeria Soil Science Society hosted an international meeting. There were some lapses due in part to inexperience, in part to the rather difficult economic conditions now prevailing in the country. In general, however, it was a very useful exchange of experiences among soil scientists and agronomists working in the humid and subhumid tropics.

W. O. Enwezor and E. J. Udo, Ibadan, Nigeria

ISSS Subcommission B

SEVENTH INTERNATIONAL MEETING ON SOIL MICROMORPHOLOGY

Paris, France, 8–12 July, 1985

The Working Meeting of the Sub-Commission of ISSS on Soil Micromorphology, held every fourth year opened at the Institut National Agronomique (INA) in Paris with words of welcome from W. Sombroek, ISSS Secretary-General; G. Pedro, President of the French Society of Soil Science (AFES); M. Hervé, representing the Ministry of Agriculture, and G. Stoops, President of the Sub-Commission. Some 200 delegates representing approximately 40 countries enjoyed a well-organized programme of more than 100 papers and some 60 poster presentations. The 1-day soil excursion west of Paris on Wednesday, July 10th provided a welcome break and an opportunity to visit sites studied by N. Federoff and his students. The meeting was preceded by a fascinating 6-day excursion from Montpellier to Paris and followed by a successful 6-day excursion in northwestern France.

Papers and posters were organized under 8 themes. Three of these were on microscopy applied to the genesis and properties of soil from the following regions: tropical, arid and Mediterranean, temperate. The other five themes were: technical problems in soil microscopy, microscopy applied to investigation of interactions between living things and soil components, use of micromorphology in assessing effects on soils of agricultural and tillage practices, microstructure in relation to physical and mechanical behaviour of soils, and micromorphology applied to paleopedology, geomorphology and archaeology.

Most of the oral presentations were of 15 minutes followed by 5 minutes of discussion. Maintenance of the schedule, with few exceptions, contributed to the success of the meeting. Quality of papers ranged widely but there were many good presentations of original work both orally and in posters. A few speakers were guilty of presenting masses of illegible material in slides. Many, however, presented excellent slides or overheads with clear photographs or simple figures and tables that complemented the text. It was impossible to hear all of the oral presentations as there were concurrent session on 3 days, and difficult to find the time to study all of the posters and exhibits of equipment and books. Thus, the highlights for each delegate would depend on his or her sampling of the programme as well as on personal interests. For me, the highlights were several presentations on soil-root-fungal interaction, a few of the papers on applications of micromorphology to the study of soil physical problems such as compaction, and a few presentations on improvements in techniques and methods, including the 'round table' on thin section preparation led by Chris Murphy.

Coffee breaks, evenings exploring the cafés of the Latin Quarter and the closing banquet at Grignon provided excellent opportunities for discussion with colleagues from many countries. the international camaraderie nurtured by meetings such as this contributes to real scientific exchange and co-operation. 'L'esprit international' flourished also among the accompanying guests who were graciously conducted on tours of Paris by wives and friends of some of the French delegates.

The delegates appreciated the heroic efforts of Nick Fedoroff, Marie-Agnes Courty, Louis Marie Bresson and the many others who helped them in organizing the meeting and in tirelessly undertaking the thousands of tasks that contribute to a pleasant and successful event.

Soils, of course, are out in the terrain and, for many, soils conventions require well-planned field trips. The 7th meeting got off to an excellent start with a 6-day excursion from Montpellier to Paris. The trip through the changing landscapes of France from the Mediterranean coast, the Garrigues, Camargue, Mt. Ventoux, Valleys of the

Rhone and Saône, and northern Burgundy was well organized, packed full of scientific and cultural information and an outstanding success at the international relationships-human level. The leader, Gabriel Callot, with irrespressible enthusiasm and 'joie de vivre', ably assisted by colleagues from Montpellier and from centres along the route, provided the 17 participants with a memorable experience. His demonstrations of root-fungal-soil interactions were new and convincing to most, and all participants are expected to use a 'loupe binoculaire' in future field work. Among the many highlights of this trip were: the demonstrations of soil-root interactions by Callot and Jaillard; the exposition of soil development on terraces of the Rhone by Michel Bornard, and the explanations of relationships between soil factors and wine quality by Drs. Servant and Leneuf.

Nick Fedoroff and colleagues maintained the quality of organization and information in guidebook and posters on the 1-day excursion covering palesols (sol lessivé) in loess, podzols and gleysols in the Paris basin.

In the words of Larry West, the post-meeting excursion led by P. Aurousseau assisted by P. Curmi, J. Ducloux, D. Righi and associates was excellent. The participants saw podzols and hydromorphic soils in Brittany, soils developed from limestone, and soils of the coastal plain near Bordeaux. Excellent micrographs were shown at each site and discussions were lively.

At the business meeting on July 12, Drs. Brewer and Yarilova were awarded the first Kubiena medals for their contributions to micromorphology. The eagerly awaited Handbook for Thin Section Description is expected to be available in September, 1985, and a book on thin section preparation prepared by Chris Murphy is nearing completion. A Bibliography of Soil Micromorphology is being prepared, and work is underway on compiling terminology from the Handbook. Reference thin sections are being prepared by Dick Creutzberg at ISRIC, Wageningen. An international course on soil micromorphology was proposed. Larry Wilding, on behalf of the Soil Science Society of America, extended an invitation to hold the next meeting in the United States; the proposal was accepted unanimously. Nich Fedoroff was elected president, Maya Kooistra secretary, Larry Wilding and Alex McKeague as vice-presidents; these are to be considered for approval at the ISSS Meeting in Hamburg, 1986. George Stoops, retiring president, and Rienk Miedema, retiring secretary, merit the appreciation of micromophologists for their stirring contributions, including the newsletter prepared by Rienk.

Dr. Leneuf, chairman of the organizing committee, closed the meeting with comments on the significance of soil micromorphology and with thanks to all the organizers.

J. A. McKeague, Ottawa, Canada

KUBIENA AWARDS

The Subcommission on Micromorphology decided to establish a 'Kubiëna Award' to be handed during its International Working Meetings to an outstanding scientist which has contributed in a special way to the development of soil micromorphology. During the Paris meeting (July 1985) exceptionally two awards were adjudged: one to Dr. R. Brewer and one to Dr. E. A. Yarilova.

The contribution of R. Brewer and his coworkers to the development and popularity of micromorphology is well known by every soil scientist. Brewer's handbook 'Fabric and Mineral Analysis of Soils' is probably one of the most quoted books in soil science. Also the efforts of E. Yarilova and her coworkers in popularizing this method in the USSR and her contributions to the progress of micromorphology are well known. They apply to both theoretical and methodological fields and to the characterization of chernozems, chestnut and saline soils.

The soil micro-morphologists ... quite a micro-crowd!

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

50TH ANNIVERSARY OF THE SOIL SCIENCE SOCIETY OF THE NETHERLANDS

Wageningen, November 7, 1985

On November 7, 1985 a one-day scientific meeting on 'Modern developments in soil science' was held at Wageningen, the Netherlands, to celebrate the 50th anniversary of the Soil Science Society of the Netherlands. The meeting, which was attended by about 150 participants, was organised by a special committee consisting of Dr. G. W. Elbersen, Dr. J. Sevink and Ir. J. W. Bakker, and by the Board of the Society. Five invited speakers from five different countries gave their views on future developments in soil science.

In his opening address the President of the Society, Dr. Ir. N. van Breemen, shortly reviewed the history of the society, which was established in 1935 as a section of the International Soil Science Society. The first invited speaker, Prof. Dr. D. R. Nielsen of the University of California at Davis, and former president of the Soil Science Society of America, stressed in his lecture 'Emerging frontiers in soil science' the importance of regionalized variable analysis as an intellectual framework for future research. Research frontiers at present are stochastic analysis, expanded use of scaling methods, the exploration of transfer functions, statistical analysis and the study of multiple land management units. He viewed as a major challenge to mankind, and to soil scientist especially, to be able to manage natural resources without soil exhaustion.

The second speaker, Prof. Dr. R. Dudal, formerly of FAO and now professor of soil science at the University of Leuven, Belgium, presented a lecture on 'Adequacy of soil survey and soil classification for development'. He stated that existing classification schemes are often inadequate for planners, for soil survey and for land evaluation. Properties important for planners such as stoniness and slope, and properties important as well for land evaluation, such as permeability and water supplying capacity, usually do not appear in soil classification and cannot be read from soil maps. Part of the problem refers to the scale at which soil maps are presented: their usefulness is directly related to the minimum management area for a particular kind of land use. The study of spatial variability of soil properties is academically interesting, but whether it has practical implications is still an open question. The importance of climate for land evaluation is often overlooked by soil scientists. They should rely less on taxonomy for mapping, but more on the soil as part of the land and on the use of the 'correlative complex' concept advocated by the late Prof. Edelman in the Netherlands. This requires an integration of pedological, geomorphological and hydrological data for the establishment of mapping units. Professor Dudal expressed his credo in the importance of soil studies for agriculture; in the usefulness of soil maps; in the importance of field research; and in the necessity of multidisciplinary teams in planning and land evaluation, in order to avoid 'resource illiteracy'.

The complementary views of Dr. Nielsen, whose main hope for the future resided in application of more computer technology, and of Dr. Dudal who stressed the value of field experience and soil survey, especially for developing countries, provoked lively discussions with the audience, and there seemed general agreement that both aspects should be integrated as much as possible in future.

In the afternoon Prof. Dr. B. Ulrich of the University of Göttingen, F.R.G. presented a broad review of 'The role of soil in the ecosphere'. He regarded the soil to

be the heart of the ecosystem. The ecosystem is not an ideal open system in steady state, however, because of inconstancy of the environment (climatic change), the decrease of weatherable minerals and the limited life span of the system elements. Chemically these deviations show up first by leaching of the bicarbonate ion, the accumulation of organic matter and spatial and/or temporal divergencies of ion uptake and release by organisms. Soil acidification with the consequences of leaching of nutrients and the development of acid toxicity is most completely caused by life processes. In terrestrial ecosystems life creates the conditions which limit its existence.

His lecture was followed by a presentation by Dr. T. Ingestad of the University of Uppsala, Sweden on 'New concepts on soil fertility and plant nutrition'. The common fertilization practice with large supplies one or a few times per season is in sharp conflict with a quantitative model of nutrient requirements of plants. A very accurate control of plant nutrition and growth without nutrient leakage can be achieved by applying a single fertilizer with all nutrients in the required relative amounts, at a relative addition rate in the laboratory, or with a nutrient flux density in the field in agreement with the utilization capacity of the plants.

The last speaker. Dr. Ir. H. van Keulen of the Centre of Agrobiological Research, Wageningen, replacing Prof. Dr. C. T. de Wit of the Agricultural University, in his lecture 'The use of soil science in modelling crop production' gave some examples of the problems encountered when meteorological and soil data are used for harvest predictions. Climatic data are difficult to interpret in semi-arid areas with runoff agriculture. Soil maps have been constructed averaging characteristics such as texture and permeability for a large number of individual profiles. For adequate harvest prediction , however, the point data of the profiles themselves are preferred above the soil maps. In future soil surveys also these point data should become available to the users.

At the end of the meeting, the secretary-general of the ISSS, Dr. Ir. W. G. Sombroek, congratulated the Dutch Soil Science Society with its succesfull anniversary celebration on behalf of the ISSS, and paid attention to some details of the history of the Society, especially in the difficult years of World War II.

In the breaks between the lectures, the participants admired an extensive poster exhibition in which all Dutch research institutes, universities and companies active in the field of soil science in its broadest sense showed their activities.

S. B. Kroonenberg, Wageningen, the Netherlands

Persatuan Sains Tanah Malaysia

The Malaysian Society of Soil Science elected new members of its Management Committee for the years 1985/86 as follows:

President:	Dr. Hj. Noordin Wan Daud
Vice-President (Pen. Malaysia):	Dr. Chan Yik Kuan
Vice-President (Sabah):	En. Kong Hon Hyen
Vice-President (Sarawak):	En. Peli Mat
Hon. Secretary:	Dr. Abu Talib Bachik
Hon. Treasurer:	Dr. Mohd Noor Sudin
Hon. Asst. Secretary:	Dr. Jamal Talib
Hon. Asst. Treasurer:	Dr. Chong Kewi
Committee members:	En. Peter Lim Kim Huan, Dr. Razley Mohd Nordin, Dr. Ghulam Moh. Hashim, Dr. Azmi Mat Akhir

Address of the Secretariat: P.O. Box 12644, Kuala Lumpur, Malaysia.

Polskie Towarzystwo Gleboznawcze

INCREASING PRODUCTIVITY OF LIGHT TEXTURED SOILS, Annual Conference of the Polish Soil Science Society at Zielona Gora, September 18–20, 1985.

In the premises of the High School of Engeneers at Zielona Gora more than 250 scientists participated in the meeting, which was organized in West Poland where the subject of the scientific programme – the sandy soils – are rather extensive.

The conference was opened by Professor L. Krolikowski, president of the Polish Soil Science Society. After addresses by local authorities and by the Deputy Secretary-General of ISSS, six plenary lectures were presented on sandy soils, their extension, properties, methods of investigation, and their productivity and amelioration. In the lectures due attention was paid to the antrophogenic influences, and to environmental aspects related to the agro- and sylvo-cultural utilization of sandy areas in Poland.

In total 37 papers were demonstrated at a poster session in the afternoon of the first day of the conference. the presented papers covered practically all of the actual topics related to the physical, chemical, biological properties of sandy soils as well as methods of their utilization. The sandy soils are widespread in most areas of Poland and constitute about 75% of all utilizable soil resources of the country.

The sessions of the first day were followed and completed by excursions to the sandy areas in the surroundings of Zielona Gora on 19 and 20th September. Eleven soil profiles were demonstrated and the problems of their genetics, properties as well as the possibilities of increasing of their productivity were discussed.

The Polish Soil Science Society, which is one of the oldest among the family of national societies of the ISSS, can be credited with the success of its annual conference.

I. Szabolcs, Budapest, Hungary

All-Union Society of Soil Science of the U.S.S.R.

The All-Union Society of Soil Science held its 7th Congress in Tashkent, Uzbekistan, on September 9–13, 1985. The Congress was held according to the motto SOIL FERTILITY, RECLAMATION AND CONSERVATION. About 1000 delegates and guests from various regions of the Soviet Union took part in the work of the Congress, which was involved in plenar sessions, several symposia and traditional commissions of the Society.

Plenary reports were devoted to problems of the Food Production Programma and dealt with rational land use in different natural zones, soil fertility increase, soil reclamation and conservation of the soil resources. A wide spectrum of problems was considered in 5 symposia: the increase of the fertility of irrigated soils, theory and practice of soil fertility reproduction, reclamation and utilization of soils in the Aral Sea basin, conservation of soils and irrigation waters from chemical pollution, soil erosion control in plain and mountainous conditions.

The Congress emphasized the importance of achievements of Soviet soil scientists for 1981–1985. Within this period efforts were made in fundamental researches in general and reclamative soil science, soil erosion control, elaboration of measures to prevent chemical pollution, secondary salinization and solonetzification when the soils are irrigated. The main principles for complex reclamations as well as for monitoring the soil cover have been elaborated. Mathematical methods and computers were widely introduced into soil science, agrochemistry and reclamation of soils; a new branch of science – soil informatics appeared to be in development. As a result of researches and practical experience new principles have been elaborated to create models of soil fertility, extended reproduction of soil fertility in the Non-Chernozemic zone, as well

as principles for irrigated agriculture and complex reclamations of soils in Chernozemic zone. The theory of forecasting and regulating the water-salt regimes in soils under irrigation was found to be further developed. Methods of reclamative afforestation made it possible to prevent soil erosion and droughts.

The proceedings of the Congress were published in 6 issues in Russian.

During the Congress three exhibitions took place: 'Achievements in Soil Science, Reclamation and Conservation of Soils of the USSR', 'Prominent Soil Scientists of the USSR', and 'Review of Foreign Literature on Soil Science'.

After the Congress the participants joined in one of the three scientific tours studying landscapes and soils in vertical zones in the West Tien Shan, irrigated typical chernozems and meadow alluvial soils in basin of the Chirchik river, sierozem-meadow soils in the Golodnaya Steppe, irrigated meadow soils in Seravshan plain and Bukhara oase, as well as old-irrigated soils in Samarkand oase.

A new Central Council of the Society was elected to serve the term up to the 8th Congress which will be held in 1990. The following office-bearers were elected:

President:	Prof. Dr. V. A. Kovda, Institute of Soil Science and Photosynthesis of the USSR Academy of Sciences
Vice-Presidents:	Prof. Dr. G. V. Dobrovolski, Faculty of Soil Science at the Moscow State University
	Prof. Dr. A. N. Kashtanov, All-Union Academy of Agricultural Sciences
	Prof. Dr. R. V. Kovalev, Research Institute of Soil Science and Agrochemistry in Novosibirsk
	Prof. Dr. B. G. Rozanov, Faculty of Soil Science at the Moscow State University
	Prof. Dr. L. L. Shishov, Dokuchaev's Soil Institute, Moscow
Scientific secretary:	Dr. T. P. Kokovina, Dokuchaev's Soil Institute, Moscow

Address: Pygevski 7, 109017 Moscow, USSR.

The Secretary-general ISSS wishes to express his sincere thanks for the cordial welcome extended to him by Officers and members of the All-Union Society during his visit to Moscow and Putchino soil institutions from 24 to 28th of November, at the invitation of the USSR Academy of Sciences.

Deutsche Bodenkundliche Gesellschaft (DBG)

Vorstand für die Amtsperiode 1986–1989:

Präsident:	Prof. Dr. H. Kuntze, Bodentechnologisches Institut, Friedrich-Mißler-Str., 46–50, 2800 Bremen, tel.: 0421-230080
Vizepräsident:	Prof. Dr. H. P. Blume, Institut für Bodenkunde, Ohlshausenstr. 40–60, 2300 Kiel, tel.: 0431-8802503
	Prof. Dr. B. Meyer, Institut für Bodenwissenschaften, v. Siebold-Str. 4, 3400 Göttingen, tel.: 0551-395392
Geschäftsführer: (*Secretary, with address*)	Dr. P. Hugenroth, Institut für Bodenwissenschaften, v. Siebold-Str. 4, 3400 Göttingen, BRD, tel.: 0551-395504

THE NINTH LATINAMERICAN AND THIRD COLOMBIAN CONGRESS OF SOIL SCIENCE

Cali, Colombia, August 26–30, 1985

The ninth Latinamerican and third Colombian Congress of Soil Science had as motto: 'Soil Conservation is the life and food of tomorrow'. Consequently the main emphasis of the meeting was Conservation and Management of Soils in Latin America.

There were about 400 participants, mostly from Colombia, but there were also representatives from Chile, Bolivia, Peru, Ecuador, Venezuela, Panama, Costa Rica, Mexico, Cuba and the U.S.A.

On behalf of the ISSS, at the opening ceremony, I congratulated the Organizing Committee and the Colombian Society of Soil Science for the excellent organization, the gathering of 400 scientists, and the presentation of more than 100 papers on soil science in Latin America.

There were 6 master and 8 special conferences dedicated to the main topic of the Congress, that is: Conservation, Management and Transfer of Agrotechnologies for Latin American conditions. The other 115 papers presented were scheduled in 4 working groups: Chemistry and Microbiology (29 papers), Soil Fertility (36 papers), Soil Physics and Irrigation (16 papers) and Genesis, Classification, Management and Conservation (35 papers). Summaries of all papers presented were distributed at the registration.

Three post-conference tours of one day each were organized to observe the main soils, management experiences and soil conservation problems in the Cauca valley

Left to right: Dr. Alfredo León, President of the Organizing Committee; Dr Juan A. Comerma, representing ISSS; Dr Mario Blasco, General Manager of IICA in Colombia; Dr Manuel del Llano, Honorary President of the Colombian Soil Science; the General Manager of HIMAT (Inst. de Meteorologia y Hidrologia); the Secretary of Agriculture and livestock at Cauca; the Executive Director of the Regional Corporation Cauca; Dra. Gloria O. Ramirez, Executive Secretary of the Congress; and Dr. Ramiro Guerrero, President of the Colombian and Latin American Soil Science Societies – speaking.

and its surrounding mountains. Besides all the new technological knowledge resulting from all the papers presented, including experiences analyzed since pre-columbian times until the ones resulting from this year, there was consensus that to obtain a more rational and efficient use of Latin American lands, it is imperative to educate and create conscience in our farmers as well as in our politicians with respect to the importance of conservation as a legacy for all our children and grandchildren.

Drs. Alfredo Leon, President of the Organizing Committee, Gloria Ortiz Ramirez, Executive Secretary of the Congress, Ramiro Guerrero, President of the Colombian Soil Science Society and other Colombian Soil scientists deserve a congratulation for this well organized meeting in spite of the shortness of monetary resources.

The last day of the meeting, the Confederation of the National Soil Science Societies of the different Latin American countries represented, met to decide on the next Latin American Soil Science Society meeting. The selection fell on Venezuela who then will be holding that meeting in Maracaibo in 1987. A preliminary decision was also taken in relation to the possibility that one of the Latin American countries could be host of the XIV ISSS Congress. Mexico will study that possibility. In case that a Latin American country is accepted by the ISSS for the XIV Congress, the other countries present at this meeting offered support for possible regional and national field tours.

Juan A. Comerma, Maracai, Venezuela

Sociedad Mexicana de la Ciencia del Suelo A.C.

The Mexican Society of Soil Science held its 18th National Congress from 25 to 29th November 1985 at La Paz, Baja California Sur.

The Mesa Directiva of the Society of the period 1984–1986 consists of the following persons:

Presidente:	Dr. Enrique Palacios-Vélez
Vice-presidente:	Dr. Mario R. Martinez-Ménez
Secretário-general:	Ing. M. C. Nicolás Cerda-Ruiz
Tesorero:	Ing. José Luis Garduño-Valdés
Secretário-técnico:	Ing. Tomás Valenzuela-Ruiz
Secretário de relaciones públicas:	Ing. Elias Rodriguez-Majía
Secretário de eventos nacionales e internacionales:	Ing. Martín Arguijo-Alonso
Vocales:	Ing. Ricardo Torres Cossío; Ing. M. C. Rubén Guajardo-Viera
Editor:	Dr. Jorge D. Etchevers-Barra

Address of the Secretariat: Apartado Postal 45, Chapingo 56230, Méx, Mexico.

Sociedade Brasileira de Ciencia do Solo

XX MEETING OF THE BRAZILIAN SOIL SCIENCE SOCIETY DISCUSSED PROBLEMS OF SOILS OF THE AMAZON REGION

The Brazilian Soil Science Society (BSSS) carried out, from 14 to 21 July, 1985, its twentieth biennial Meeting in Belém, a 1.2-million people city in northern Brazil, which is considered the doorway of the Brazilian Amazon. About 200 scientists, extension agronomists, and students attended the Meeting where papers, including posters, were presented.

Taking the opportunity of having the Meeting in the Amazon region, a great portion of the program was focused on problems related with the utilization of the tropical rain forest soils of the Amazon for agricultural purposes. A Symposium on Management of Tropical Soils was planned along this line and had the participation of scientists from various countries. Nine invited papers dealt with themes such as fertility of the tropical soils, especially Ferralsols/Oxisols and Acrisols/Ultisols, technological options for the rational management of tropical soils, use of fertilizers in the tropics, effect of burning on vegetation and soils of the Amazon, and utilization of pastures and tree-crops for the exploitation of the Amazon. The Program on the Amazon region was complemented with conferences and ended with a meeting of a task force in charge of discussing the 'Great Problems of Soil Science in the Amazon'.

Those who attended the XX Meeting of the BSSS left Belém with the idea that, if the extensive lands of the Amazon region may not come to be the Eldorado or the food basket of the world, as many dreamed, the region is not doomed either to be readily transformed into a desert if men dare to use it for agriculture. Despite the great difficulties to be met in the rational exploitation of the Amazon, this challenging task will have to be faced keeping in mind that, with appropriate technology, a sound and permanent agriculture can prosper in the region, without ruining the environment.

At the XX Biennial Meeting of the Brazilian Soil Science Society held in Belém-Pará from 14 to 21 July 1985, new Officers were elected for the 1985–1987 period:

President:	José Fernando Moraes Gomes, Ministerio de Agricultura, Brasillia	
1st. Vice-President:	Antonio Carlos Moniz	Instituto Agronomico de Campinas, Sao Paulo
2nd. Vice-President:	Francisco Lombardi Neto	
Secretary:	Heitor Cantarella	
Treasurer:	José Maria A. S. Valadares	
Council:	Egon Klamt (Porto Alegre), Osmar Muzilli (Londrina), Manlio Silvestre Fernandes (Ceará), Francisco da Costa Verdade (Campinas), Luiz Ferreira da Silva (Bahia), Antonio Ramalho Filho (Brasilia)	

Address of the Society: Dr. Heitor Cantarella, Secretary S.B.C.S., Caixa Postal 28, 13100 Campinas, SP, Brazil.

6th CZECHOSLOVAKIAN CONFERENCE ON SOIL SCIENCE, Nitra, September 2–5, 1985

156 Czechoslovakian and 16 foreign soil scientists from Bulgaria, G.D.R., Hungary, Jemen, Poland, Romania, U.S.A., USSR and Yugoslavia participated at the meeting, which took place at the University of Agriculture in Nitra.

On 2nd September the Conference was opened by the Presidents of the Slovakian and Czech Soil Science Societies. It was addressed by local authorities, by the representatives of Ministry of Agriculture and Academy, and by the Deputy Secretary-General of ISSS.

The plenary lectures, related to the motto of the Conference: 'Soils in relation to phytomass production and landscape formation', were followed by the sessions of 4 sections:

– Soil physics; Soil chemistry and plant nutrition; Humus and soil biology; Soil genesis, classification and evaluation

Altogether 63 papers, of which 7 by foreign scientists, were presented and discussed. The summaries of the papers were printed and distributed. The full proceedings of the meeting will be available both in English and Russian at the 13th Congress of ISSS in Hamburg. At the Conference information on the forthcoming Congress was presented and the local Organizing Committee expressed its intention for participation by interested Society members.

On the premises of the conference site, a nice exhibition opened on the history of Slovakian Soil Science.

The Conference was followed by two one-day excursions. On 4th September the soils of the lowlands near the Danube river were demonstrated (Luvisols, Chernozem soils) and on the 5th September the forest soils of Central Slovakia were observed.

The 6th Czechoslovakian Conference of Soil Science, due to the good organization and many remarkable papers, was crowned by success.

I. Szabolcs, Budapest, Hungary

On 6th of September 1985 the INSTITUTE FOR SOIL SCIENCE AND PLANT NUTRITION celebrated the 25th anniversary of its foundation in Bratislava.

The Soil Laboratory of the Czechoslovakian Academy for Agricultural Sciences established in 1960 was the name at the beginning of the Institute. Between 1960 and 1970 the detailed soil maps of the Slovakian Republic were prepared parallel with physical, chemical and biological studies of the soil.

In 1968 the Institute took its recent name and three departments in Banska Bystrica, Presov and Snina joined also to the organization. From 1971 the Bratislava Institute became the responsible organization for the coordination of soil research in the Czecholovakian Socialist Republic as well as the coordinator for foreign relations of soil science of the country.

It is a rare happening that the founder of the Institute **Prof. J. Hrasko** has been director of the Institute during all the 25 years. On the 6th of September he reported on the history of the Institute and on its achievements: besides a number of theoretical and practical results to its credit he also listed the aims of Czechoslovakian soil science and of the Bratislava Institute for the forthcoming years.

Both Czechoslovakian and foreign institutions, including ISSS, addressed and congratulated the Institute and its collective. Professor Hrasko and many of his colleagues received governmental awards and other distinctions.

Z. Bedrna, Bratislava, Czechoslovakia

Soil Science Society of Nigeria

At the 1984 annual general meeting of the Soil Science Society of Nigeria held on Tuesday 16th October 1984 at the Rivers State University of Science and Technology, Part Harcourt, the undermentioned were elected to run the affairs of the Society for period 1984–86.

President:	Prof. W. O. Enwezor Fac. of Agric., University of Nigeria, Nsukka
Vice-President:	Prof. A. G. Ojanuga, Dept. of Soil Science, Rivers State University of Science and Technlogy, Port Harcourt
Secretary:	Dr. U. Omoti, N.I.F.O.R. Benin City
Asst. Secretary:	Dr. V. O. Chude, Cocoa Research Institute of Nigeria, Ibadan
Treasurer:	Dr. G. O. Obigbesan, Dept. of Agronomy, U.I.
Business Manager:	Dr. E. J. Udo, Dept. of Agronomy, U.I.
Financial Secretary:	Dr. M. C. Oparaugo, Fed. School of Soil Conservation, Jos
Editor-in-Chief N.J.S.S.:	Dr. R. A. Sobulo, I.A.R. & T Ibadan
Ex.Officio:	Mr. E. O. U. Okoye, FDLR Kaduna; Dr. M. C. Igbokwe, Fed. School of Agric., Umudike; Dr. D. O. Ataga, NIFOR Benin.

Address of the Secretary: c/o NIFOR, PMB 1030, Benin City, Nigeria.

Soil Science Society of Sri Lanka

The 16th Annual General Meeting of the Soil Science Society of Sri Lanka was held on the 18th October, 1985 at the Department of Agricultural Chemistry, University of Peradeniya, Sri Lanka.

At the business session the following Office bearers were elected for the period 1985–1986.

President:	Dr. W. D. Joshua
Vice-President:	Dr. S. Amarasiri
General Secretary:	Dr. G. Keerthisinghe
Treasurer:	Dr. L. G. G. Yapa
Editor:	Dr. R. B. Mapa
Auditor:	Dr. A. N. Jayakody
Comm. Members:	Mr. P. Krishnarajah, Mr. A. Ananthacumarswamy, Dr. S. Weeraratne, Mr. S. A. P. K. Samaranayake, Mr. M. Jeganathan, Mr. H. B. Nayakakorala.

Address of the Secretary: Dept. of Agricultural Chemistry, Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka.

Israel Society of Soil Science

The new Executive Council of the Society, assuming office as from October 1st 1985, is composed as follows:

Chairman:	Dr. M. Fuchs, Institute of Soils and Water, Volcani Center, Bet Dagan.
Secretary-Treasurer:	Dr. Z. Gerstl, Institute of Soils and Water, Volcani Center, Bet Dagan.
Members:	Dr. S. Manor, Ministry of Agriculture, Tel Aviv; Prof. A. Banin, Faculty of Agriculture, Hebrew Univ., Rehovot; Prof. Y. Avnimelech, Faculty of Agricultural Engineering, Technion, Haifa.

Address of the Secretariat: c/o Institute of Soils and Water, Volcani Center, P.O. Box 6, Bet Dagan 50250, Israel.

IN MEMORIAM

Prof. Dr. Erkki Kivinen (1903–1985)

Erkki Kivinen, professor and rector emeritus of University of Helsinki, President and Honorary President of IPS, died on the 4th of October 1985. He was graduated from high school 1922 and received the degree of Doctor of Agriculture and Forestry in 1933. The aim of his thesis was 'Untersuchungen über den Gehalt an 'Pflanzennährstoffen in Moorpflanzen und an ihren Standorten'.

Professor Kivinen's principal line of research was the Finnish soil. He had a special interest in certain soil types to which little or no attention had previously been paid. Though he was first and foremost a basic research worker, an essential feature of all his work was that it has been ultimately directed towards practical goals. He was one of the few who have successfully forged a link between theoretical and applied research. Consequently many of his findings have led, even at an early stage in his career, to practical results.

As a teacher, docent of Peatland Research and Professor of Agricultural Chemistry and Physics between 1935 and 1962, Erkki Kivinen demonstrated the qualities he was to display as an administrator: order, clarity of thought and a precise knowledge. Kivinen had the far-seeing capacity to appreciate the value of support given by older scientists to their younger colleagues.

His unbroken career as an adminstrator began in 1945, when he was elected dean of the Faculty of Agriculture and Forestry at Helsinki University. In 1954, when Helsinki University needed a new vice-rector, the choice fell on Erkki Kivinen. And in 1962 he was elected rector of the same University until 1971.

His international activity in soil science began in 1932, when he became a member of International Society of Soil Science. He wrote in his memoirs: 'I have the most pleasant memories from ISSS. Already in 1937 I participated a meeting in Zürich, where it was discussed how to join the peat research to ISSS.' The next year 1938, when Commissions II and V had their meeting in Finland, he was the secretary of Finnish organizing committee and prepared a long excursion around the country.

Later in the 1950s Professor Kivinen became involved in the activity of International Peat Society (IPS) more and more. In 1970 he was elected to the president of IPS and in 1980 Honorary President. His powerful and unconstrained, yet at the same time gentle way of leading the meetings of the IPS administration, working parties and so on, became known and well-liked during his ten years in the office of the President.

Professor Kivinen was a member of ISSS for 50 years.

Finnish Society of Soil Science

APPOINTMENTS, HONOURS
NOMINATIONS, DISTINCTIONS
ERNENNUNGEN, AUSZEICHNUNGEN

Dr. **E. Gordon Hallsworth**, past president of ISSS and Chairman of its Committee-on-Rules, has been the recipient of the Prescott Medal for distinguished contributions to Australian Soil Science.

Prof. Dr. **Rudy Dudal**, past Secretary-General ISSS, has become Honorary Member of the Soil Science Society of America, at its annual meeting in Chicago, November 1985. Dr. **Johan Bouma** (Wageningen, Holland), Dr. **Surajit De Datta** (Los Baños, Philippines), Dr. **Pan Ming Huang** (Saskatoon, Canada), and Prof Dr. **Bernard Ulrich** (Göttingen, FRG) are the foreign soil scientists that have been appointed Fellow of the American Society.
Dr. **Bobby A. Stewart**, soil scientist of Bushland, Texas, has received the US Department of Agriculture's Superior Service Award for research and leadership in soil and water conservation. Dr. **Dick Meriweather Smith**, emeritus professor of soil sciences of West Virginia University was awarded Reclamation Researcher of the year, by the American Society for Surface Mining and Reclamation.
Dr. **Rattan Lal**, soil management and conservation specialist of IITA, Nigeria, will join Ohio State University, UIA, as associate professor in soil physics in 1986.

Dr. **Bernd von Droste**, a forest ecology and -planning specialist, has been appointed the new Director of Unesco's Division of Ecological Sciences and Secretary of the Man- and Biosphere's international coordinating council. His predecessor, Dr. **Francesco di Casti**, soil microbiologist and now professor at Montpellier, France, has been elected Secretary-General of the International Union of Biological Sciences (IUBS), which has its seat with ICSU in Paris.

Prof. Dr. **Thomas Rosswall**, soil biologist of Linköping, Sweden, has been appointed Secretary-General of SCOPE, which is the standing Scientific Committee on Problems of the Environment of the International Council of Scientific Unions.

Dr. **Peter Bullock**, past Chairman of the ISSS Subcommission on soil micromorphology, has been appointed the new Head of the Soil Survey of England and Wales at Rothamsted. His predecessor, **Don Mackney**, upon his retirement has been awarded the Order of the British Empire (O.B.A.) for his outstanding services to Agriculture.
Dr. **P. Bernard Tinker**, Chairman of the ISSS Commission on Soil Biology, has been appointed Director of Terrestrial and Fresh Water Sciences, National Environment Research Council (NERC), Swindon, U.K.

Dr. **R. S. Randhawa**, Chairman of the ISSS Commission on Soil Fertility and Plant Nutrition, has been appointed Director-General of the Indian Agricultural Research Council (IARI) in New Delhi, India. Dr. **J. L. Sehgal**, micromorphologist and professor of pedology at Ludhiana University, is the Director-designate of the Indian National Bureau for Soil Survey and Land Use Planning (NBSS & LUP) in Nagpur, India.

Dr. **Donald L. Winkelmann**, economist, has been appointed the new Director-General of CIMMYT, Londres-Mexico; Dr. **Laurence Shifel** is the new Director-General of IITA, Ibadan, Nigeria, and Mr. **Alexander von der Osten** has been appointed in that function at ISNAR in the Hague, the Netherlands.

NEW/NOTEWORTHY:

International Erosion Control Association Inc. (IECA)
Inviting people in an effort to discover, collect, and disseminate information on effective and economical methods of erosion control.
Address: Michael C. McMillan, Executive Director, P.O. Box 807, Freedom, CA 95019, U.S.A.

The Sulphur Institute 25 years
Address: Dr. R. J. Morris, Director Agricultural Programs, 1725 K-Sheet, NW Washington DC 2006, U.S.A.

International Federation of Classification Societies (IFCS)
Founded by the British Classification Society, the Classification Society of North America, the Gesellschaft für Klassifikation, the Japanese Classification Society, the Societá Italiana di Statistica, and the Societé Francophone de Classification.
Address: A. J. Boyce, Secretary BCS, c/o Statistical Laboratory, 16 Mill Lane, Cambridge, England.

The Ninth World Forestry Congress, Mexico, July 1985
...*Emphasizes* its conviction that it is possible to conquer poverty, overcome the shortage of forest products prevailing in large regions of the world and to develop and care of our forests, and
...*Recognizes* that only the conservation and rational use of the potential of forestry can promote the development of national economies, ultimately leeding to the enhancement of standards of living, for the benefit of humanity, and therefore
...*Appeals* to all human beings of all nations and to their governments, within the framework of their own sovereignty, to recognize the importance of forest resources for the biosphere and the survival of humanity and to devote themselves to safeguarding and promoting this resource which will provide humanity with food, raw materials, energy, rural well-being, ecological protection and improvement in the quality of life.
Address of the International Union of Forestry Research Organisations (IUFRO): Dr. O. Bein, Schönbrunn, A-1101 Vienna, Austria.

Something for the lone fieldman?
Soil scientists in general, and soil surveyors/ecologists/conservationists in particular, are an enterprising lot, working in remote places and enduring quite a few hardships. One may want to highlight this through applying for one of the five *Rolex Awards for Enterprise 1987*, a three-yearly award created by Montrex Rolex SA, Geneva, Switzerland (50,000 Swiss Francs each, plus a gold Rolex chronometer). All those who have devised projects displaying a true spirit of enterprise in the major areas of: Applied Sciences and Invention; Exploration and Discovery, and The Environment are eligible. Prospective applicants should write for an official application form to: The Secretariat, The Rolex Awards for Enterprise, P.O. Box 178, 1211 Geneva 26, Switzerland.

Old, but noteworthy:
'There is nothing in the whole of nature which is more important than or deserves as much attention as the soil. Truly, it is the soil which makes the world a friendly environment for mankind. It is the soil which nourishes and provides for the whole of nature; the whole of creation depends on the soil which is the ultimate foundation of our existence.'
Friedrich Albert Fallou, 1862

INTERNATIONAL RELATIONS
RELATIONS INTERNATIONALES
INTERNATIONALE VERBINDUNGEN

ISSS HOST TO ANNUAL CASAFA MEETING

CASAFA is the standing inter-Union Committee on the Application of Science to Agriculture, Forestry and Aquaculture of the International Council of Scientific Unions (ICSU; see also bulletins 64 and 66). The Secretary-general, as member on behalf of ISSS, hosted the 1985 annual meeting at the Seat of the Society in Wageningen, the Netherlands from 2 to 4 September, together with Prof. Dr. C. C. Oosterlee, Rector of the Agricultural University of Wageningen and Prof. Dr. D. de Zeeuw, Director of Agricultural Research of the Netherlands and founding member of CASAFA.

The three days' meeting at the premises of ISRIC was attended by about fourty persons, under the Chairmanship of Dr. J. H. Hulse (IDRC, Canada). In addition to regular members, and a number of delegates from national Committees and scientific Unions, there were also representatives of several donor agencies and international research organisations (GTZ, BOSTID, WINROCK, DGIS, ACIAR, CTA, INRA, the CGIAR secretariat, and the U.N. University).

The first day was devoted to introductions and discussions on four technical subjects, including one on 'Biological Nitrogen Fixation' by Prof. Dr. A. van Kammen, and on one 'Identification and Management of Problem Soils in the Tropics and Subtropics' by Dr. W. G. Sombroek.

On the second day, patterns and resources available for cooperative research for agricultural development were discussed. Dr. F. Mutemba of the new UN World Commission on Environment & Development (the 'Bruntland Commission') outlined the subject of its Panel on Food Security, Agriculture, Forestry and Environment (Chairman: Dr. M. S. Swaminathan). Close working relations between that Panel and CASAFA are foreseen.

A small working group was formed to recommend ways and means to strengthen the brokerage function of CASAFA between basic research needs in developing countries and major research institutions in industrialised countries. At the initiative of US, German and Dutch representatives, the needs for applied research in tropical forest-fringe areas ('the problem areas of tomorrow') will be one of the future foci of attention of CASAFA.

At a special plenary session at the International Agricultural Centre (IAC) of Wageningen, a ten-member Dutch national Committee for CASAFA was installed.

The next annual meeting of the Committee will take place in September 1986 in West-Berlin, at the invitation of the Deutsche Forschungs-Gemeinschaft.

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FAO/UNESCO LEGEND FOR THE SOIL MAP OF THE WORLD UNDER REVISION

At the initiative of FAO's Land & Water Development Division, a small ad-hoc working group of FAO, Unesco and ISRIC held several technical meetings in the course of 1985, alternatively in Rome and in Wageningen, to revise the existing legend terminology of the FAO/Unesco Soil Map of the World project. Such a revision was felt to be necessary in view of the many new field data generated since the completion of the project nearly 15 years ago; the many suggestions for improvement received from soil scientists the world over; the needs of national institutions that use the legend as basis for their national soil mapping programmes; and the urgency to update the

existing Soil Map of the World at the same or larger scale, using digitized storage and printing techniques.

The amendments proposed relate to the diagnostic horizons and diagnostic properties, the definitions of major soil groupings and of soil units, the introduction of third-level subunits, and the phases. The general structure and rationale on which the original legend was constructed was however maintained.

It is hoped that the present revision of the FAO/Unesco Legend will contribute significantly to the establishment of an International Reference Base for soil classification. The latter effort, through the standing ISSS Working Group IRB on the subject (see previous bulletins) is of necessity of a long-term nature for which ISSS should offer the framework and continuity.

The proposals for a Revised Legend have already been presented and discussed at the regional meetings of FAO on Soil Correlation and Land Evaluation in Eastern Africa (Lesotho, October 1985) and West Africa (Ouagadougou, November 1985) respectively, and are being sent around, as a draft FAO World Soils Resources Report, to soil scientists and institutions that employ the FAO/Unesco legend terminology. There will also be a presentation of the revisions at the Hamburg Congress in August 1986.

For further particulars please *contact*:
Mr. M. Purnell, Senior Officer, Soil Resources Group, AGLS/FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

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ICSU MEETING ON EDUCATION IN SCIENCE AND TECHNOLOGY AND FUTURE HUMAN NEEDS
(Bangalore-India, August 6–14, 1985)

On behalf of ISSS, Prof. Dr. E. G. Hallsworth participated in the above meeting. Beforehand, he had written to every ex-President of the Society and to a range of Universities across the world asking them the details of their courses, and the extent to which they thought their cover of Soil Science and particularly soil conservation, was adequate for 'future human needs'. The discussions at the Bangalore meeting, however, centred on the needs at school level rather than at the University level. The following was proposed to be included in the Land Section of a general statement to be issued by the meeting.

'Land is the ultimate limit to growth. Although great strides have been made in the developed world to increase the production of food & fibre per hectare, this was not being paralleled in many parts of the developing world, although South-east Asia, from India to China, had greatly increased their production.

Over most of the developing world, however, a very serious loss of production is occurring due both to urban sprawl and to the loss of soil by gullying and erosion. Very few of the courses given in the agricultural departments of the Universities gave much attention to soil conservation and to the other factors relating to the maintenance of productive capacity. Whilst the soil courses given to intending graduates in soil science are usually adequate, the courses in soils given to other students are normally lacking in many aspects related to soil management. In particular, information flow in the extension services is too often only one way, from the research station to the farmer and very rarely from the farmer to the researcher. There is need for a new philosophy of land management which will safeguard the productive capacity without either doing damage to the environment of to the farmer's capacity to earn a better living.

It is essential that the Society continues to press upon goverments, administrators & grant-giving institutions the importance of maintaining the productive capacity of the lands of the earth, whilst at the same time emphasizing that the programs proposed to do this must also enhance the return that the man-on-the-land receives from his labour, otherwise he will direct his efforts elsewhere. When this happens the elaborate system by which fertility has been maintained will fall into disuse.'

GLOBAL RESOURCES REPORT

Beginning in early 1986, an annual report on world environmental and resource trends will be published jointly by two international study centers, the World Resources Institute (WRI) in Washington and the International Institute for Environment and Development (IIED), located in Washington and London respectively.

The World Resources Report will be the first major effort to provide, on a continuing basis, the best and most up-to-date information on world resource conditions and trends. In addition, the report will offer analyses of special issues: rounds-up of information on current research, conferences, publications, and special events; and a comprehensive set of environmental and resource data indicators. The report will review twelve areas each year: population, land use, settlements, agriculture, forests and grasslands, wildlife, energy, fresh water, oceans and coasts, atmosphere, global systems and cycles, and policies and institutions.

The World Resources Report will be edited by Donald Hinrichsen, former editor of **Ambio**, an international environmental journal published by the Royal Swedish Academy of Sciences. Dr. M. S. Swaminathan, director-general of the International Rice Research Institute in the Philippines, is chairman of the report's editorial advisory board, which is now being formed. The board's international membership will include eight to ten individuals representing diverse experiences in government, business, science, and research.

Besides WRI and IIED funding for the World Resource Report comes from the Ford Foundation and the United Nations Environment Programme.

from: Environment Liaison Centre's
'News Alert' vol 2(4), Nairobi,Kenya

Address of the World Resources Institute:
WRI, 1735 New York Avenue, NW Washington DC 2006, U.S.A.

THE INTERNATIONAL FOUNDATION FOR SCIENCE

IFS is a non-governmental non-profit organization created to support developing country scientists of outstanding merit. IFS was founded in 1972 and has now a membership of 76 scientific academies and research councils in 66 countries, of which two thirds are in developing countries. The annual budget is about US $ 2 million.

The IFS support is given mainly as a research grant for scientific equipment, supplies, literature etc. A condition for a grant is that the research be carried out in a developing country. An average IFS grantee is around 30 years old, returning back home with a fresh PhD and about to start his or her own research career at a university or research institute. Areas of research are agricultural and biological sciences and related technology, such as aquaculture, animal production, food crops, afforestation, etc. Grant applications and project reports are assessed by the IFS scientific advisers, some 450 internationally renowned experts who assist the Fondation voluntarily, in their personal capacity. Besides the research grants – normally not more than US $ 10,000 and renewable up to three times – IFS helps grantees to overcome their scientific isolation by arranging visits to, and from, colleagues in developing as well as industrialized countries, workshops or seminars.

Address: Mrs. Ingrid Millqvust, International Secretary, IFS, Grev Turegatan 19, S-11438 Stockholm, Sweden.

TROPICAL SOIL BIOLOGY AND FERTILITY PROJECT (TSBF)

The International Union of Biological Sciences (IUBS) has launched a research programme called 'Decade of the Tropics'. One of the research projects which constitute the backbone of the programme should be of special interests to ISSS members as it focuses on soils and soil fertility. The general objective of this collaborative research programme is to determine the management options available for improving tropical soil fertility through biological processes.

The Tropical Soil Biology and Fertility (TSBF) project was first presented in Biology International Special Issue No. 5 following a workshop held in Lancaster, U.K. in early 1984. After the project description had been circulated widely, the responses were evaluated and the project plans were further elaborated at a second workshop held on 27–31 May, 1985, at Fontainebleau, France. Several ISSS members participated, including its Secretary-general.

Following the May meeting, the main objective of the proposed project is to develop a predictive understanding of the functioning of biological processes in tropical soils, and their role in contributing to sustainable soil fertility and hence to provide a means for the maintenance and improvement of soil fertility by influencing these processes through management practices.

Within this overall objective, two major themes have been identified: SYNCHRONY – to describe the mechanisms determining the transfer of nutrients from decomposing organic matter and how the nutrient mineralization rates can be manipulated to coincide with plant nutrient uptake demands and SOM – to determine the significance to soil fertility of the relationship between the organic and inorganic inputs to soil and the quality and quantity of soil organic matter.

In addition, the crucial importance of water to tropical soil fertility not only as an environmental factor influencing nutrient dynamics, but as an essential component of 'fertility' in its own right, was recognized. Emphasis was also placed on the role of biological processes in the development of the physical structure of soil as well as in regulating its chemical characteristics.

Based on the general hypothesis, four experimental principles were formulated:

1. The release of nutrients (N, P) from above- and below-ground litter can be synchronized with plant growth demands.
2. Soil organic matter constitutes both a link and a source of plant nutrients (N, P) and hence acts as a regulator of temporal and spatial patterns of nutrient availability. The quantity and quality of SOM is influenced by the nature of the above- and below-ground litter input.
3. The pattern of root growth in time and space acts as a regulator of the availability of nutrients to plants in present and future seasons.
4. Surface litter and SOM influence soil water fluxes and moisture regimes.

In addition, 12 testable hypotheses were formulated which will form the basis for the experimental design. This will include three levels of increasing intensity of research:

Level I is the minimum level of participation in the programme. It involves an investigation of the various features of nutrient cycling in the plant-litter-soil system as stated in the Experimental Principles. This is to be achieved by means of a broad comparative study of natural and managed ecosystems.

Level II involves the specific experimental testing of one or more of the Testable Hypotheses. It is hoped that all Programme Centres will carry out at least one such test, in addition to the minimum Level I description.

Level III involves the intensive investigation of one or more of the TSBF Hypotheses as well as detailed study of some particular aspects of soil biology that goes beyond the particular concerns of the Experimental Principles.

In order to achieve comparable sets of data, each participating site is asked to carry out a minimum package of measurements and adopt a minimum experimental design. The latter consists of a comparison of an agricultural system with the natural ecosystem from which it is derived. To further ensure comparability, a TSBF Handbook of methods is being written. The contents include sections on site description including vegetation and soils, as well as the more specialised soil biological aspects such as decomposition processes and soil fauna. It is intended that each chapter of the Handbook will initially be issued in mimeographed form. The methods will be field tested by the programme participants, and a final printed version of the complete Handbook will be published for general use in 2–3 year's time.

To help coordinate the programme a small committee has been set up consisting of M. J. Swift (Chairman, Zimbabwe), J. M. Anderson (U.K.), F. di Castri (France), F. B. Golley (U.S.A.), T. Rosswall (Sweden) and P. Sanchez (U.S.A.). In addition, a scientific advisory group composed of representatives of a number of relevant scientific disciplines (a.o. W. G. Sombroek of ISSS/ISRIC) will help with the further developments. The next coordinating meeting is expected to take place in Yurimaguas, Peru in 1986 and this will be followed by a number of regional meetings.

In view of the overwhelmingly positive response to the proposal with over 80 institutions from 34 countries in the tropical zone having indicated an interest in contributing to the programme, it should be possible to get it off to a flying start as an important contribution to tthe IUBS programme 'Decade of the Tropics'. Further *information* can be obtained from the MAB Secretariat *or* IUBS, 51, boulevard de Montmorency, 75016 Paris, France, *or* Prof. M. Swift, Chairman, TSBF Coordinating Committee, Dept. of Biological Sciences, University of Zimbabwe, Harare, Zimbabwe.

T. Rosswall, Uppsala/Linköping, Sweden

TROPICAL MOUNTAIN ECOSYSTEMS

A workshop on tropical mountain ecosystems was held in Merida, Venezuela, from 2–8 June 1985, under the joint sponsorship of the Decade of the Tropics of IUBS and the MAB Programme of Unesco. The general framework of the workshop was provided by the proposals for comparative studies on tropical mountain ecosystems that had been developed during a workshop held in Barcelona in May 1984 (see Biology International – Special Issue 8).

The Merida workshop concentrated on research work in the northern Andes. Presentations and discussions were organized around six main themes: present and past environmental characteristics of the northern Andes; processes and adaptation in plants of tropical Andean ecosystes; decomposition and nutrient cycling in Paramo ecosystems; evolution problems, community and population ecology; ecological variability, human settlements and environmental impact; flora and vegetation in the northern High Andes. A substantive report on the workshop will be produced by IUBS in late 1985.

The Merida workshop for the Andean region will be followed by other regional worshops in Ethiopia (1986), Nepal (1987), and Hawaii (1988). The theme of the Ethiopian workshop, which will take place from 18–27 October 1986, is 'African mountains and highlands: ecodevelopment, resource management and food security'.

from: Unesco's Info MAB (4), 1985

MEETINGS, CONFERENCES, SYMPOSIA
RÉUNIONS, CONFÉRENCES, SYMPOSIUMS
TAGUNGEN, KONFERENZEN, SYMPOSIEN

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

1986

*** 3rd International Symposium on Acid Suphate Soils,** Dakar, Senegal, January 6–10, 1986 and excursion from 13–17 January, 1986 (ISSS Working Group AS).
Information: Prof. Dr. L. Pons, Dept. of Soil Sci. and Geology, Agric. Univ., P.O. BOX 37, 6700 AA Wageningen, the Netherlands.

*** International Workshop on the Structure of a Digital International Soil Resources Map annex Data Base,** Wageningen, January 20–24, 1986.
Information: Dr. W. G. Sombroek, Convenor ISSS Provisional Working Group DM, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

International Symposium on Erosion and Sedimentation in Arab Countries, Baghdad, Iraq, February 15–19, 1986.
Information: Dr. N. Al-Ansari, Chairman Organizing Committee, Ministry of Irrigation, Baghdad, Iraq; *or:* Dr. D. E. Walling, President ICCE, Department of Geography, Univ. of Exeter, Exeter EX4 4RJ, England.

*** Regional Symposium on Properties and Management of the Red Soils of East and Southern Africa,** Harare-Zimbabwe, February 24–27, 1986 (see Bulletin 67, page 3).
Information: Dr. Kingston Nyamapfene, Univ. of Zimbabwe, BOX MP 167, Mt Pleasant, Harare, Zimbabwe.

Geochemistry of the Earth Surface and Processes of Mineral Formation (I. International Symposium on Geochemistry of the Earth Surface, II. International Symposium on Crystal Growth Processes in Sedimentary Environments) Granada, Spain, March 16–22, 1986.
Information: Dr. Rafael Rodriquez Clemente, National Museum of Natural History, CSIC c/José Gutiérrez Abascal, 2, 28006 Madrid, Spain.

International Meeting on Amelioration of Soils by Trees, Lucknow, India, March 2–9, 1986.
Information: Dr. P. V. Sane, National Botanical Research Institute, Lucknow-226001, India.

CANCELLED:
*** International Symposium on Tropical Savanna (Cerrado) Soils: Technology for Use and Management,** Brasilia, Brazil, 16–30 March, 1986 (ISSS Commissions IV, V and VI, and Brazilian Society of Soil Science).

2nd International Soil Management Workshop: Classification, Characterization and utilization of Peatland, Hat Yai, Southern Thailand, April 17–18, 1986 (with a field tour in Malaysia).
Information: Dr. S. Panichapong, Director, Land Use Planning Division, Dept. of Land Development, Gangkhen, Bangkok 10900, Thailand.

Second International Conference on Hydraulic Design in Water Resources Engineering: Land Drainage, Southampton, U.K., April 16–18, 1986.
Information: Dr. K. V. H. Smith, Department of Civil Engineering, The University, Southampton, S09 5NH, U.K.

*** International Workshop on Quantified Land Evaluation Procedures,** Washington-USA, April 28–May 2, 1986 (see Bulletin 67, page 4).
Informationn: Prof. Dr. K. J. Beek, ITC, P.O. Box 6, 7500 AA Enschede, Holland.

3rd International Conference on Geoscience Information, Adelaide, Australia, June 1–5, 1986.
Information: Conference Secretariat 3 ICGGI, c/o Australian Mineral Foundation, Private bag 97, Glenside, SAS 5065, Australia.

2nd Scientific General Assembly of the International Association of Hydrological Sciences (IAHS/IUGG), Budapest, Hungary, July 2–10, 1986.
Information: Dr. A. Szöllösc-Nagy, c/o Water Resources Research Centre VITUKI, P.O. Box 27, H-1453 Budapest, Hungary.

2nd International Symposium on Spatial Data Handling, Seattle, Washington USA, July 6–10, 1986. (Commission on Geographical Data Sensing and Processing of IGU/ICA).
Information: Dr. Duane F. Marble, Seattle Symposium, P.O. Box 571, Williamsville, NY 14221, U.S.A.

International Symposium 'Plant and Soil: Interfaces and Interactions' (at the occasion of the forthcoming 100th Volume of 'Plant and Soil'), Wageningen, the Netherlands, August 6–8, 1986.
Information: Prof. Dr. A. van Diest, Dept. of Soil Science and Plant Nutrition, Agric. University, De Dreyen 3, 6703 BC Wageningen, the Netherlands.

4th Congress of the International Association for Ecologists, Syracuse NY, U.S.A., August 10–16, 1986.
Information: Prof. F. B. Golley, Institute of Ecology, University of Georgia, Athens, GA 30602, U.S.A.

*** 13TH INTERNATIONAL CONGRESS OF SOIL SCIENCE, HAMBURG, FED. REP. OF GERMANY, AUGUST 13–20, 1986.**
Information: **Prof. Dr. K. H. Hartge, Inst. f. Bodenkunde, Univ. Hannover, Herrenhäuserstrasse 2, D-3000 Hannover 21, F. R. Germany,** *or* **M. Rieger, Hamburg Messe u. Kongress GmbH, Jungiusstrasse 13, 2000 Hamburg 36, F. R. Germany.**

13th International Conference on Water Pollution Research & Control, Rio de Janeiro, Brazil, August 17–22, 1986.
Information: IAWPR Secretariat, Alliance House, 29–30 High Holborn, London WC1V 6BA, U.K.

4th International Symposium on Microbial Ecology, Ljubljana, Yugoslavia, August 24–29, 1986.
Information: France Megusar, Biotechnical Faculty, E. Kardelj University of Ljubljana, Jamnikarjeva 101, 61600 Ljubljana, Yugoslavia, *or:* S. W. Glover, Department of Genetics, The University of Newcastle, Ridley Building, Claremont Place, Newcastle upon Tyne, NE1 7RU, U.K.

International Symposium on Remote Sensing for Resources Development and Environmental Management (ISPRS) Enschede, the Netherlands, August 25–29, 1986.
Information: Symposium Secretariat Commission VII, ISPRS, c/o ITC, P.O. Box 6, 7500 AA Enschede, the Netherlands.

Symposium on Mineral Nutrients in Savanna & Tropical Forest Ecosystems, Stirling, Scotland, U.K., August 26–28, 1986.
Information: J. Proctor, Dept. of Biological Science, Univ. of Stirling, Stirling FK9 4LA, U.K.

International Conference on Landscapes of the Southern Hemisphere, Adelaide, Australia, August-September 1986.
Information: Jon Firman, C/- S.A. Dept. of Mines and Energy, P.O. Box 151, Eastwood, S.A. 5063, Australia.

International meeting on Remote Sensing and Geographic Information Systems, Madrid, Spain, early September 1986 (Commission on Geographical Data Sensing and Processing of IGU/ICA).
Information: Dr. Duane F. Marble, Madrid Symposium, P.O. Box 571, Williamsville, NY 14221, U.S.A.

International Conference Agricultural Engineering 86, Noordwijkerhout, the Netherlands, September 1–4, 1986.
Information: Mr. A. P. S. de Jong, IMAG, P.O. Box 43, 6700 AA Wageningen, the Netherlands.

International Symposium on Geomorphic Processes in Environments with Strong Seasonal Contrasts, Barcelona, Murcia, Spain, September 5–14, 1986. (Commission on Measurement, Theory and Application in Geomorphology (COMTAG) of the International Geographical Union.)
Information: Prof. Dr. J. de Ploey, Secretary COMTAG, Lab. of Experimental Geomorphology, Catholic Univ. of Leuven, 16 bis Redingenstraat, 3000 Leuven, Belgium.

International Conference on the Management and Fertilization of Upland Soils, Nanjing, China, September 7–11, 1986.
Information: Prof. Xie Jian-Chang, Organizing Committee ICMFUS meeting, Institute of Soil Science of the Academia Sinica, P.O. Box 821, Nanjing, People's Republic of China.

14th International Congress of Microbiology, Manchester, England, September 7–13, 1986.
Information: Dr. J. A. Cole, Dept. of Biochemistry, University of Birmingham, P.O. Box 363, Birminghham B15 2TT, England (programme); *or:* Mr. A. F. Yates, Trading Services, UMIST, P.O. Box 88, Jackville Street, Manchester M60 1YD, England (registration).

18th World Congres of the Intern. Union of Forestry Research Organisations (IUFRO), Ljubljana, Yugoslavia, September 7–25, 1986.
Information: O. Bein, Schönbrunn, A-1131 Vienna, Austria.

19th Congress of International Association of Hydrogeologists, Karlovy Vary, Czechoslowakia, September 8–15, 1986.
Information: Stavebni Geologie, Praha, Gorkého namesti 7, 11309 Praha 1, Czechoslovakia.

Australian-New Zealand Joint Soils Conference, Rotorua to Hamilton, Nivember 20–27, 1986.
Information: Dr. L. A. Douglas, Faculty of Agriculture and Forestry, Grattan Street, Parkville, VIC 3052, Australia.

1987

International Conference on Infiltration Development and Application, Honolulu, Hawaii, U.S.A., January 6–8, 1987.
Information: Prof. Yu-Si Fok, Water Resources Research Center, University of Hawaii at Manoa, 2540 Dole Street, Honolulu, Hawaii 96822, U.S.A.

4th International Congress of Ecology (Intecol/IUBS), Syracuse, U.S.A., February 10–16, 1987.
Information: E. S. Ayensu, 9200 Wilmett Court, Bethesda, MD 20817, U.S.A.

International Symposium on Loess, Taita, New Zealand, February 1987 (Western Pacific Working group of the International Loess Commission).
Information: Dr. D. N. Eden, N.Z. Soil Bureau, Private Bag, Lower Hutt, New Zealand.

International Symposium on Hydrology in Perspective; Lessons from the past: Prospects for the future, Rome, Italy, April 6–10, 1987. (International Association of Hydrological Sciences – IAHS.)
Information: Dr. J. C. Rodda, Secretary-General IAHS, Institute of Hydrology, Walling Lord, Oxon OX10 8BB, England, *or:* GIBI, s.a.s. Studio Congressi, Via Marco Besso 40, 00191 Roma, Italy.

*** International Symposium on Advances in Nitrogen Cycling in Agricultural Ecosystems,** Brisbane, Australia, May 11–15, 1987 (Co-sponsorship of ISSS Commission III).
Information: Mr. Keith Weier, Symposium Secretary, Div. of Tropical Crops and Pastures CSIRO, Cunningham Laboratory, St Lucia, Brisbane, Queensland, 4067 Australia.

14th International Botanical Congress, West Berlin, FRG, July 24–August 1, 1987.
Information: Dr. W. Greuter, Königin-Luise-Strasze 6–8, D-1000 Berlin (West) 33, FRG.

12th International Congress of the International Union of Quaternary Research (INQUA), Ottawa, Canada, July 31–August 9, 1987.
Information: Dr. Alan V. Morgan, Department of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.

19th General Assembly of the International Union of Geodesy and Geophysics, with several Symposia and Workshops by the International Association of Hydrological Sciences (IAHS), Vancouver BC, Canada, August 9–22, 1987.
Information: Dr. John C. Rodda, Secretary-General IAHS, Institute of Hydrology, Wallingford, Oxon OX10 8BB, England.

14th International Congress of Biochemistry (IUB), Prague, Czechoslovakia, October 1987.
Information: R. L. Hill, Biochemistry Department, Duke University Medical Center, Durham, NC 27710, U.S.A.

1988

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 0PH, Scotland.

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

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Livre Jubilaire du Cinquantenaire 1934–1984. Association Française pour l'Etude du Sol. AFES, Plaisir, 1984, 349 p.

A l'occasion de son cinquantenaire, l'Association Française pour l'Etude du Sol a édité un livre jubilaire. Depuis cinquante ans, de nombreux travaux ont été réalisés tant en France qu'à l'étranger par des pédologues français. De nombreuses recherches ont abouti, d'autres se poursuivent dans des domaines très divers. Cet ouvrage présente les apports les plus importants de la recherche française à la Science du Sol. On y vrouve aussi bien le point sur cinquante ans de pédologie française que sur les travaux les plus récents.

L'ouvrage se subdivise en cinq parties: Introduction historique; Contribution à la connaissance des types de sols et des couvertures pédologiques; Etude de sols dans le paysage; Recherches sur la caractérisation et la genèse des sols; et Sols et activités agricoles. Amélioration et conservation.

Prix: FF 200.00. Frais d'expédition FF 20.00.

Commandes à: AFES, 4 rue Redon, F-78370 Plaisir, France.

Environmental Change and Tropical Geomorphology. I. Douglas and T. Spencer, editors. George Allen & Unwin, London, Boston and Sydney, 1985, xix + 378 p. ISBN 0-04-551074-1.

The growth of scientific investigations in the tropics since the 1960s by the scientists of the new and expanding institutions of low-latitude countries, by participants in international research projects, by expeditions, and by expatriate scientists from more poleward countries, has confirmed earlier suspicions that the tropics provide the key to understanding much biological and earth sciences. This is particularly true for geomorphology, which in higher latitudes suffers great seasonal contrasts in process intensity and type and which often in the past underwent the dramatic changes of glaciation and periglaciaton.

Yet these same investigations in the tropics have shown that the legacy of past climatic changes is much more dramatic throughout the tropics than once believed. This book brings together the variety of evidence about such environmental changes, over a variety of timescales, and sets it against the current knowledge of the nature of geomorphic processes in the tropics. The ideas, observations and analyses presented here will stimulate students concerned with tropical and global environmental change, landform evolution and resource management to take a wider, deeper view of the tropics. The book will be of great interest to all researchers in the earth and life sciences concerned with tropical continents and ecosystems and their adjacent seas.

Price: £ 35.00 net in U.K.

Orders to: George Allen & Unwin, P.O. Box 18, Park Lane, Hemel Hempstead, Herts., England HP2 4TE; Fifty Cross Street, Winchester, MA 01890, U.S.A.; or: P.O. Box 764, North Sydney N.S.W. 2060, Australia.

European Aspects of Soil and Ground Protection Policy. Projects BWS/13D3281. E. Lummis. Institute of European Environmental Policy, Bonn, 1984, 82 + xxxiv p.

This study, carried out on the demand of the Dutch Ministry for Housing, Land Use and Environment, draws attention to principal problems which exists in the field of soil and ground protection policies, what is being done about them, and possible solutions and development trends in Belgium, Federal Republic of Germany, France, United Kingdom in comparison with The Netherlands. The report has chapters on: soil and agriculture; wastes, soil contamination; use and availability of soil; soil policies; and the European Community and soil problems. The annex contains an extensive bibliography of literature published in the separate countries.

Orders to: Inst. für Europäische Umweltpolitik, Aloys-Schulte-Strasse 6, D-5300 Bonn, Fed. Rep. of Germany; Inst. pour une politique européenne de l'environnement, 55 rue de Varenne, F-75341 Paris Cedex 7; or: Inst. for European Environmental Policy, 3 Endleigh Street, London, England —WC1 H ODD.

Physiological Basis of Crop Growth and Development. M. B. Tesar, editor. American Society of Agronomy and Crop Science Society of Agronomy, Madison, 1984, 341 p. ISBN 0-89118-037-0.

The fifth book in the 'Foundation for Modern Crop Science Series' covers many of the plant's physiological characteristics beginning with seed development and ending with fruiting. In between, topics such as seeds germination and growth, photosynthesis, respiration, photorespiration, growth of the green plant, nitrogen and minerals, environmental stress influences and flowering are covered.

Price: US$ 20.00, plus US$ 0.75 for all orders outside the U.S.A. Prepayment required.

Orders to: CSSA, ASA Headquarters, Book Orders Department, 677 South Segoe Road, Madison, WI 53711, U.S.A.

Elephants-Trees-Grass-Grazers; relationships between climate, soil, vegetation and large herbivores in a semi-arid savanna ecosystem (Tsavo, Kenya). W. van Wijngaarden, thesis Agricultural University Wageningen, 1985. ITC Publication Number 4. International Institute for Aerospace Survey and Earth Sciences (ITC), *Enschede, 1985, 159 p. With Map Supplement. ISBN 90-6164-0482.*

Based on description of the climate, soils, vegetation and large herbivore populations, relationships are described between the different components of the Tsavo ecosystem. It appears that there is a strong correlation between the floristic composition of the vegetation and the physical environment (climate and soil). The structure of the vegetation, however, is related more to the density of elephants and the activity of man (fire). The production of the vegetation is strongly related to rainfall and the percentage cover of the relevant vegetation component. Large herbivore distribution and density is related to human activity and the amount and type of forage that is available in a dry year. Static and dynamic models describing these relationships quantitatively are developed and, on the basis of simulations, some conclusions are drawn on the future management options for the national park and the nearby ranches.

The map supplement contains reconnaissance soil and vegetation maps of the Tsavo area at 1:250.000. The soil maps belong to the regular reconnaissance surveys carried out by the Kenya Soil Survey. Detailed descriptions of soils and vegetation are published by this organization as Reconnaissance Soil Survey Report No. R7, Kenya Soil Survey, P.O. Box 14733, Nairobi, Kenya.

Price: Dfl. 45.00, including surface mail postage. Map supplement extra.

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

Ecological Interactions in Soil. Plants, Microbes and Animals. Special publication series of the British Ecological Society, Number 4. A. H. Fitter, D. Atkinson, D. J. Read and M. B. Usher, editors. Blackwell Scientific Publications, Oxford, London, 1985, viii + 451 p. ISBN 0-632-01386-9.

This volume contains papers presented at a Britsh Ecological Society meeting held in York, April 1984. The meeting brought together researchers on all aspects of the soil biota, from the roots through the various microbial groups to the soil fauna. There have been several meetings recently on interactions between parts of this complex, for example on root-fungs interactions (particularly mycorrhizas) and on animal-microbial interactions. It was the aim of the organizers of the meeting to link together all these studies so that, for example, groups working on decomposition could talk to those interested in root production or in grazing interactions; and in particular provide an opportunity to discuss higher-order interactions, in which producer, grazer and predator, for example, interact in the soil environment.

The arrangement of the 33 papers in this volume progresses from studies on roots alone, to root-microbial, animal-microbial and finally to more complex interactions. In both the planning and delivery stages the meeting served to highlight several areas where little information was available or where, excitingly, the data are now beginning to appear.

One impression that stands out strongly is of the need to forge links between above-ground and below-ground ecological studies. Both in quantification and in the development of theory, 'above-ground' ecologits seem to have outstripped their 'subterranean' colleagues.

Price: £ 34.50.

Orders to: Blackwell Scientific Publications, Osney Mead, Oxford, England OX2 OEL; P.O. Box 50009, Palo Alto, CA 94303, U.S.A.; or: 31 Advantage Road, Highett, Vic. 3190, Australia.

Chemical Methods for Assessing Bio-Available Metals in Sludges and Soils. R. Leschber, R. D. Davis and P. L. L'Hermite, editors. Elsevier Applied Science Publishers, London and New York, 1985, 96 p. ISBN 0-85334-359-4. EUR No. 9538.

This publication constitutes the proceedings of a seminar held in Münster, Federal Republic of Germany, April 1984, under the auspices of the Commission of the European Communites, as part of the Concerted Action 'Treatment and Use of Organic Sludges and Liquid Agricultural Wastes'.

Utilisation of sewage sludge on agricultural land is an essential disposal route accounting for about one third of the sewage sludge produced annually by the EEC countries. Heavy metals in sewage sludge applied to land accumulate in the cultivated layer, and rates of application of sludge have to be restricted so that soil concentrations of metals never reach levels that could deleteriously affect crop production or the food chain. Assessment of the polluting potential of heavy metals in this context requires definition of the extent to which the metals are available for crop uptake. Recent advances in analytical techniques and in research on soil chemistry have led to improved chemical methods for assessing the bio-availability of metals in sewage sludge and in sludge-treated soil.

It was the aim of the seminar, to review recent developments in chemical methods for assessing bio-available metals in soils. The papers presented dealt with various new methods including the use of soil solution, single-step neutral salt extractants and more complex multiple-step procedures. This provided a basis for identifying methods suitable for research purposes, for routine monitoring of sludge-treated soils and for improving the scientific basis of regulatory metal limits for such soils.
Price: £ 20.00.
Orders to: Elsevier Applied Science Publishers, Linton Road, Barking, Essex, England IG11 8JU; or: 52 Vanderbilt Ave., New York, NY 10017, U.S.A.

Volcanic Ash and Soil. A Commemorative Publication of the Retirement of Prof. Dr. Takashi Kurobe. R. Hamada, K. Sakagami, E. Kohns, M. Okazaki and S. Suzuki, editors. Hakuyusha Publ. Comp., Tokyo, 1983, 311 p. Publ. no. 3061-3691-6920.

This book consists of three parts: In part I, Volcanic Ash and Soil, articles on soil derived from volcanic ash, including data on engineering properties, phosphorus forms, soil fertility, organic-inorganic complex, clay minerals, are included. Part 2, Soil Science and its Interdisciplinary Area, discusses studies in soil science and archeology, engineering, non-agronomic land use, etc. The last part reviews and lists available literature on volcanic ash soils, mainly of those occurring in Japan. Most articles are in Japanese, with English abstracts; some are in English.
Price: 7000 Yen.
Orders to: Hakuyusha Publ. Comp., 9, Ageba-cho, Shinjuki, Tokyo 162, Japan.

Soils and Geomorphology. Catena Supplement 6. P.D. Jungerius, editor. Catena Verlag, Cremlingen, 1985, 174 p. ISBN 3-923381-05-0. Series: ISSN 0722-0723

It was 12 years ago that Catena's first issue was published with its ambitious subtitle 'Interdisciplinary Journal of Geomorphology-Hydrology-Pedology'. Out of the nearly one hundred papers that have been published in the regular issues since then, one-third has been concerned with subjects of a combined geomorphological and pedological nature. The present Supplement is an integration of these two disciplines.

Apart from assembling a number of papers which are representative of the integrated approach, the editor has taken the opportunity to evaluate the character of the integration in an introductory paper.

In spite of the fact that landforms as well as soils are largely formed by the same environmental factors, geomorphology and pedology have different roots and have developed along different lines. Papers which truly emanate the two lines of thinking are therefore relatively rare. This is regrettable because grafting the methodology of the one discipline onto research topics of the other often adds a new dimension to the framework in which the research is carried out. It is the aim of this Supplement to stimulate the cross-fertilization of the two disciplines.

The papers are grouped into 5 categories: 1) the response of soil to erosion processes, 2) soils and slope development, 3) soils and landforms, 4) the age of soils and landforms, and 5) weathering (including karst).
Price: DM 120,– or US$ 60.00.
Orders to: Catena Verlag, Brockenblick 8, D-3302 Cremlingen 4, Fed. Rep. of Germany.

Humic Substances in Soil, Sediment and Water, Geochemistry, Isolation and Characterization. G. R. Aiken, D. M. McKnight, R. L. Wershaw and P. MacCarthy, editors. John Wiley & Sons, New York and Chichester, 1985, xiii + 692 p. ISBN 0-471-88274-7.

This book provides a comprehensive and critical overview of the nature and functions of humic substances in diverse environments. Humic substances are a general class of ubiquitous, biogenic, heterogeneous, organic substances. The study of humic substances is challenging for several reasons. In chemically characterizing humic substances one is confronted with the 'mixture problem' arising from their heterogeneous nature. In geochemical investigations of humic substances major problems are encountered in quantifying processes and in physically separating humic substances from their environment with minimal introduction of artifacts. Furthermore, in the literature on humic substances, there is a surfeit of ambiguous terminology and sometimes a failure to clearly delineate what is fact and what is conjecture. It is the purpose of this book to resolve some of the indefiniteness associated with humic substances, and the theme is embodied in the phrase 'what we know, what we don't know, and what we think we know' concerning the nature and functions of humic substances.

The following environments are considered: soil, peat, groundwater, lake, lake sediment, stream, estuary, marine, and marine sediment. This book has the following sections: geochemistry of humic substances (12 papers); isolation and fractionation of humic substances (4 papers); and characterization of humic substances (6 papers). It also has an introductory paper, concluding remarks, an extensive bibliography, while the appendices consist of a glossary of terms, a glossary of chemical compounds and a list of references. A follow-up book will discuss the structural nature of humic substances and their interactions with metal ions and organic chemicals.
Price: £ 61.35.
Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, England PO19 1UD; or; 605 Third Avenue, New York, NY 10158, U.S.A.

Catalogo de Suelos de Andalucia. D. de la Rosa, editor. Agencia de Medio Ambiente, Junta de Andalucia, Sevilla, 1984, 274 p. and 124 colour photographs. ISBN 84-7595-005-1.

This publication shows 62 soils and relevant landscapes in the province of Andalucia, Spain. These soils are the most common ones and are shown on the 1:400,000 soil maps of this province, now in preparation. The present publication should be regarded as a complement to the map.

Besides the photographs, which are of high quality, information is given on the climate, method of soil description and analytical methods. For each of the 62 soils are given: a profile description, main analytical data (pH, C, N, texture, anions and cations, CEC and BS, some have data on density, porosity, conductivity, water retention, and iron), potential use for 11 crops, and degradation risks.

Price: 1500 pesetas. Prepayment required.

Orders to: Servicio de Publicaciones y B.O.J.A., Consejeria de Presidencia, Junta de Andalucia, Apartado 100.000, Sevilla, Spain.

Methods of Computing Sedimentation in Lakes and Reservoirs. S. Bruk, Rapporteur. Unesco, Paris, 1985, 224 p.

The computation of reservoir sedimentation is in the present report considered as a tool of engineering predictions in the planning, design and operational phases of reservoir projects. Being oriented towards definite engineering purposes, the computations thus require a clear statement of the objectives of predictions, i.e. of what the technical and economical importance of the problem is, what physical phenomena should be modeled, what engineering measures should be planned based on the predictions and what kind of field measurements can be made in support of the computations.

Hence the scope of the report is somewhat wider than the title implies: in addition to only reviewing computational methods, the report also considers all the other aspects of reservoir sedimentation which are essential from the engineering point of view. Thus, the technical and socio-economic impacts of reservoir sedimentation are discussed in Chapter 1; the physical phenomena related to sedimentation in lakes and reservoirs are described in Chapter 2; measurement methods and instrumentation are reviewed in Chapter 3; the methods of preserving the reservoir capacity and recovering the lost storage are dealt with in Chapter 4 while the principal methods of engineering predictions are in the background of the foregoing chapters and are given in Chapter 5. Finally, the principal findings of the report are summarized in Chapter 6 which also contains a proposal of the follow-up activities for the 3rd phase of the International Hydrological Programme. Single copies are available free of charge.

Requests to: IHP Documentation Centre, Unesco, B.P. 3.07, Paris, France.

Fondements rationnels de l'aménagement d'un territoire. M. Lamotte, direction. Masson, Paris, New York, 1985, 175 p. ISBN 2-225-80325-0.

L'accroissement des populations humaines n'a cessé de provoquer une exploitation toujours plus intensive des ressources de notre planète. Les besoins actuels dépassent de beaucoup ce que pourrait fournir en produits comestibles et autres la biosphère si elle n'avait été continuellement 'aménagée' par les hommes: sans relâche ils ont travaillé à l'augmentation des productions biologiques utilisables et, d'une façon générale, au transfert à leur profit des richesses potentielles des territoires où ils vivent.

Totalement empirique à l'origine, l'aménagement doit de plus en plus s'appuyer sur les découvertes scientifiques accumulées avec une vitesse croissante depuis des siècles. L'ampleur des aménagements devenus ainsi réalisables grâce à l'accroissement en puissance et en diversité des moyens techniques rend indispensable la recherche de fondements rationnels à toute intervention sur l'organisation des territoires. Pourtant, compte tenu de la nature humaine et de ses conséquences sur le fonctionnement des sociétés et des États, d'autres phénomènes interviennent trop souvent pour écarter les aménagements de la rationalité scientifique qui devrait les guider.

Le présent ouvrage n'a pas la prétention de donner des règles d'aménagement: il ne saurait en exister de catalogue exhaustif. Son objectif est d'attirer l'attention sur quelques principes généraux que devraient garder à l'esprit tous ceux qui participent à l'élaboration ou à l'exécution de projets d'aménagement.

Commandes à: Masson, Editeur, 120, bd. Saint-Germain, F-75280 Paris Cedex 06, France; ou: 133 East 58th Street, New York, NY 10022, U.S.A.

Wetland Soils: Characterization, Classification, and Utilization. Proceedings of a Workshop held 26 March to 5 April 1984, Los Baños. International Rice Research Institute, 1985, 559 p. ISBN 971-104-139-1.

This publication contains the papers presented at the Workshop on the fertility of wetland soils and of their characterization and classification in relation to food production potential. There are some 550 million ha of wetland soils in Africa, Latin America and South and Southeast Asia, of which fewer than 150 million ha are now used for rice and other crops. Attention is given to the use of Soil Taxonomy for the classification of these soils, and the regional soil studies in China, Zambia, Vietnam and Chile.

Working group reports discuss the characterization, processes, classification and fertility of wetland soils and outline future studies needed for the ultimate goal of a greater crop production form these soils.

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

Soil Salinity under Irrigation. Processes and Management. Ecological Studies 51. I. Shainberg and J. Shalhevet, editors. Springer-Verlag, Berlin, Heidelberg, New York and Tokyo, 1984, x + 349 p. ISBN 3-540-13565-0 (German ed.), 0-387-13565-0 (U.S.A. ed.).

The importance of irrigation in the world's agriculture is rapidly increasing. Although it is practised on a large scale mainly in arid and semi-arid zones, supplementary irrigation is becoming popular in semi-humid regions as well. The record of irrigation speaks for itself in terms of increased crop production. However, the question remains as to how permanent the achievement may be. Judging from history, it seems that irrigation eventually failed in many regions because the knowledge and technology available to society at the time were incapable of coping with the problems created.

Undoubtedly soil salinity is the most prevalent and widespread problem limiting crop productivity in irrigated agriculture. It has, therefore, attracted the attention of the scientific community since the advent of modern agronomic research. Through the past six to seven decades a considerable body of information has been accumulated, which has promoted the understanding of the principles involved and helped to develop the technology for coping with the problems. Our present knowledge, if judiciously applied, is adequate for coping with many of the salinity problems resulting from mismanagement of irrigation and drainage. But for this knowledge to be used, it has to be generally known and understood.

It is the purpose of this book to bring together and critically examine our present knowledge. Although much is known, there are still many aspects of salinity which are obscure and misunderstood.

The book was prepared as background for a symposium, which was organized by the Israel Society of Soil Science and sponsored by the Subcommittee on salt-affected soils of the ISSS. The symposium took place in March 1984 in Bet Dagan, Israel. The book is based on the contents of the invited lectures and summarizes the state of the art of the principles and the processes related to the properties and management of saline and sodic soils. It is divided into two broad aspects – processes and management of sodic and saline soils. The discussion of the processes covers the basic chemical reactions taking place in saline and sodic soils and their implication to soil physical properties, the dynamics of salt transport in the soil and its accumulation to detrimental levels and the methodology of monitoring soil salinity and evaluating water quality. The discussion on management utilizes the basic principles to describe and evaluate the technologies of leaching, drainage and reclamation on a field scale. Finally, crop production is discussed with respect to the various management practises employed in irrigated agriculture.

Price: DM 148.00.

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

C4 Grasses and Cereals. Growth, Development and Stress Response. C. Allan Jones. John Wiley & Sons, New York and Chichester, 1985, 419 p. ISBN 0-471-82409-7.

More than a century has elapsed since Haberlandt (1882) recognized that the grasses can be divided into two major groups differing in internal leaf anatomy. Most tropical and warm-season grasses and cereals exhibit 'Kranz' leaf anatomy consisting of a prominent bundle sheath of closely packed cells with bright green chloroplasts. Others, principally cool-adapted grasses, have no such sheath. The significance of Kranz anatomy remained unclear until the 1960s, when it was recognized that in grasses with Kranz anatomy the first products of photosynthetic CO_2 fixation are four-carbon organic acids, rather than the three-carbon compounds produced by most other plants. The term C_4 was coined to distinguish these species, with their distinctive leaf anatomy and CO_2 fixation pathway, from other (C_3) species.

It was soon evident that some of the world's most important crops are C_4 grasses, including maize (corn), sugarcane, grain sorghum, the millets, and many important tropical and warm season forage grasses and weeds. Research on one member of the group can often be extrapolated to others. However, demand for sophisticated, highly specialized research often requires agricultural scientists to concentrate on a limited number of species or a few aspects of crop growth and development. The present publication offers a broad perspective on C_4 grasses and the factors affecting their growth.

In addition to describing common patterns of growth, development, and response to stress, the book shows how these patterns differ among genotypes and how these differences are responsible for variation in adaptation to particular environments.

Early chapters provide a brief overview of important C_4 grasses, covering their distinctive anatomy, physiology, taxonomy, and distribution. Later chapters describe normal growth and development of C_4, grasses including shoot, grain, and root growth, and examine the effects of non-nutritional factors such as temperature, light intensity, CO_2 concentration, defoliation, drought, and soil strength and aeration. Nutritional deficiencies and toxicities found in acid, alkaline, and saline soils are also discussed.

This book ranges across a number of scientific disciplines. It serves as a supplementary text and reference for courses in agronomy, agrostology, crop physiology, range science, and plant nutrition. Graduate students, agronomists, range scientists, crop physiologists, plant breeders, soil scientists, and engineers working on C_4 grasses will find it a useful reference whether they are working in temperature or tropical climates.

Price: £ 51.00.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, England, P019 1UD; or; 605 Third Avenue, New York, NY 10158, U.S.A.

Suppressive Soils and Plant Diseases. R. W. Schneider. The American Phytopathological Society, St. Paul, 1984 (third printing), 88 p. ISBN 0-89054-048-9.

Variation in the incidence of disease in specific soils has been recognized for many years; however, it is only in the last three decades that the potential of suppressive soils has been appreciated as a means of controlling soilborne diseases.

Suppressive soils are defined as those soils in which disease development is suppressed even though the pathogen is introduced in the presence of a susceptible host. It is well known that the mere absence of mechanism is involved- even if a susceptible host is present. Many diseases are absent from soil because the pathogens have not been introduced, or disease escape occurs. A variety of terms has been used to describe the phenomenon of suppressive soils as the concept has developed. Thus, 'suppressive soil' is an umbrella term encompassing fungistasis, competitive saprophytic ability, and other disease and pathogen interactions where the defined relationship of reduced disease in the presence of the pathogen and susceptible host exit.

This booklet has papers on the description and occurrence of suppressive soils and their physical and chemical properties; organisms and mechanisms involved in some soils suppressive to soilborne plant diseases; induction of suppressiveness; and the use of pathogen-suppressive soils for disease control. In all, 242 references are cited.

Price: US$ 9.00, plus 10% for postage for orders outside the U.S.A. Prepayment required.

Orders to: The American Phytopathological Society, 3340 Pilot Knob Road, St. Paul, MN 55121, U.S.A.

The History of Soil and Water Conservation. D. Helms and S. L. Flader, editors. The Agricultural History Society, Washington, DC, 1985, 244 p. LCC Catalog Number: 85-071017.

The articles in this issue were presented at a symposium on the history of soil and water conservation held at Columbia, May 1984. The articles are being published fifty years after the Soil Conservation Act of April 27, 1935, created the Soil Conservation Service. With the act's passage, soil and water conservation assumed a place on the national agenda of needs to receive continued support from society.

What has the perspective of half a century taught us about using soil and water on a sustainable basis? The authors ask that question in light of a dynamic agriculture, seemingly far removed scientifically and technically from the conservation movement's origins. The past fifty years have learned that science and technology are only part of the equation for wise, long-term land use. Collectively, the articles reveal the complexities of resource conservation. The reader will recognize, just as the conservationist in the field must, that there are many interrelated factors in land use – properties of the resource base, technology, market forces, education, public support, and the values and motivations of the land user.

This interesting publication mainly deals with the U.S.A., but has also a number of articles on general issues and finishes with 'A World View of the Development of Soil Conservation'.

Price: US$ 15.00.

Orders to: Ms. Katharine Mochon, Agricultural History Center, Univ. of California, Davis, CA 95616, U.S.A.

Ecology and Management of Soilborne Plant Pathogens. C. A. Parker, A. D. Rovira, K. J. Moore, P. T. W. Wong and J. F. Kollmorgen, editors. The American Phytopathological Society, St. Paul, 1985, 358 p. ISBN 0-89054-066-7.

This book provides a valuable reference on the topics of soilborne plant pathogens presented at the Fourth International Congress of Plant Pathology and also contains transcopts of the First International Workshop on Take-all of Cereals. Both meetings took place in Australia, August 1983.

The first part has papers on ecology and epidemiology (21 papers), colonization of roots and rhizosphere (5 papers), biological control (15 papers), plant resources and resistance (11 papers), influence of soil, environment, and nutrition (12 papers), and management practices, chemical control and solarization (17 papers). The second part of the book includes the edited transcripts of 13 sessions on aspects of take-all, a major disease in most cereal-producing regions of the world.

Price: US$ 58.00, plus 10% for orders outside the U.S.A. Prepayment required.

Orders to: The American Phytopathological Society, APS Books, 3340 Pilot Knob Road, St. Paul, MN 55121, U.S.A.

Keys of Soil Taxonomy. Second Printing. Soil Management Support Services, 1985, 244 p. ISBN 0-932865-00-3.

This publication serves two purposes. It provides the taxonomic keys required for the classification of a soil in a form that can be used easily in the field, and it serves as a means of providing an up-to-date edition of Soil Taxonomy that includes all revisions that have been approved.

After a description of the diagnostic horizons and properties and the family differentiae, the complete keys of all ten orders upto subgroup level are given. As such, this field guide replaces the keys in Soil Taxonomy.

Requests: For copies in developing countries ask the AID country mission or: SMSS, Soil Conservation Service, USDA, P.O. Box 2890, Washington, DC 20013, U.S.A.

Price: for orders from developed countries: US$ 8.00, prepayment required. Orders to: International Soils, Dept. of Agronomy, Bradfield Hall, Cornell University, Ithaca, NY 14853, U.S.A.

Ultrastructure of the Root-Soil Interface. R. C. Foster, A. D. Rovira and T. W. Cock. The American Phytopathological Society, St. Paul, 1983, 157 p., 119 plates. ISBN 0-89054-051-9.

Few subjects related to the growth and development of higher plants attract the interest of as many separate disciplines as does the subject of the rootsoil interface.

To the soil microbiologist, the rhizosphere is the narrow soil zone surrounding living plant roots, which contains root exudates, sloughed root remains, and large populations of microorganisms. To the plant physiologist it is the zone of ion uptake and exchange, of oxygen and carbon dioxide exchange, and of the mucigel matrix. To the soil physicist it is the zone of minimal porosity, of water diffusion and uptake, and of water-potential gradients. To the plant pathologist it is the zone where root pathogens are stimulate by root exudates, and where they swarm, grow ectotrophically, or form infection structures prior to pathogenesis.

By bringing together a unique collection of 119 plates of high quality electron micrographs of the root-soil interfaces, the authors have produced a book that serves the needs of all disciplines concerned with roots and with the soil surrounding the roots. The ultrastructural views in this book are of root surfaces and rhizosphere soil taken intact from the field and processed in a way that left the root-soil interface essentially undisturbed.

The material presented in this book is concerned with wheat, paspalum, ryegrass, clover, rape, chickpea, rice, and pine. These kinds of plants represent all major categories of vascular plants. Moreover, by combining the latest methodology in histo-chemistry with both transmission and scanning electron microscopy, the authors have provided photographs in this book that not only illustrate the structure of the root-soil interface but also reveal much about function and even dynamics of the rhizosphere.

Price: US$ 36.00, plus 10% for orders outside the U.S.A. Prepayment required.

Orders to: The American Phytopathological Society, APS Books, 3340 Pilot Knob Road, St. Paul, MN 55121, U.S.A.

Soil Reclamation Processes. Microbiological Analyses and Applications. R. L. Tate III and D. A. Klein, editors. Marcel Dekker, New York and Basel, 1985, 349 p. ISBN 0-8247-7286-5.

Land reclamation involves the need to manage a broad spectrum of environments. This can range from strip mine rehabilitation to simple procedures needed to counteract the effects of roadside spills of xenobiotics. Although reclaimed ecosystems are diverse in physical, chemical and biotic traits, a common predictor of successful reclamation relates to the status and potential development of the microbial community. Hence, this treatise was prepared with the overall objective of providing an assessment of the current understanding of soil microbiology and biochemistry as part of reclamation processes. Quite obviously, the entire breadth of the subject cannot be evaluated in a single volume. Thus, a variety of specific examples were selected to provide an indication of the ways in which microorganisms can play important roles in design, management, and monitoring of reclamation.

Combining basic scientific principles with concrete examples of existing methodology, this monograph examines the mycorrhizal aspects of toxic stressed reclamation environments, discusses the role of algae as indicators of succession and soil development, considers soil enzyme monitoring in relation to oil shale and other reclamation procedures, details microbial radionuclide transformations and problems in low-level waste storage environments, reviews the microbial aspects of phosphate clay dewatering and acid mine waste drainage reclamation, outlines the economic advantages of site modification prior to reclamation, and much more!

This book is timely reading for wide variety of experts dealing with soil reclamation, environmental protection safety, water and soil conservation, land management and mining. In addition, the book is written for advanced students in soil science, environmental science and environmental microbiology.

Price: US$ 71.25.

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

A Pedobiological Study of the Dung Beetle Typhaeus Typhoeus. L. Brussaard. Thesis Agricultural University Wageningen, 1985, 168 p.

From a study of the reproductive behaviour of the dung beetle Typhaeus typhoeus it is concluded that cylindrical structures filled with soil material in sandy soils of The Netherlands are the result of the back-filling of burrows by scarab beetles.

Apparently ancient structures of this type were dated using data on fossil beetle remains and on clay illuviation. The microstructures of the infillings of back-filled burrows and of the undisturbed matrix were quantified and compared.

To develop a method to predict the beetles' contribution to the genesis of sandy soils, the habitat selection of T. typhoeus was studied, as influenced by soil temperature, soil bulk density, soil moisture and the availability of dung.

Requests to: Department of Soil Science and Geology, Agricultural University, P.O. Box 37, 6700 AA Wageningen, The Netherlands.

Structural Chemistry of Silicates. Structure, Bonding, and Classification. F. Liebau, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1985, xiii + 347 p. and 136 figures. ISBN 3-540-13747-5 (German ed.); 0-387-13747-5 (U.S.A. ed.).

As natural minerals, silica and silicates constitute by far the largest part of the earth's crust and mantle. They are equally important as raw materials and as mass produced items. For this reason they have been the subject of scientific research by geoscientists as well as by applied scientists in cement, ceramic, glass, and other industries. Moreover, intensive fundamental research on silicates has been carried out for many years because silicates are, due to their enormous variability, ideally suited for the study of general chemical and cyrstallographic principles.

Several books on mineralogy and cement, ceramics, glass, etc. give brief, usually descriptive synopses of the structure of silicates, but do not contain detailed discussions of their structural chemistry. A number of monographs on special groups of silicates have been published which contain more crystal chemical information. However, no modern text has been published which is devoted to the structural chemistry of silicates as a whole.

Within the last 2 decades experimental and theoretical methods have been so much improved to the extent that not only have a large number of silicate structures been accurately determined, but also a better understanding has been obtained of the correlation between the chemical composition of a silicate and its structure.

The primary purpose of this book is to demonstrate the exceptional variability of silicate structures and to describe the correlations between chemical composition and structure. This is facilitated by applying a classification scheme which is an extension of the classical Bragg-Naray-Szabo classification and which is entirely established on crystallochemical parameters.

The book is recommended for third year students of chemistry, mineralogy, geology, and materials science. It will also prove useful as a guide for researchers and industrial chemists in their pursuit of deeper, more specialized knowledge.

Price: DM 163.00.

Orders to: Springer-Verlag, P.O. Box 105 280, D-6900 Heidelberg, Fed. Rep. of Germany; 175 Fifth Avenue, New York, NY 10010, U.S.A.; or: 37-3, Hongo 3-chome, Bunkyo-ku, Tokyo 113, Japan.

Agro-forestry in the African Humid Tropics. L. H. MacDonald. The United Nations University, Tokyo, 1982, 163 p. NRTS-17/UNUP-364, ISBN 92-808-0364-6.

In the last five years there has been a virtual explosion of interest in agro-forestry. The concept has spread from a few anthropologists, foresters, and agricultural scientists to become a priority for a number of national and international agencies. As with any new and widespread term, there are any number of more or less congruent definitions. While we should not try ot arbitrate this debate, the word 'agro-forestry' is used there to encompass any agricultural system that combines trees with crops and/or animals, either spatially or sequentially. The concept has proved to be a very useful box in which to include examples as diverse as live fence posts, trees in pastures, taugya systems, and the high diversity farms and kitchen gardens found throughout the humid tropics.

The first section, 'Principles of Agro-Forestry', includes five papers that are relevant to all discussions on agro-forestry. These are followed by seven papers that use various traditional agro-forestry systems in the African humid tropics as their starting point and then discuss the prospects for further development. The third group, of six papers, is devoted to taungya systems in Nigeria and three other West African countries. The ten papers that follow are grouped under the heading of 'Current Agro-forestry Activities', and these present most of the research that has been carried out on a variety of tree, crop, and animal combinations in seven countries, ranging from Rwanda to Cameroon. The final set of papers includes four case studies from different countries, some of which are only presented as extended summaries, and two papers detailing the concern of FAO and UNEP with agro-forestry.

While these proceedings are concerned primarily with ago-forestry in the African humid tropics, the conceptual points are relevant to other agro-forestry systems as well; even many of the specific papers will be of value to those working in the Neotropics or Asia. Of course, the tree pasture, or crop species may not be relevant to sites in other areas, but the experimental design or concern with developing traditional systems may apply.

Price: US$ 12.00. *Orders to:* see below.

Ecology in Development: A Rationale for Three-Dimensional Policy. B. Spooner. The United Nations University, Tokyo, 1984, 58 p. NRTS-21/UNUP-458, ISBN 92-808-0458-8.

In this monograph a combination of theoretical, topical and geographical focus integrates the social and natural science approaches to problems of ecology in development in South-west Asia. Permits coherent treatment, in an argument of reasonable length, of (1) some of the major areas of accumulation of ecological knowledge and insight in relation to development, (2) the changes of emphasis in ecological interests among planners, (3) the development and integration of theory (especially the efforts to straddle the boundaries of sociological and ecological understanding), (4) the changing perceptions of man's relation to nature, and (5) the underlying moral problems of management and welfare. The changes of orientation in each of these areas over the last decade are treated.

Price: US$ 9.00.

Orders to: Official distributors around the world,or: UNU, Toho Seimei Bldg., Shibuya 2-15-1, Shibuya-ku, Tokyo 150, Japan. In U.S.A. and Canada: Unipub, Box 433, Murray Hill St., New York, NY 10016, U.S.A.

Bodenkunde, 3. ergänzte Auflage. E. Mückenhausen. DLG Verlag. Frankfurt am Main, 1985, 632 p. + 185 figures + 24 colour plates. ISBN 3-7690-0421-3.

The present 3rd edition of this popular handbook maintained the thematical framework of the previous editions, namely the geological, geomorphological, mineralogical and petrographical aspects of soil forming processes and soils.

The author describes and underlines the importance of earth sciences, as fundament of soil science. One third of the book is devoted to the history of our planet as well as to the influence of this development on the evolution and properties of soils.

In the second part of the book the component of soils as well as their properties and significance are charactertized. Apart from the physical, physicochemical, and chemical properties of soils, the system of soil classification is also included to this part, with particular regard to Middle-Europe. Twenty four colour plates complete the book, demonstrating typical soil profiles as well as thin sections and parent rocks.

The book is one of the most complete and modern handbooks in German not only for soil scientists, but also for ther branches of earth sciences.

Price: DM 190.000.

Orders to: DLG Verlag, Rüstestrasse 13, D-6000 Frankfurt/M.1, Fed. Rep. of Germany.

I. Szabolcz, Budapest

Indigenous Agricultural Revolution. Ecology and food production in West Africa. P. Richards. Hutchinson, London, Melbourne; and Westview Press, Boulder, Colorado, 1985, 192 p. ISBN 0-09-161320-5 (cased, U.K.), 0-09-161321-3 (paperback, U.K.), 0-8133-0266-8 (cased U.S.A.).

This book concerns the relationship between science and development – more especially the relationship between environmental science and prospects for increased food production in West Africa. It argues forcefully and practically for a new relationship between science and the small farmer.

Current agricultural research operates on the basis of a 'top-down' approach. Improved methods are developed according to first principles, and agricultural extension workers teach farmers how they might best approximate in their farming practice to the ideal 'best method'. This plan breaks down for logistical reasons. The farmers are too numerous, the extension workers too few. Transport difficulties are great. Local conditions vary enormously. 'Improved' inputs are scarce, expensive, and often unavailable when needed.

Instead we should start with what is there already. Scientific research should out changes already taking place within the smallholder farming sector and aim to build upon the best of these local initiatives.

Drawing on his experience of West Africa, the author demonstrates that many of the most successful innovations in food-crop production over the last fifty years or so have indigenous roots. There should be less emphasis on 'teaching' farmers how to farm and supplying 'improved' inputs, and more emphasis on how to foster and support local adaptation and inventiveness.

Although the immediate frame of reference is West Africa, many of the issues raised are of crucial relevance to everyone concerned in and by Third World rural development.

Price: £ 12.95.

Orders to: Hutchinson, 17–21 Conway Street, London, England W1 P 6JD; or; Westview Press, 5500 Central Avenue, Boulder, Colorado 80301, U.S.A.

Agricultural Compendium for rural development in the tropics and subtropics – Second, revised edition. Ilaco, Arnhem, editor. Elsevier Science Publishers, 1985, 38 + 740 p. ISBN 0-444-42448-2.

This very useful publication, commissioned by the Ministry of Agriculture and Fisheries of the Netherlands, is a practical field guide and reference work for all those involved in rural development in (sub)tropical regions of the world. Like the first edition (1981), it is packed with a wealth of statistical and general information about almost every aspect of agriculture, which would be of interest to anyone engaged in (sub)tropical rural development.

Great care has been taken to give the user easy access to the information provided in this Compendium. A systematic layout, an extensive list of contents and a detailed subject index make it possible for the reader to find the required information quickly and easily.

Price: US$ 46.25; Dfl. 125.00.

Orders to: In U.S.A. & Canada: Elsevier Science Publ. Comp., P.O. Box 1663, Grand Central Station, New York, NY 10163, U.S.A.; In Australia and New Zealand: D. A. Book Pty. Ltd., 11-13 Station Street, Mitcham, Vic. 3132, Australia. Elsewhere: Elsevier Science Publ., P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

Report and Collection of Papers Presented at the Seminar on Soil Protection in the European Community, Brussels, November 1984. European Environmental Bureau, Brussels, 66 and 305 p. resp.

For the major part the report contains a contribution on a number of issues involved in protection of the soil in the EC countries (in German). Reports on working groups on agriculture and infrastructure, concentrated and dispersed pollution of the soil, the adopted resolution and a list of participants complete the report.

The other publication contains all papers presented at the Seminar, in English, German and French.

Orders to: European Environmental Bureau, Rue Vautier 31, B-1040 Brussels, Belgium.

Soil Nutrient Bioavailability. A Mechanistic Approach. S. A. Barber. John Wiley & Sons, New York and Chichester, 1984, xiii + 398 p. ISBN 0-471-09032-8.

Growing plants to produce adequate food and fiber depends, in part, on nutrient supply from the soil. Empirical methods have usually been used to measure soil nutrient bioavailabity. This has entailed using numerous field experiments in order to obtain information on the relationship between an empirical soil measurement and the response to an applied nutrient for a variety of plant species growing in different soil types. Fortunately, understanding of the processes involved in nutrient flux at the soil-root interface has increased greatly in the last two decades. This has enabled to use a basic approach in evaluating soil nutrient bioavailability and reduced the necessity of conducting numerous crop-fertilization experiments to gain information about each crop-soil combination. This basic approach involves understanding the mechanisms governing the flux of nutrients from the soil to the root.

The original work presents the results of 30 years of research on the availability of nutrients to plants. It explains the author's mechanistic approach to describing plant uptake of soil nutrients and shows why his basic approach reduces the necessity of conducting numerous crop-fertilization experiments.

The authors examines the chemical and biological mechanisms that determine the availability of nutrients to plants. He develops a mathematical model for soil nutrient uptake and discusses eleven plant and soil parameters affecting the rate of flow of nutrients to the root. The model describes the actual movement of a nutrient from its initial location in the soil to the location where it is used within the plant, without resorting to 'black box' formulations. Examples show how the model can be used to predict accurately the amount of nutrients a particular plant species can get from the soil.

The book presents a separate chapter on each of twelve nutrients. It serves as a reference for scientists in soils, crops, plant physiology botany, biology, and horticulture. It also serves as a textbook for undergraduate and graduate students in soil fertility and plant nutrition.

Price: £ 40.90.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, England, PO19 1UD; or; 605 Third Avenue, New York, NY 10158, U.S.A.

Advances in Soil Science.

In this new series of Springer-Verlag three volumes have been published to date. The objectives of the series were set out in Bulletin 67, p. 63 and volume I was announced as well.

Advances in Soil Science, volume 2. B. A. Stewart, editor. Springer Verlag, New York, Berlin. Heidelberg, Tokyo, 1985, viii + 235 p. ISBN 0-387-96114-3 (U.S.A. ed.), 3-5-540-96114-3 (German ed.). Series: ISSN 0176-9340.

This volume has contributions on soil erosion and deposition models, dynamics and availability of major nutrients in soils, microorganisms and soil aggregate stability and distinctive properties of Andosols.

Price: US$ 39.50.

Advances in Soil Science, volume 3. B. A. Stewart, editor. Springer-Verlag, New York, Berlin, Heidelberg, Tokyo, 1985, viii + 217 p. ISBN 0-387-96116-X (U.S.A. ed.), 3-540-96116-X (German ed.). Series: ISSN 0176-9340.

This volume has contribution on: quantitative spacial analysis of soil in the field, the effect of green manure on the physical properties of temperate-area soils, the influence of macropores on the transport of matter through soil, and behaviour of herbicides in irrigated soils.

Price: US$ 44.50.

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

Humid Tropical Geomorphology. A. Faniran and L. K. Jeje. Longman, London, Lagos, New York, 1983, 414 p. ISBN 0-582-64351-1

The humid tropical region appears currently to be in some ways at the frontier of scientific research. The reasons for this include the realization of late that models and ideas developed and applied in the humid temperature regions in particular are not always suitable for their hot and wet counterparte.

The incongruity applies to weather and climate, especially to meteorology, as well as to soils, vegetation and landforms. In each case, scientists have discovered 'unique' features which warrant special study.

The present work is an attempt to provide in a single volume and in a systematic format the major contributions so far made in the field of tropical geomorphology. The book is written for geography and geology university students, but also soil scientists will be interested in this comprehension account of the geomorphology of the humid tropics.

The tropical environment, its climate and vegetation, are clearly defined, and the authors then examine such geomorphological processes as deep chemical weathering, removal processes and deposition. A third section describes the characteristics of landforms in the tropics including river patterns, duricrusts, slopes, residuals, tropical karsts and coastal landforms. Finally the importance of these forms and processes for land use within the tropical regions is discussed.

Price: £ 7.95, net in U.K.

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

Soil Erosion and Conservation. S. A. El-Swaify, W. C. Moldenhauer and Andrew Lo, editors. Soil Conservation Society of America, Ankeny, 1985, 793 p. ISBN 0-935734-11-2.

Highly visible land degradation, widespread famine, and heightened environmental awareness have prompted worldwide interest in soil and water conservation. The International Conference on Soil Erosion and Conservation, held in Honolulu, Hawaii, in 1983, provided a continuing forum for the exchange of research findings and experiences in the search for solutions to soil and water conservation problems.

This volume is based on papers presented at the Honolulu meeting. Four themes are emphasized:
(1) Delineating sediment sources and estimating the magnitude and extent of erosion (methodological, analytical, and country reports).
(2) Quantifying the impacts of erosion and sedimentation on land productivity and the environment (changes in soil fertility and physical properties; experimental and modelling efforts to assess crop responses; soil water characteristics as an element of productivity, particularly for arid/semiarid regions; and economic assessment of erosion impact).
(3) Establishing quantitative values for erosion-causing parameters (parameter assessment, modelling and model adaptation, and manipulation for controlling erosion).
(4) Global and regional cooperative networks (unifying principles, needs, terminology, methodology, reporting, interdisciplinary requirements for conservation-effective land use planning).

As a follow-up to the first two international conferences on soil conservation, held in Ghent, Belgium, 1978, and Silsoe, England, in 1980, this volume will have immense value for conservation professionals, technicians, and students throughout the world.

Price: US$ 35.00, postpaid.
Orders to: SCSA, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021, U.S.A.

Conservation, Science and Society. *Contributions to the First International Biosphere Reserve Congress,* Minsk, 26 September – 2 October 1983. Organized by Unesco and UNEP. Unesco, 1984, 2 volumes, 638 p. ISBN 92-102254-7.

Biosphere reserves are protected areas serving the aims of conservation, research, monitoring, education and training which are established within the framework of the Man and the Biosphere (MAB) Programme of Unesco.

The MAB Programme was launched in 1971 as a programme of international scientific cooperation dealing with man-environment interactions in the whole range of bio-climatic and geographic situations of the biosphere – from polar to tropical zones, from islands and coastal areas to high mountain regions, from sparsely populated regions to dense human settlemens. Research under the MAB Programme is designed to help to provide the kind of information needed to solve practical problems of resource management. It also aims to fill the still significant gaps in the understanding of the structure and functioning of ecosystems and of the impact of different types of human intervention. The International Coordinating Council which supervises the MAB Programme, decided that one of the themes of this programme was to be the 'conservation of nature areas and the genetic material they contain'. Under this theme the concept of biosphere reserves was introduced, which was to consist of protected areas linked through a coordinated international network of common objectives and standards.

Since the first biosphere reserves were designated in 1976, the network has continued to grow steadily, until a total of 226 in 62 countries as at October 1983, totalling about 115 million ha. Biosphere reserves have been established in only about one half the world's biogeographical provinces. The present volumes contain the introductions papers delivered and the recommendations drawn up at the congress.

The experience of the past ten years of activities was reviewed and the outlines to guide the development of the biosphere reserve network in the future was laid down.
Orders to: Unesco National Distributors around the world, or, in case of difficulties: Unesco Press, 7 place de Fontenoy, F-75700 Paris, France.

Erosion and Sediment Pollution Control. Second edition. R. P. Beasley, J. M. Gregory and Th. R. McCarty. Iowa State University Press, Ames, 1984, ix + 355 p., 176 tables, charts, diagrams and photographs. ISBN 0-8138-1530-4.

This book builds on over 30 years of the experience of R. P. Beasley, a noted leader in soil conservation; this experience was recorded in the previous edition (1972). Revisions have been made to keep up with technologies such as improvements in weed and insect control with chemicals, which allows for less tillage; better machines for tilling and planting crops in residue; and development of small computers and calculators to evaluate equations for decision making. While computer programs are not included, equations for tables and figures are provided where possible to facilitate calculations.

Emphasis remains on erosion analysis using the universal soil loss equation; efficient design of waterways, terraces and their outlets, farm ponds; as well as the elements of quality agricultural surveying.

The publication contains new procedures for predicting effects of tillage and cover on soil erosion, runoff predictions using the rational method in addition to the Beasley method for predictions outside the U.S.A., a procedure for exact solution for trapezoidal waterways and additional information on alternate systems. The appendix has an English to metric conversion table.
Price: US$ 27.95, plus 30% for orders outside the U.S.A., and $ 1.25 postage. Prepayment required.
Orders to: Iowa State University Press, 2121 South State Avenue, Ames, Iowa 50010, U.S.A.

Mineralogia de Arcillas de Suelos. Eduardo Besoain. Instituto Interamericano de Cooperacion para la Agricultura, IICA, San José, 1985, 1216 p., 133 cuadros, 325 figuras. ISBN 92-9039-067-0

Este libro fue escrito originalmente como simples 'apuntes de clases' para estudiantes graduados del Centro Agronomico Tropical de Investigacion y Ensenanza (CATIE), de Turrialba, Costa Rica. La necesidad de disponer de algun texto en castellano sobre esta materia lo ha elevado a la categoria de libro. Sin embargo, persisten en él la estructura y el proposito original, es decir, se trata de una obra destinada a estudiantes y no a especialistas.

Conforme a su titulo, el texto pone énfasis en la 'Mineralogia de Arcillas' y a fin de evitar que su contenido fuera solo una exposicion de conceptos tradicionales se le introdujeron enfoques modernos y suficientemente amplois como para dar una vision de conjunto de esta rama de la ciencia del suelo.

No se trata de una obra original. Es mas bien una revision general que trata de resumir y coordinar conocimientos y experiencias desarrollados por numerosos autores.

El plan del libro enlaza diversos asuntos que, partiendo desde temas muy generales, se van particularizando progresivamente, Materias afines conforman Capitulos.

El Capitulo 1 trata de la definicion de arcilla, el desarrollo historico de la mineralogia de arcillas y los factores de que depende su caracterizacion. El Capitulo 2 se refiere muy brevemente a temas fundamentales uniones interatomicas e intermoliculares, escala de electronegatividad y polarizacion, etc. El Capitulo 3 se dedica el estudio de los silicatos primarios: clasificacion, estructura y descripcion de los principales representantes de cada grupo. El Cap. 4 trata de los minerales de arcilla cristalinos del suelo, con énfasis en la estructura, propiedades y relaciones que existen entre ellos. El Cap. 5 comprende el estudio de los minerales secundarios no cristalinos y paracristalinos del suelo. El Cap. 6 se refiere a los minerales acompanantes de la arcilla: oxidos e hidroxidos cristalinos y amorfos del suelo, incluyendo los oxidos de aluminio, de hierro, titanio y manganeso. El Cap. 7 discute los principios de formacion de los minerales de arcilla, incluyendo fenomenos de meteorizacion fisica y los procesos y agentes de meteorizacion quimica: hidratacion, hidrolisis, quelacion y los factores que influyen en la meteorizacion de los minerales primarrios. El Cap. 8 trata de la frecuencia de la distribucion de los minerales de arcilla de suelos. El Cap. 9 se refiere a la sintesis experimental de los minerales de arcilla. El Cap. 10 trata de los méthodos de analisis utilizados en mineralogia de suelos, incluyendo el analisis termico, difraccion de rayos X, espectrofotometria infrarroja, microscopia electronica y analisis quimico via espectrografia de rayos X.

En todo, 1682 referencias son dadas en la ultima parte de cada capitulo. Este libro, aparentemente el primero en este genero publicado en catellano, es claramente editado e ilustrado.

Pedidos a: IICA, Apartado Postal 55, 2200 Coronado, San José, Costa Rica.

Chemistry and World Food Supplies: Research Priorities for Development. Report of a Workshop, Los Baños, December 1982. National Academy Press, 1983, 118 p.

In the mid-1970s, the International Union of Pure and Applied Chemistry (IUPAC) launched a forward-looking initiative known as CHEMRAWN – an acronym for chemical research applied to world needs. CHEMRAWN was conceived as a series of symposia and international conferences whose discussions and published proceedings would help focus the attention of planners, policymakers, and the research community on critical world problems that could benefit from chemical research.

CHEMRAWN II – the International Conference on Chemistry and World Food Supplies: the New Frontiers – was held December 6–10, 1982, in Manila. The published objectives of CHEMRAWN II were: 1) To identify and put into perspective those areas of research and development having the potential to significantly increase food production and improve food storage and processing; 2) To strengthen scientific research in developing nations, particularly in those fields that require professional competence and initiative without excessive capital and human resources; and 3) To accelerate implementation of research priorities and objectives by fostering cooperation among governments, industries, and universities.

The Board on Science and Technology for International Development (BOSTID) of the National Research Council organized a post-CHEMRAWN II workshop with majority participation by scientists from developing countries. The broad goal of the workshop was to develop the major themes discussed at CHEMRAWN into recommendations for action programs that might be initiated by national governments or development assistance organizations. Specific objectives were to examine research needs and opportunities in the chemical sciences for improving food supplies in developing countries, to consider opportunities for research collaboration between scientists in developed and developing countries, and to examine the potential of networking activities in areas of chemical research related to the food supply problem.

The four topics addressed at the workshop were: soil fertility and plant nutrition; plant growth regulators and plant-pest relationships; food science and technology; and aquaculture and integrated farming systems.

The present book contains the summary of recommendation and research priorities, as drawn up by the four working groups, and the detailed working group reports. It also contains conclusions and recommendations of a cross-cutting group that discussed issues in environmental monitoring and chemical analysis.

Requests to: National Research Council, Office of International Affairs, 2101 Constitution Avenue, Washington, DC 20418, U.S.A.

A Geotechnical Landscape Map of Australia 1:2.500.000. K. Grant, J. R. Davis and C. de Visser. CSIRO Div. of Water and Land Resources, Divisional Report 84/1. CSIRO, Canberra, 1984. ISSN 0812-7204.

This geotechnical landscape map depicts regions of constant geophysical properties for road construction. It is based on four variables: landform, underlying lithology, soil type and superficial lithology, which are the principal physical determinants for road construction. The legend and soils information is derived from the Soil Map of Australia (Stace et al., 1968, 1:10.000.000). Also mentioned are the pH of the particular soil group, its Unified Soil Classification (USC, U.S. Department of the Interior, 1974) and its sub-divided Primary Profile Form (Northcote, 1974). The entry on superficial lithology delineates areas with different hardpans and sand dunes with various densities.

While stocks last, a copy is available free of charge.

Requests to: Ms. J. Clark, CSIRO Division of Water and Land Resources, G.P.O. Box 1666, Canberra, ACT 2601, Australia.

Micronutrients. FAO Fertilizer and Plant Nutrition Bulletin 7. J. C. Katyal and N. S. Randhawa. FAO, Rome, 1983, 82 p. ISBN 92-5-101445-0.

In spite of favourable developments in the use of fertilizers to increase crop production, two to six times more of the micronutrients are still being removed annually from the soil than are applied to it together with other nutrients in mineral fertilizers or separately. Some of the nutrients removed are replaced by those in straw, farmyard manure, etc. but on the average the nutrient balance is likely to remain negative.

Micronutrients have not been applied regularly to soil in conjunction with common fertilizers, and fertilizing soils with micronutrients only is likely to promote imbalances between these nutrients groups as well as between individual nutrients. Furthermore, increased yields through intensive cropping and use of high yielding varieties, losses of micronutrients through leaching, liming, a decreasing proportion of farmyard manure compared with chemical fertilizers, the increasing purity of chemical fertilizers and several other factors are contributing towards accelerated exhaustion of the supply of available micronutrients.

It is apparent that hidden micronutrient deficiencies are far more widespread than is generally estimated. Micronutrient problems, which today may be considered only local, may well become more serious in the relatively near future, occurring extensively over new areas and creating widespread and complicated production restrictions if they are not properly studied and diagnosed in time. Even though much of the nature of micronutrient functions is known, the application of this knowledge is not easy.

This present Bulletin has been prepared in simple language in order to help field staff in the correct diagnosis of micronutrient deficiencies and how to amend them. The information provided cannot be site-specific and is therefore intended to provide basic knowledge and guidance in a wide range of circumstances.

Price: US$ 4.00.

Orders to: see below.

Fertilizer and Plant Nutrition Guide. FAO Fertilizer and Plant Nutrition Bulletin 9. FAO, Rome, 1984, 176 p. ISBN 92-5-102160-0.

The need is well-recognized for the efficient and integrated used of mineral fertilizers and other sources of plant nutrients, like organic materials, biologically fixed atmospheric nitrogen, etc., in order to achieve self-sufficiency in food production in developing countries.

FAO, through its Fertilizer Programme, has been engaged in field activities for more than 20 years, in more than 50 developing countries. Its aim is to assist in increasing crop production, particularly of food crops grown by small farmers, through the development and application of appropriate fertilizer use and plant nutrition technology.

It is the purpose of the present Bulletin to be a handy reference source which treats all aspects of plant nutrition and fertilizer use in relatively simple language. The text is based on the 'Handbook on Fertilizer Usage' published by the Fertilizer Association of India, and was adapted to various agro-ecological and technological conditions.

Price: US$ 7.60.

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

Acid Earth. The Gobal threat of acid pollution. J. McCormick. J. Tinker, editor. Earthscan, London and Washington, 1985, 190 p. ISBN 0-905347-61-7.

This very informative publication presents a global review of the problem of the different kinds of acid pollution and of the potential pollution in developing countries. It describes the chemistry of acid pollution, the causes and effects, the implications and the controls that are already available. Thirty nine country reports from every continent confirm the alarming breadth of the pollution.

The author argues that the causes of acid pollution are now well understood, and the methods of controlling it are widely available.

Price: £ 3.95 or US$ 6.25.

Orders to: Earthscan, 3 Endleigh Street, London, England WC1H ODD; or: 1717 Massachusetts Ave. NW, Washington D.C. 20036, U.S.A.

Organisations Pelliculaires Superficielles de quelques Sols de Région Subdésertique (Agadez-Rép. du Niger). C. Valentin. ORSTOM, Paris, 1985, 259 p. ISBN 2-7099-0759-3.

Des travaux récents réalisés en zone sahélienne ont montré que la présence d'organisations pelliculaires à la surface des sols, conditionne le comportement de ceux-ci vis-à-vis de l'eau (infiltration et ruissellement), davantage que leur nature pédologique. Cette étude se propose de mettre en évidence les relations entre ces organisations et différents types de comportement des sols de la région Agadez, Niger, tout en analysant leur formation et leur évolution.

L'étude concerne trois sites, comprenant deux sols alluviaux peu évolués (argileux et sableux), et un sol de reg sur paléosol tronqué. Après une présentation de la distribution des organisations pelliculaires dans la cuvette d'Agadez, l'analyse détaillée de chaque site est entreprise à différentes échelles (Examen macroscopique, microscopies optique et électronique) sur des parcelles naturelles et labourées, soumises à des pluies simulées. Cette analyse morphologique permet, en un premier temps, de mettre en évidence l'existence à la surface des sols de plusieurs types de microhorizons, épais de quelques millimètres et constitutifs de micro-profils.

Commandes à: Service des Editions, ORSTOM, 70–74 route d'Aulnay, F-93140 Bondy, France.

Soil Salinity under Irrigation. Special Issue of Irrigation Science, vol. 6, no. 1, 1985. R. Keren, editor. Springer International, 71 p.

This special issue contains a reviewed selection of the research communications at the conference 'Soil Salinity Under Irrigation – Processes and Management', which was organized by the Israel Society of Soil Science under the auspices of the ISSS, in Bet Dagan, March-April 1984. The general state-of-the-art review papers have been published under the above mentioned title of the conference. See elsewhere in this Bulletin.

The present issue gives an indication of the progress that has been in research currently underway in many countries aimed at solving the problems associated with the use of saline water and soils in irrigated agriculture and indicates the problems still to be solved.

Price: about US$ 22.00, including forwarding charges.

Orders to: Springer-Verlag, Heidelberger Platz 3, D-1000 Berlin 33, Fed. Rep. of Germany.

Soil Erosion Management. ACIAR Proceedings Series No. 6. E. T. Craswell, J. V. Remenyi and L. G. Nallana, editors. Australian Centre for International Agricultural Research, 1985, 132 p.

The loss of soil through erosion reduces the productivity of land not only to present-day farmers but to the generation of farmers to come. The problem is widespread in the world and is being exacerbated by population pressure and extremes of climate such as intense rainfall and drought.

These factors operate to varying degrees in both the Philippines and Australia, but research administrators in both countries have recognized the need for work to define the scope of the problem of soil erosion, and to develop and evaluate technologies to reduce soil loss.

This workshop on soil erosion management was designed to review the state of the art of research in this field, and to define specific areas in which Filipino and Australian scientists could collaborate to help solve the problems of soil erosion in the Philippines. The programme of the workshop held in Los Baños, December 1984, was divided into three sessions: soil erosion management in the Philippines, examining existing soil erosion management programmes and related policies, as well as the traditional practices of the farmers in relation to soil conservation; advance in knowledge on soil ersion management which dealt mainly with research findings and progress on the more technical aspects of soil erosion management; and the social and economic dimension, which seem to be the most problematic in soil erosion management. The publication concludes with reports on three plenary sessions, a joint planning session, and a list priorities for research on soil erosion management in the Philippines.

Price: AUS.$ 11.00.

Orders to: ACIAR, G.P.O. Box 1571, Canberra ACT 2601, Australia.

Publications of the Australian Centre for International Agricultural Research. ACIAR Proceedings Series

No. 1. Proceedings of the Eastern-Africa-ACIAR Consultation on Agricultural Research, Nairobi, Kenya, July 1983. J. G. Ryan, editor, 1984, 241 p. Price: AU$ 11.00.

No. 2. Proceedings of the International Workshop on Soils, Townsville, Australia, September 1983. E. T. Craswell and R. F. Isbell, editors, 1984, 189 p. Price: AUS$ 11.00 (see Bulletin 67, page 84).

No. 3. Shrub Legume Research in Indonesia and Australia: proceedings of an international workshop, Ciawi-Bogor, Indonesia, February 1984. E. T. Craswell and Budi Tangendjaja, 1985, 42 p. Price: AUS$ 6.00.

No. 4. Proceedings of the Nigeria-Australia Seminar on Collaborative Agricultural Research, Shika, Nigeria, November 1983. Saka Nuru and J. G. Ryan, editors, 1985, 145 p. Price: AUS$ 11.00.

No. 5. Evaluation of Large Ruminants for the Tropics: proceedings of an international workshop held at CSIRO, Rockhampton, Australia, March 1984. J. W. Copland, editor, 1985. Price: AUS$ 15.00.

For number 6: see above.

Orders to: ACIAR, G.P.O. Box 1571, Canberra ACT 2601, Australia.

Climate and Agricultural Land Use in Monsoon Asia. M. M. Yoshino, editor. University of Tokyo Press, 1984, 398 p. ISBN 4-13-066090-X.

Monsoon Asia is a land of rain, of paddy, and of densely populated countries. This is true in particular in certain typical regions of Monsoon Asia. Strictly speaking, however, it is not always true: there are broad dry areas suffering frequent severe droughts, and there are also world-famous areas characterized by tea gardens, rubber plantations, timber production and so on. Shifting cultivation prevails in the hilly regions too. The heavy density of population is not a theme in the present volume, but is undoubtedly an important background condition indicating the need for research on climate and agricultural land use.

The Working Group on Tropical Climatology and Human Settlements, established in the International Geographical Union (IGU) since 1978, has been directed to study agriculture and its climatic conditions. The themes of the research projects undertaken by the Working Group include (a) climatic change in the tropics and its effect on food production, (b) water balance as well as hydrological conditions and its effects on human settlements, (c) the concept of human comfort as applied to man and animals, (d) the application of climatic concepts and principles in agriculture, (e) the effects of climate (including air pollution) on human health in urban areas, (f) heat islands and building climates in urban areas, and (g) the role of climate in industrial production, transportation and engineering.

Part of the results of studies conducted by the working group are brought together in the present volume, for researchers and students at a higher level. The first part gives a basic general view of the monsoon climate in Asia and of the heat and water budgets of Monsoon Asia. The second part discusses the relation between the climate and agricultural systems, represented by land use, human settlements, animal production and land degradation. The third part is devoted to chapters describing the problems and characteristics of the individual countries. The final part is a comparison of agricultural land use in Monsoon Asia with that in other tropical regions.

The research reported in this volume is a contribution to the World Climate Impact Studies Programme (WCIP) and other projects which are ongoing on a cooperative basis around the world.

Price: 10.000 yen or US$ 55.00.

Orders to: Univ. of Tokyo Press, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113–91, Japan.

Antimicrobials and Agriculture. Studies in the Agricultural and Food Sciences. M. Woodbine, editor. Butterworths, London, Boston, 1984, XIV + 583 p. ISBN 0-408-11155-0.

In many ways, this symposium on the benefits and disadvantages of antibiotics in agriculture is well timed. The antibiotic era – if one discounts the sulphonamides as antibiotics – has now lasted for about 40 years and the benefits and disadvantages of these agents are fairly clear for all to see. On the one hand there are undoubted advantages: agents now exist which do indeed have enormously valuable properties and many infectious conditions are largely controlled – both in man and domestic animals – by their use. Moreover, treatment is much more effective and rapid, with clear advantages in morbidity and the incidence of unwanted side-effects.

Against this background there are some fairly notable disadvantages. Resistant populations of bacteria have emerged in many cases and these have sometimes caused severe clinical problems. Perhaps few of these are actually life-threatening, but often they delay recovery and lead to unwanted complications.

Although it is clear that antibiotics have their advantages and disadvantages, it is often rather difficult to decide where the balance lies for any one agent. The present proceedings of the Fourth International Symposium on Antibiotics and Antibiosis in Agriculture held in 1983, consider both the benefits and disadvantages of antimicrobial agents. It presents papers in the following sessions: soil aspects (4 papers); plant aspects (5 papers); animal aspects (13 papers); feed aspects (10 papers) and food aspects (11 papers).

The broad coverage make this publication a valuable reference source for those involved in either teaching or research in the agricultural, veterinary and food sciences, as well as for microbiologists and those concerned with public health.

Price: £ 65.00, net in U.K.

Orders to: Butterworths, Borough Green, Sevenoaks, Kent, England TN15 8PH.

Salinity Tolerance in Plants: Strategies for Crop Improvement. R. C. Staples and G. H. Toenniessen, editors. John Wiley & Sons, New York and Chichester, 1984, xviii + 446 p. ISBN 0-471-89674-8.

Interest in plant salt tolerance has increased considerably during the last decades because of a growing awareness of salinity-caused crop losses, food shortages, and the competition among users of water.

The present book is based on an international conference on salinity tolerance that was held to assess current and potential approaches for crop improvement. It shows the important physiological and biochemical mechanisms used by plants to accommodate highly saline conditions. The book has three parts: mechanisms of salt tolerance (12 papers), crop selection and improvement (7 papers) and controlled environments and economic analyses (3 papers).

Price: US$ 49.95.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, England PO19 1UD; or; 605 Third Avenue, New York, NY 10158, U.S.A.

The Fight for Food. Factors Limiting Agricultural Production. H. E. Croxall and L. P. Smith. George Allen & Unwin, London, Boston, Sydney, 1984, 218 p. ISBN 0-04-630011-2 (hardback), 0-04-630012-0 (paperback).

The authors define as simply as possible, without technical jargon or a mass of confusing statistics, the wide range of factors influencing agricultural productivity. These include weather, soil, biology and ecology, and human, social, economic and political factors. The ways in which these factors operate and interact with each other to produce the infinite variety of changing circumstances in which farmers take their decisions are discussed. These decisions are the crucial factors in every productivity problem and the authors suggests policy changes which could improve the changes of farmers making the best choices, not only for themselves but for the consumer and the community at large.

This book will be valuable to students in helping them to understand the overall principles which govern agriculture and showing how their own speciality fits into the general scheme of things. It provides consultants and advisers with a better basis for appreciating the significance and possible consequences of the advice they proffer. Research workers are given insight into how their efforts have to be related to the farming pattern and the importance of an integrated rather than a narrow approach. This integrated analysis of prospects for food production is also of interest to planners, policy makers, farmers and consumers.

Orders to: George Allen & Unwin, Park Lane, Hemel Hempstead, Herts. HP 2 4TE, England; 9 Winchester Terrace, Winchester, Mass. 01890, U.S.A.; or: 8 Napier Street, North Sydney, N.S.W. 2060, Australia.

Variabilité spatiale des processus de transfert dans les sols. Les colloques de l'INRA 15, colloque S.H.F.-I.N.R.A., Avignon, Juin 1982. Institut National de la Recherche Agronomique, Paris, 1983, 219 p. ISBN 2-85340-527-3. ISSN 0293-1915.

Le thème général 'variabilité' marque clairement l'étape à laquelle sont parvenues les recherches sur les phénomènes de transfert d'eau et de solutés dans les milieux poreux et singulièrement dans les sols. Après le stade d'analyse en laboratoire sur des milieux contrôlés et celui des études ponctuelles in situ, où les phénomènes sont le plus souvent décrits et interprétés à l'aide d'hypothèses contraignantes d'isotropie et d'homogénéité, il apparaît désormais nécessaire de prendre en compte la caractéristique vraisemblablement la plus générale d'une unité naturelle de fonctionnement – qu'il s'agisse d'un bassin versant, d'une parcelle cultivée ou d'une unité pédologique – à savoir la variabilité interne de ses propriétés ou d'un phénomène qu'elles régissent.

Pour s'en tenir à la variabilité spatiale, on peut la considérer à travers la dispersion aléatoire sur le terrain des valeurs prises par telle ou telle propriété, à travers des gradients plus ou moins continus, ou à travers les discontinuités plus ou moins brutales liées à la structure même du milieu naturel.

Trois principaux ensembles de problèmes d'ordre méthodologique se posent désormais. Le premier concerne les moyens de description de cette variabilité spatiale ainsi que la recherche renouvelée des sites représentatifs et de la signification et des possibilités d'utilisation de moyennes et des distributions des paramètres. Le deuxième concerne l'analyse proprement dite de cette variabilité et notamment la recherche de variables d'accès facile, permettant d'en rendre compte. Le troisième a trait à l'utilisation de données paramétrées statistiquement, en vue du fonctionnement des modèles de transferts et de la simulation.

Le renfort que peuvent apporter aux méthodes classiques d'étude de stratification du milieu naturel, les moyens statistiques nouveaux, paraît clairement illustré par le programme des communications présentées.

Prix: FF 93.00.

Commander à: Services des Publications, INRA, Route de Saint-Cyr, F-78000 Versailles, France.

Sols. Département des Sols, Institut National Agronomique Paris-Grignon Publication non périodique, M. C. Girard, éditeur.

Le département des Sols de l'I.N.A., Paris-Grignon va assurer des publications dont le nom est 'Sols'. Ces fascicules de 60 à 120 pages porteront sur plusieurs sujets tels que résumés de thèses ou synthèses, analyses et critiques de divers sujets de bibliographie, et comptes rendus de colloques et séminaires.

Ce type de publication non périodique n'existant pas encore, le Département a cru bon de développer une telle approche. De plus, les délais de publication sont de l'ordre du mois.

Les fascicules suivants sont nouveaux:

15. Séminiare sur la fixation des métaux par les matières organiques. Nancy, 9–10 Mai 1984. I.N.A., Paris-Grignon, 1985, 147 p. ISBN 2-903643-13-6. ISSN 0766-0529. Prix: FF 81.00.

16. Matériaux pour une histoire de la science du sol. Tome II. J. Boulaine, I.N.A., Paris-Grignon, 1985, 93 p. Prix: FF 42.00.

A paraître:

3. Remembrement et Pédologue. B. Fournier.

17. Facteurs de fertilité chimique et utilisation des sols tropicaux. B. Dabin.

Pour chaque fascicule il sera demandé une participation aux frais. Elle variera selon les numéros. Le tirage de chaque fascicule sera fonction de la demande. Il est possible de commander d'avance tel ou tel numéro à paraître.

Pour tous renseignements, adressez-vous à: Dr. M-C. Girard, Lab. de Pédologie, I.N.A. Paris-Grignon, 78850 Thiverval-Grignon, France.

Soil Physics. H. Kohnke. McGraw-Hill, New York, 1968. Reprinted by Tata McGraw-Hill Publishing Comp., New Delhi, 1982, 224 p. ISBN 07-099403-X.

This is a reprint of the 1968 edition of this comprehensive textbook. Excluding the strictly mathematical physics of soil and water, it substantially treats practically all aspects of soil physics. It provides a good foundation in the physics of water and its relation to soil, and the other phases of soil physics are then developed upon this foundation. Each chapter proceeds upon the explications of the preceeding ones. Students with an elementary background in chemistry, physics, mathematics and soils, should have no difficulty in dealing with the material. Scientific polemics are avoided to eliminate unnecessary confusion.

The work has been prepared specifically as a textbook for advanced undergraduate and beginning graduate students in soils, but it can also be used succesfully by advanced graduate students in neighboring fields. While the text is intended chiefly for class use, it can be advantageously adapted to self-study.

Price: DM 21.50.

Orders to: McGraw-Hill Book Comp., 1221 Ave. of the Americas, New York, NY 10020, U.S.A.; Shoppenhangers Road, Maidenhead, Bersh., England SL6 2QL; or: Lademannbogen 136, D-2000 Hamburg 63, Fed. Rep. of Germany.

Irrigated Forestry in Arid and Semi-Arid Lands: A Synthesis. F. B. Armitage. IDRC Publ. 234-e. International Development Research Centre, Ottawa, 1985, 160 p. ISBN 0-88936-432-X.

Use of irrigation in forest plantations in many arid and semi-arid areas since the 1860s has demonstrated in some cases a potential for high wood yields, and thus for countering the depletion of meagre natural wood resources, with related environmental degradation, that stems from population increases. This synthesis is aimed at enhancing irrigated forestry through an examination of past experience, the range of inputs required, and the benefits of integrating tree plantations with irrigated agriculture. It reviews the potential for irrigated forest plantations and provides a checklist of economic, sociological, and technical criteria needed to guide decisions as the feasibility of such developments. Actions to be covered in the planning, implementation, and operational phases or irrigated forest plantations are indicated as are illustrative production levels and research needs. The closing chapters review the approaches in economic analysis, management, and planning.

The publication is also available in French and on microfiche.

Price: US$12.00.

Orders to: IDRC, P.O. Box 8500, Ottawa Canada, K1G 3HG.

Ancient South Americans. J. D. Jennings, editor. W. H. Freeman & Comp., San Francisco, 1983, 414 p., 112 ill., ISBN 0-7167-1429-9.

Ancient South Americans is the second in a two volume series that attempts to summarize the past 30000 years of New World pre-history. It takes the form of a collection of eight essays by experts in the fields of geography, archaeology and anthropology. The essays range over various aspects of these disciplines in Central and South America.

Chapter one, Changing Directions in Archeological Thought, is a chapter that introduces the reader to some of the methods and theories of American archeology that are used by the authors of later chapters. Chapter on the Northern Andes, and the South Andes, were written especially for this volume.

In most chapters attention is given to agriculture, from the earliest beginnings in the Maya lowlands, via land use in the Inca empire upto that during the Spanish colonization. This book helps us to get an understanding of the way in which the land was used in pre-historic times and how this contributed to land use in Latin America today.

Price: £ 22.75, hardbound.

Orders to: W. H. Freeman, 20 Beamont Street, Oxford, England OX1 2NQ.

Themes in Biogeography. J. A. Taylor, editor. Croom Helm Publishers, London and Sydney, 1984, 404 p. ISBN 0-7099-2428-3 (pbk); 0-7099-2427-5 (hardbound).

Biogeography is currently developing apace. However a classical origin does not necessarily ensure a modern identity in the continuing struggle between the 'hard' and 'soft' sciences. The different forms and rates of development in the geographical and biological sciences have given biogeography a kind of double identiy which has served only to confuse and delay its establishment as a separate science.

This collection of essays illustrates the current complementary nature of biological and geographical styles of biogeography which if combined could lead to the final maturing acceptance of the subject as a separate science.

The contributors discuss a wide range of topics, such as biogeography and the ecosystems, bioclimates and vegetation analysis, soils in ecosystems, pinpointing their current stages of development and future integrative role in the solution of both pure and applied social and environmental problems. The multidisciplinary approach to the subject will interest undergraduate students in geography, biology and environmental science.

Price: £ 12.95 (pbk), net in U.K.

Orders to: Croom Helm, Provident House, Burrell Row, Beckenham, Kent, England BR3 1AT; or; First Floor, 139 King Street, Sydney, NSW 2001, Australia.

Pedologija, M. Ciric, SOUR 'Svjetlost' OOUR Zavod za udzednike i nastavna sredstva, Sarajevo, 1984, 312 p.

This book by the well-known Yugoslav pedologist, ex-chairmain of Commission V of ISSS, is a manual designed in the first place for workers in forest management and students of sylviculture. In view of its modern approach and wide range of problems discussed, it can also be of interest to ecologists, farmers, geographers, town-planners, etc.

The manual consists of two parts, a general and a special one. The first part comprises 11 chapters: (1) the soil as nature's individual formation and its basic structure; (2) the composition and dynamics of the mineral part of soil; (3) organisms and organic matter in soil; (4) sorptive capabilities of soil; (5) physical characterization of soil; (6) water in soil; (7) soil air; (8) thermal properties of soil; (9) soil solution; (10) migration processes in soil; (11) the evolution of different soils in nature. The book contains an outstandingly clear-sighted interpretation of the particular properties of soil from the point of view of ecology and production.

The second part of the manual consists of four chapters:
(1) the classification of soil; (2) the typical soils of Yugoslavia; (3) the geography of soils; (4) soils in forest production.

The chapters contain a large number of the authors original concepts. The book is illustrated with many well-chosen photographs, some of them taken by the author, but most are by the well-known Czech pedologist, Josef Pelisek.

The book is written in Serbo-Croat, easily understood by readers of the Slavonic languages area. It would be desirable to translate it into other world languages.

Z. Prusinkiewicz, Torun, Poland

Changing Metal Cycles and Human Health. Life Science Research Report 28. J. O. Nriagu, editor. Report of the Dahlem Workshop, Berlin, March 1983. Springer-Verlag, Berlin, Heidelberg, New York, 1984, x + 446 p. ISBN 3-540-12748-8 (Germany); 0-387-12748-8 (U.S.A.).

Recognizing the need for more effective communication between scientists, especially in the natural sciences, The Donor Association for the Promotion of Sciences and Humanities, in cooperation with the German Science Foundation, founded Dahlem Konferenzen in 1984.

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.

This volume explored the question of a silent epidemic of metal poisoning in the industralized societies. Some of the topics discussed are the impacts of human activities on the cycling and accumulation of pollutant metals in the various components of the biosphere; the sources, exposure routes, and metabolism of key pollutant metals; and the early sentinels of chronic metal poisoning. Metals that are likely to be of future concern are discussed in terms of emerging literature on their environmental toxicology or the expected change in the rate of their release into the ambient environment. The critical gaps in knowledge are identified, and the future research needed to estimate the extent of health problems and health risks associated with current (and anticipate changes in) levels of environmental metal pollultion is recommended. This volume should be of interest to anyone concerned about the quality of our environment and its impacts on human health. Due attention has been given to soil accumulation and pollution, soil behaviour, maximum allowable limits of heavy metals in soils, etc.

Price: DM 58.00 or approx. US$ 23.00.

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

X-Ray Microscopy. Springer Series in Optical Sciences. G. Schmahl and D. Rudolph, editors. Springer-Verlag, Berlin, Heidelberg, New York, 1984, 345 p. ISBN 3-540-13271-6 (Germany); 0-387-13271-6 (U.S.A.).

X-ray microscopy fills a gap between optical and electron microscopy. Using soft x-rays, a resolution higher than with visible light can be obtained. In comparison to electron microscopy, thick, wet, unstained specimens can be examined. This is especially advantageous for biological applications. The intense synchrotron radiation of electron storage rings and the development of optical element for soft x-rays render x-ray microscopy feasible for basic research. Wider applications will be possible in the future with the development of laboratory x-ray sources and microscopes.

The present volume contains the contributions to the symposium 'X-Ray Microscopy', organized by the Akademie der Wissenschaften in Göttingen in September 1983.

The latest techniques and results of this growing, inter- disciplinary field are discussed, stressing their applications to biological, medical, and physical problems. It has the following sections: X-ray sources (5 papers), X-ray optics (12 papers), X-ray detectors (2 papers), X-ray microscopes (7 papers), applications (9 papers), and X-ray holography (2 papers).

Price: DM 68.00.

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

Bodenschutz. H. J. Fiedler. VEB Gustav Fischer Verlag, Jena, 1984, 191 S., 28 Abb., 34 Tab. Bestellnummer 533-830-4.

Bodenkundliche Probleme innerhalb des Umweltschutzes werden durch dieses Buch dem großen Kreis von Spezialisten angrenzender Fachgebiete, die mit dem Boden als Acker-, Wald- oder Grünland, als Wasser- und Nährstoffspeicher, Filterkörper, Lagerungsfläche oder Bauland zu tun haben, nahegebracht. Die Darstellung schlägt einer Brücke zwischen naturwissenschaftlicher, ingenieurwissenschaftlicher sowie land- und forstwirtschaftlicher Arbeit auf den Gebieten Bodennutzung und Bodenschutz. Das Buch soll helfen, Verständnis für die Zusammenhänge Mensch-Boden zu gewinnen und dazu befähigen, örtliche Probleme möglichst vorbeugend sachkundig zu lösen.

Preis: DDR M 35.00.

Bestellungen an: VEB Gustav Fischer Verlag, Postfach 176, DDR-6900 Jena, D.D.R.

Reclamation of Alkali Soils in India. K. K. Mehta. Oxford & IBH Publ. Comp., New Delhi, 1983, 280 p. ISBN 0-86249-468-0.

During the last decade voluminous research has been carried out on alkali soils and it has shown that it is possible to reclaim alkali soils economically. Field demonstrations carried out on the farmers' field have also shown that very good crops can be grown on alkali soils in India. Fortunately all the necessary inputs such as gypsum and pyrites are available here. Good quality groundwater is also available. The climate is very favourable with adequate rainfall.

The practicable and economically viable scientific technology is also available. As a result of the keen interest shown by the Government, large alkali areas are being reclaimed by the farmers in different states every year. This book provides the latest research findings in a concise form so that scientists and government officials can help the farmers to make the best use of their money invested in reclamation. Besides the research findings, the book discusses diverse methods for growing crops, trees and grasses on alkali soils. A new grouping of alkali soils has also been incorporated keeping in view the reclamation aspects in the fields.

Price: Rs. 75 or £ 11.00.

Orders to: Oxford & IBH Publ. Comp., 66 Janpath, New Delhi 110001, India. In U.K.: JK Publishers, 23 Denne Road, Horsham, West Sussex, England RH12 1JF.

Geological World Atlas/Atlas géologique du monde. 1:10.000.000. Unesco, Paris, 22 sheets and explanatory notes in binder.

With the publication of the last nine sheets of the twenty-two sheet Geological World Atlas the complete atlas is now available. It was compiled for Unesco and the Commission for the Geological Map of the World by the International Geological Mapping Office. The scale of the maps of 1:10 million, ocean sheets 1:36 million. This up-to-date comprehensive document provides a complete picture of world geology.

A uniform legend is used for all continents. The polar regions and the oceans are represented on smaller scales and in different projections. Maps of each major regions are accompanied by an explanatory note. A truly global approach to the study of the earth's crust invaluable to geologists, teachers and students, and of interest to many other earth scientists.

Price: FF 1950.

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

Malnutrition: Determinants and Consequences. Current Topics in Nutrition and Disease, Volume 10. P. L. White and N. Selvey, editors. Alan R. Liss, New York, 1984, 512 p. ISBN 0-8451-1609-6.

In the sixties and seventies, mortality among young children and incidence of the most severe forms of protein-energy malnutrition were significantly reduced in the American hemisphere. Nevertheless, chronic malnutirition and its consequences for human development remain urgent concerns for policy makers throughout the region. Even the developed nations and those making the transition to economic stability are affected.

This book considers the problem of malnutrition and food scarcity as a regional concern, surveying conditions in North America, Latin America, and the Caribbean. Specific factors contributing to hunger and their consequences are discussed: the effects of malnutrition on mothers and nursing infants, urbanization and demographic change, nutritional factors affecting immune responses, individual food intake, attempts to increase agricultural productivity, and implications for health care. A panel discussion presents case studies on conditions in several Caribbean communities and makes recommendations for approaches to the problems on a local level. The book closes with a survey of strategies for addressing the hunger problem on a region basis.

This book is primarily of interest to nutritionists, public health professionals and medical specialists, but it contains a number of contributions which are of importance for those involved in agricultural development possibilities in the region.

Price: £ 73.00.

Orders to: Alan R. Liss, Inc., 150 Fifth Avenue, New York, NY 10011, U.S.A.; or: JohnWiley & Sons, Baffins Lane, Chichester, Sussex, England P019 1UD.

Proceedings of the Third Meeting of the Working Group on Geomorphology of River and Coastal Plains. N. Thiramongkol and J. A. M. Ten Cate, editors. Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP), Bangkok, 1984, 166 p.

CCOP is an intergovernmental body, established in 1966 with the assistance of the United Nations Economic Commission for Asia and the Far East (ECAFE, now ESCAP). There are 11 member countries. The main tasks of the Working Group are (1) to compile an atlas of large and medium scale with geomorphological maps of 1:50.000 to 1:1 million of areas affected by flooding in the past or in recent time; (2) to produce a geomorphological map of flood-affected areas and drainage basins of the world at a scale of 1:5 million; (3) to realize studies of rivers and river valleys; and (4) to compose country reports on 'Geomorphology of flood-affected areas'.

The present report contains 11 papers and 6 abstracts of contributions as well as a list of publications which appeared on the subject treated between 1980 and 1983. The papers were presented at the Third meeting of the Working Group, held at the Chulalonkorn University, Bangkok, December 1983. Most papers are concerned with conditions in Southeast Asia and the Far East.

Price: US$ 10.00; prepayment required.

Orders to: CCOP Project Office, c/o ESCAP, United Nations Building, Bangkok 10200, Thailand.

Challenges in African Hydrology and Water Resources. IAHS Publication 144. D. E. Walling, S. S. D. Foster and P. Wurzel, editors. IAHS, 1984, x + 587 p. ISBN 0-947571-05-1.

This publication contains the proceedings of the Harare Symposium, held in July 1984. The objectives of the symposium were (a) to focus on the role of groundwater exploration, data collection, assessment, resource development and management in rural Africa, and (b) to discuss problems in soil erosion and sediment transport and their effects. The first part of these proceedings contains 22 groundwater papers and the second part 28 soil erosion papers.

Groundwater papers. The challenges facing hydrogeology in Africa include the delineation of groundwater reservoirs, the quantitative estimation of recharge into groundwater reservoirs, and new approaches in the exploitation and managements of small discrete basins in the crystalline formations that underlie so much of Africa. Following an introduction and discussion of groundwater development in Africa, the groundwater papers are divided into four sections. The first two sections contain papers considering the challenges posed by groundwater development in basement shield areas and in sedimentary/volcanic terrains, provinces characterized by a different scale of groundwater resource potential and by distinct groundwater exploration, evaluation, development and management problems. The third section contains papers on isotope studies and on groundwater modelling. The papers in the final section consider data acquisition, archiving and well completion.

Soil erosion papers. There are many important problems, both practical and more academic, linked to the erosion, transport and deposition of sediment in the African environment. For example, soil erosion and associated land degradation are major problems and these problems are growing year by year. There is a clear need for improved understanding of soil loss tolerances and for the formulation of appropriate soil conservation srategies. Furthermore, the impact of soil erosion may result in reservoir sedimentation downstream. The soil erosion papers address a considerable number of these problems and provide examples from a wide range of environments and countries. The first group of papers affords a general view of rates of erosion and sediment yield in Africa. The second group addresses the theme of measurement and prediction. Soil erosion and the development of appropriate conservation strategies provide the focus for the third group of papers. Finally, some of the downstream effects of upstream erosion are considered by the group of papers dealing with problems of reservoir sedimentation. Most papers are in English, some in French; all have an abstract in English and French.

Price: US$ 48.00, including surface mail postage.

Orders to: IAHS, 2000 Florida Avenue NW, Washington, DC 20009, U.S.A.; IUGG, 39 ter rue Gay Lussac, F-75005 Paris, France; or: IAHS Editorial Office, Institute of Hydrology, Wallingford, England OX10 8BB.

Critical Study of Agricultural Productivity in Uttar Pradesh 1951–1975. S. N. Pandit. Concept Publ. Comp., New Delhi, 1983, 154 p.

Economists, sociologists, planners, and administrators alike hold the view that the economic development of India depends ultimately on the agricultural development. Keeping in view the magnitude of population and vastness of area the economic development of Uttar Pradesh has an important role to play in the development of the country. In the state the role of agricultural development is decisive.

In this book an attempt has been made to study both analytically and graphically the broad trends in area, production and productivity of principle crops in the state. The author has made an effort in presenting time series data on the various variables used in the study. Besides studying cropping pattern a survey of land use pattern also has been made. On the basis of population projections rough estimates of future availablility of various food grains has also been attempted.

Important policy decisions with respect to farm production need special mention: (i) the emphasis is to be laid on increasing productivity and (ii) there is need for developing a farm technology which keeps the farms permanently under crops.

Price: Rs. 90 or US$ 18.00.

Orders to: Concept Publ. Comp., Post Box 6274, New Delhi 110015, India.

Humic Substances. Structural, Photophysical, Photochemical and Free Radical Aspects and Interactions with Environmental Chemicals. Current Topics in Environmental and Toxicological Chemistry Volume 7. G. G. Choudhry, Gordon and Breach, New York, Londen, 1984, x + 185 p. ISBN 0-677-06440-3.

The organic matter of soils, peats and waters consists of a mixture of plant and animal products in various stages of decomposition together with substances synthesized biologically and/or chemically from the breakdown products as well as microorganisms and small animals and their decomposing remains. This organic matter is usually divided into two groups: (i) nonhumic substances, and (ii) humic substances.

Nonhumic substances include a large number of relatively simple compounds of known structure and belonging to well-known groups such as carbohydrates, proteins, peptides, amino acids, fats, waxes, resins, pigments, and other low-molecular-weight organic substances. In general, these compounds are relatively easily attacked by microorganisms in the soil and have a relatively short survival rate. The bulk of the organic matter in most soils and waters consists of humic substances. These are amorphous, brown or black, hydrophilic, acidic, polydisperse substances of molecular weights from several hundreds to tens of thousands.

The occurrence of humic substances like fulvic acids, humic acids and humins in almost every aquatic environment as well as in soils, is well known. Therefore, it is strongly suggested that experiments designed to evaluate the environmental fate of pollutants also be conducted in the presence of humic substances. This book has been compiled in an attempt to satisfy the pressing need for a current textbook and reference book in the disciplines of environmental chemistry, soil science and other sciences. It covers (i) structural aspects of humic substances such as fulvic acids, humic acids and humins together with their photophysical, photochemical and free radical characteristics, and (ii) interactions of humic substances with environmental chemicals. The discussion is divided into four parts. In part I, the reader is introduced to humic materials, their occurrence and origin in our environment. Part II reviews visible and ultraviolet light-absorbing, fluorescent, phosphorescent and free radical characteristics. Effects of irradiation on free radical contents and light-absorbing and -emitting spectra of humic materials together with their photooxidation are also treated. Part III provides an introduction on sorption phenomena along with four mathematical adsorption equations: Langmuir, Freundlich, BET and Gibbs; it also discusses adsorption mechanisms. Part III also includes a discussion of the sorptive effects of humic substances on some environmental chemical. In Part IV, the effects of humic substances on solubility, hydrolysis, microbial processes, and photodegradation of some environmental chemicals are examined. The discussion in each part ends up with summarizing and concluding remarks and a list of references.

Orders to: Gorden and Breach Science Publishers, One Park Avenue, New York, NY 10016, U.S.A.; 42 William IV Street, London, England WC2N 4DE; or: 58 rue Lhomond, F-75005 Paris, France.

Geochemical Atlas of the Fed. Rep. of Germany. Geochemischer Atlas Bundesrepublik Deutschland. Verteilung von Schwermetallen in Wässern und Bachsedimenten. H. Fauth, R. Hindel, U. Siewers und J. Zinner. Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, 1985, 79 S. ISBN 3-980197-0-4.

This Atlas, with German and English text, is intended not only to contribute to the protection of the environment but is also to be used for locating new mineral deposits.

Since 1958, the Institute for Geosciences and Natural Resources has been carrying out geochemical prospecting for heavy metals involving analyses of water, stream sediments and soils. The results of these surveys, apart from yielding information about metalliferous mineralization, showed up indications of environmental pollution. In 1977, a systematic multi-element geochemical survey of the entire Federal Republic of Germany (FRG) was started. It covered the prospective areas as well as those areas contaminated with heavy metals. Thus, the current state of heavy-metal contamination is now documented and, for the first time, heavy-metal abundances in waters and stream sediments throughout the FRG can be compared. It is based on about 80000 water analyses and 70000 sediment analyses for 15 elements.

The geochemical survey located all the larger areas of natural and historical anthropogenic contamination in the FRG. However, the pollution of very recent origin due to dust, smoke and contaminated precipitation is probably only partially documented by this survey, since this kind of pollution, depending on the local conditions, is initially resorbed, buffered, or accumulated by the soil before it can be detected as an anomaly in stream waters and sediments.

The comprehensive computer-based database GEOMULDAT (GEochemical MULti-element DATafile) permits rapid access to extensive detailed information, and can be used to produce lists or maps at any scale and enables statistical analysis of the geochemical data to be carried out, as well as correlation with a wide range of information from mineral exploration, environmental research, public health agencies, and hydrological records.

The atlas is also intended to stimulate multidisciplinary research on the factors governing the distribution of trace elements in nature. This is of vital importance in connection with the increasing amount of pollution of our environment e.g. in the public health field or for improving plant cultivation and animal breeding.

Preis: DM 68.80.

Bestellungen an: E. Schweizerbart'sche Verlagsbuchhandlung, Joánnesstrasse 3A, D-7000 Stuttgart 1, Bundesrepublik Deutschland.

A Glossary of Agricultural Terms Relating to Soils and Water. B. Walker. Merlin Books, Braunton, 1983, 203 p. ISBN 0-86303-111-0.

This useful glossary is intended primarily for students of agriculture, but may also prove useful to students in geography, geology, etc. The definitions are specifically related to the subject of agriculture. Thus some of the chemical definitions, for example, hydrolysis, oxidation, hydration, adhesion, etc. may be thought not to be complete from a chemical point of view, but when considered from an agricultural aspect will be found to be of direct relevance.

Price: £ 4.75, net in U.K. plus £ 1.00 for postage worldwide.

Orders to: T. D. Walker, 8, Pasture Parade, Chapel Allerton, Leeds, England LS7 4QT.

Advances in Abandoned Settlement Analysis: Application to Preshistoric Anthrosols in Colombia, South America. R. C. Eidt. The Center for Latin America, University of Wisconsin, Milwaukee, 1984, 159 p. ISBN 0-930450-53-1.

The author's conviction is that sites comprise more than location, artefacts, and architecture, but also allow informative conclusions about the interrelationships between people and their environment, and, at a more detailed scale, about socio-economic activities within settlements. A sophisticated two-part field and laboratory phosphate technique which he has developed is surprisingly diagnostic of occupation activities when applied to the human, animal, and plant residues that characterize soils within structures, between them, and in work zones around the settlement periphery.

The first part of this method consists of a rapid field test by ring chromatography which permits careful outlining of settlement features on a grid. By follow-up laboratory analysis of selected samples to ascertain three distinct phosphate fractions, absolute and relative values are obtained. Comparison of phosphate fractions and other chemical and physical 'signatures' with unaffected varieties, and/or with a data bank of known soils formed under similar land use conditions, facilitates identification of activity areas.

Providing activities at a particular location have remained constant over lengthy periods, the chemical and physical consistency of anthrosols – widely-used term the author has coined for human-affected soils – is subsequently maintained over the millinea, and systematic soil tests can provide clearcut doineations between, for example, dwelling areas and field with different crop combination.

In this book his soil analysis is applied to two site complexes in different environments of Colombia, South America, to demarcate residential areas, and to examine the origins of raised fields, deliberately built up as ridges, mounds, and platforms to provide suitable surfaces for cultivation, and ditched fields that were artificially drained.

This original book is well-illustrated and written in a clear style. It is also of value for soil scientists interested in archaeological research at abandoned settlements.

Price: US$ 12.50 plus $ 1.00 postage.

Orders to: The Center for Latin America, The University of Wisconsin, P.O. Box 413, Milwaukee, WI 53201, U.S.A.

Hydrochemical Balances of Freshwater Systems. IAHS Publication 150. E. Eriksson, editor. IAHS, 1984, 428 p. ISBN 0-947571-35-3.

This publication contains the proceedings of the Uppsala Symposium, convened by the Committee for Hydrology of the Swedish Natural Science Research Council in cooperation with Unesco and the International Association of Hydrological Sciences (IAHS), held in September 1984.

The symposium addressed different hydrochemical processes which influence the composition of atmospheric precipitation, soil solutions, and surface water in rivers and lakes; and the hydrochemical balances attained in various freshwater systems.

It is well known that the ionic concentration and composition of various forms of freshwater and their characteristics are determined by interaction of principal environmental factors such as climate, topography and biota. These factors cause variations in composition both within and between systems and areas, and within and between years and decades. The extent of the contribution of each factor however is not well understood.

Man's activities affect many of the hydrochemical processes involved by increasing or decreasing their rates. This further complicates the designing of measurement systems and the interpretation of collected data.

The 37 papers, representing a fair picture of the state of hydrochemistry today, are arranged under the following topics: (1) Water interaction with soil and rock. Processes and time perspectives: (a) processes in the unsaturated zone, (b) processes in the saturated zone, and (c) processes during groundwater discharge (12 papers); (2) Data collection, adequate distribution in space and time (7 papers); (3) Budgeting and modelling for catchment areas, lakes and other hydrological units (11 papers); (4) Description and analysis of sorption-desorption phenomena in natural systems (2 papers); and (5) Hydrochemical and sediment geochemical data as a tool for deciphering hydrological processes (5 papers).

Price: US$ 44.00, including surface mail charges.

Orders to: IAHS, 2000 Florida Avenue NW, Washington, DC 20009, U.S.A.; IUGG, 39 ter rue Gay Lussac, F-75005 Paris, France; or: IAHS Editorial Office, Institute of Hydrology, Wallingford, Oxfordshire, England OX10 8BB.

Land Resources of the People's Republic of China. Resource Systems Theory and Methodology Series No. 5. K. Ruddle and Wu Chuanjun, editors. United Nations University, 1983, ix + 84 p. NRTS-16/UNUP-349. ISBN 92-808-0342-2.

The agricultural mobilization of land resources had played a fundamental rol in shaping both the civilization of China and its cultural landscapes and since ancient times has formed the foundation of the Chinese economy. In China, as elsewhere, agriculture is at once a craft, a business and a way of life, and notwithstanding the tremendous transformations that have taken place in the structure of the national economy since the founding of the People's Republic in 1949, the agricultural traditions of the nation have remained strong.

Further, China's land resources are complex and varied, as befits a vast territory of 9.6 milion km^2, which extends from the cold, continental zone, near Siberia, to south of the Tropic of Cancer, embraces a wide range of climatic and biotic zones, and includes a great variety of topographical types. The diversity of environments thus formed is reflected in the areal differences in natural resource endowment and land use, and in the regional imbalance in the development and use of primary resources.

Despite the historical and contemporary importance of its agricultural sector, no complete, official land survey has ever been conducted in China, hence consistently reliable land-use statistics do not exist for the nation as a whole, a deficiency that inhibits effective long-range planning.

This present volume contains papers presented by the Chinese participants at the international conference on 'Land Use Evaluation and Classification, with Special Emphasis on Wetlands', in Beijing and Heilongjiang Province, September 1980. It documents several aspects of the critical evaluation of land resources now underway in China.

The publication is divided into two parts. The first deals with the nationwide classification, mapping, and evaluation of land-use categories, and its local application. The second is devoted to the wetlands of north-east China, a region largely closed to outsiders since 1949.

In many ways this book may be regarded as a measure of current geographical research in the People's Republic of China, since it embraces the main themes emphasized at present, namely agricultural regionalization, land evaluation and classification, and physical geography. In China most geographical and related research is applied to the development of the nation's natural resource endowment, and this publication provides a vivid illustration of the Chinese policy that research should be closely integrated with the needs of national development, since every chapter falls very clearly under the rubric of 'applied geography'.

Price: US$ 20.00; airmail US$ 23.50.

Orders to: UNU, Toho Seimei Bldg., 15-1 Shibuya 2-chome, Shibuya-ku, Tokyo 150, Japan.

Pasture Improvement Research in Eastern and Southern Africa. Proceedings of a workshop, Harare, September 1984. IDRC-237e. J. A. Kategile, editor. International Development Research Centre, Ottawa, 1985, 508 p. ISBN 0-88936-439-7. Il existe également une édition française.

It is well acknowledged that animal production is an important component of traditional agriculture in Africa, particularly among the pastoralists and agro-pastoralists. Besides supplying animal protein from milk, eggs, and meat, animals provide an important part of the cash income from smallholdings. Through manure, cash availability, and draft power they greatly influence the ability of farmers to produce food and cash crops. Animal production complements arable cropping. Traditionally, animals are raised on marginal lands, unsuitable for arable cropping, and manure is often concentrated in small areas dedicated to cropping. Increasingly, animals are fed with field crop residues or agricultural by-products.

Animal productivity in Africa is still low, and few changes have taken place in the last several decades. Not surprisingly, animal protein supplies have dwindled with time, particularly in the rural areas as human populations increased and market outlets into urban centres attracted the major share of livestock products. Many production factors contribute to low animal productivity in the smallholder sector, but it is recognized that inadequate nutrient supplies is an overriding factor. The dominant role of pastures in livestock production systems is unlikely to change, and, therefore, improvement of pastures is pivotal to livestock development in the smallholder or communal sector, insufficient to sustain the cattle needed for stable crop production. Pastures must, therefore, change from natural or hardly managed stands, to more intensely managed, frequently rotated, specialized pastures with specific traits.

This publication describes the proceedings of a meeting of pasture scientists in Eastern and Southern Africa. The meeting convened to review pasture research, discuss research methodologies, and draw up a regional strategy for research on the improvement and management of pasture for the small-scale farmer.

The proceedings contains reviews by national scientists on pasture research in the region. The application of the results obtained and lessons learned are highlighted and used in setting of national priorities for research areas for the future. Critical reviews on current pasture research methodologies are included in the proceedings. Specific guidelines on methodologies are outlined and these are useful to pasture agronomists, animal nutritionists, and range-management scientists.

Two case studies of pasture-research regional networks in Asia and Latin American were presented and discussed. A strategy for future pasture research coordinated through a regional Pastures Network for Eastern and Southern Africa (PANESA) was discussed and agreed upon.

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

Soils and their Use in England and Wales. In 6 volumes. Soil Survey of England and Wales, Harpenden, 1984.

The Survey commenced a five year project in 1979 to produce a soil map of the whole of England and Wales, at a scale of 1:250,000 and to describe soil distribution and related land quality in appropriate detail. The primary aim of this project was to provide a systematic inventory capable of being used or interpreted for a wide range of purposes including agricultural advisory work, but also for the many facets of land use planning and national resource use. Six regional maps were published in 1983 (see Bulletin 64, p. 44) and the present six bulletins in 1984.

This ambitious project is the first complete account of the soils since the county series initiated in the late 18th and early 19th centuries, in which there were introductory contributions on soils and soil distribution, some including a schematic county soil map.

The soil map was constructed on the firm base of earlier detailed mapping that extended over a period of 40 years, during which time a fifth of the country was completed at 1:63,360 and 1:25,000 scales. These surveys have been updated and incorporated. The books and map provide valuable information both for those who wish to learn about the soils and those with responsibility to protect and use them effectively.

Soils and their Use in northern England. Bulletin No. 10, 1984, 411 p. ISBN 0-7084-0294-1.
Soils and their Use in Wales. Bulletin No. 11, 1984, 336 p. ISBN 0-7084-0295-X.
Soils and their Use in Midland and western England. Bulletin No. 12, 1984, 433 p. ISBN 0-7084-0296-8.
Soils and their Use in eastern England. Bulletin No. 13, 1984, 450 p. ISBN 0-7084-0297-6.
Soils and their Use in southwest England. Bulletin No. 14, 1984, 419 p. ISBN 0-7084-0298-4.
Soils and their Use in southeast England. Bulletin No. 15, 1984, 405 p. ISBN 0-7084-0299-2.
Prices: Books £ 9.00 each; maps £ 7.00 each or £ 28.00 for six.
Orders to: Publications Officer, Soil Survey of England and Wales, Rothamsted Experimental Station, Harpenden, Herts, England AL5 2JQ.

Soil Information Systems Technology. Proceedings of the Sixth Meeting of the ISSS Working Group on Soil Information Systems, Bolkesjø, 28 February–4 March, 1983. P. A. Burrough and S. W. Bie, editors. Pudoc, Wageningen, 1984, 178 p. ISBN 90-220-0854-1.

The sixth meeting of the Working Group on Soil Information Systems of the ISSS was held in Bolkesjø, Norway from 28 February to 4 March 1983. Others have been held in Wageningen (1975), Sofia (1977), Canberra (1976, 1980) and Paris (1981). This meeting was organised jointly by the Norwegian Society of Soil Science and the Norwegian Computing Center. The meeting attracted participants from 19 countries, making it the most international meeting of the Working Group to date.

The interests of the Working Group have broadened since its inception in 1974 to include not only soil database management, but also applications in geostatistics and spatial analysis, in land evaluation and in the new possibilities opened up by microcomputers and remote sensing. It is to be expected that activity and interest in all these fields will continue to develop as soil information systems become more easily accessible. As people to begin to realise that 'computerizing' can mean more than just going over from paper to electronic data storage and retrieval, but can also provide powerful tools for analysis and synthesis, many new insights and developments in the fundamental understanding of soil science and its applications may be expected.

Price: Dfl. 40.00.
Orders to: Pudoc, P.O. Box 4, 6700 AA Wageningen, the Netherlands.

Tropical Rain-Forest. The Leeds Symposium. A. C. Chadwick and S. L. Sutton, editors. Leeds Philosophical and Literary Society, 1984, 335 p. ISBN 0-950-19213-9.

Continuing destruction of tropical forests poses an increasing threat to species survival and demands a major investigative effort to study natural forests and plan for their survival. This volume is aimed at workers in ecology, conservation and management of tropical forests and at general readers interested in the teeming life of the forest. It contains papers based on work presented at the symposium 'The Tropical Rain Forest: Ecology and Management' held at Leeds University in 1982, supplementing a volume of oral presentations published by Blackwell. The diverse nature of tropical rain-forest research is indicated in the wide range of topics covered, from analyses of forest structure and descriptions of the make up of individual forests to ecophysiology and accounts of specific plant-animal interactions. Several papers discuss the factors which have created and still maintain community structure, diversity and evolution. The rapid changes which occur when tropical forest resources are exploited by expanding human populations are the subject of papers in the last part of the book. Abstracts of poster presentations are included giving a valuable synopsis of research in progress. A statement of concern sets the scene and gives expression to the disquiet felt by all who recognize the threat of permanent loss of the incomparably rich tropical forests.

The companion volume is: **Tropical Rain Forest: Ecology and Management.** S. L. Sutton, T. C. Whitmore and A. C. Chadwick, editors. Blackwell Scientific Publications, Oxford, 1983, ISBN 0-623-01142-4. Price: £ 28.50.
Orders to: Leeds Philosophical and Literary Society, City Museum, Calverley Street, Leeds, England LS1 3AA.

A Laboratory Guide of Exercises for Conducting Soil Tests and Plant Analyses. Benton Labs., Athens, 158 p.

This book is a reference on the techniques used for conducting soil tests and plant analyses, beginning with sampling through laboratory analysis. There are 236 literature citations and 12 pages of definitions of terms related to the techniques of soil testing and plant analysis. Principles of instrumental analysis are given in some detail for assaying soil extracts and plant tissue digests for those instruments in common use in most laboratories. Included is a section on Quality Assurance and how such a program can be implemented. Finally, there are 18 detailed laboratory exercices that can be used in an instructional course.

This book is written for those engaged in soil testing and plant analysis activities whether commercially, for research or in an instructional program.

Price: US$ 20.00, postpaid airmail, prepayment required.

Orders to: Benton Labs., P.O. Box 5455, Athens, Georgia 30604, U.S.A.

Symposium on the Reclamation of Lands Disturbed by Surface Mining. A Cornerstone for Communication and Understanding, Owensboro, July 1984. American Society of Surface Mining and Reclamation, 1985, 461 p. ISBN 0-905927-02-8.

This proceedings contains 22 manuscripts which were presented at the first national meeting of the American Society of Surface Mining and Reclamation. The meeting was held in Owensboro, Kentucky, July 1984.

The primary objective in the design and implementation of this first program was to provide a broad collection of reference papers covering many environmental disciplines over a wide geographical region of the United States. A second objective was to select highly recommended authors who were considered to be the forerunning authorities within their respective fields.

The long term goal of the Society is that this proceedings be the solid cornerstone upon which many more national meetings will be founded. Furthermore, it is intended that it will promote communication and understanding among representatives of the mining industry, research groups, academia, regulatory agencies, land owners, and others, all of whom have a vested interest in successful surface mine reclamation.

Price: £ 29 or US$ 35.

Orders to: Science Reviews Ltd., 40 The Fairway, Northwood, Middlesex, England HA6 3DY; or: Science Reviews Inc., 707 Foulk Road, Wilminton, Delaware 19803, U.S.A.

Geology of the Nonmetallics. P. W. Harben and R. L. Bates. Metal Bulletin Inc., New York and Worcester Park, 1984, 393 p. ISBN 0-913333-02-6.

This book has been prepared to bring together information on the geological occurrence of the world's deposits of the non-metallics, or industrial minerals and rocks – all those earth materials used by man except metallic ores, mineral fuels, water, and gems. Information on this broad field has accumulated rapidly in the last 10 to 15 years, but has been available only in scattered sources. The authors attempt a worldwide geological inventory, highlighting the more important deposits without attempting to be all-inclusive. The book is primarily intended to aid geologists, mineralogists, engineers, planners, and decision-makers in government and industry.

More than 50 rocks and minerals are discussed, arranged by mode of origin. In general, each section contains information on physical and chemical properties and their industrial significance, the geological habitat of the rock or mineral, and information on its origin. Then the major producing districts, or a representative district if there are many are given. All individual entries have a list of references.

Orders to: Metal Bulletin Books, P.O. Box 28E, Worcester Park, Surrey, England KT4 7HX; or: Metal Bulletin Inc., 708 Third Avenue, New York, NY 10017, U.S.A.

Environmental Planning and Management. Proceedings of a Commonwealth Science Council Workshop, Canberra, 1984. Commonwealth Science Council and CSIRO Division of Water and Land Resources, Canberra, 190 p. ISBN 0-643-03935-X.

The Commonwealth Science Council instituted an Environmental Planning Program to develop an appropriate mechanism for integrating conservation into development through the optimum use of the available natural resources.

The broad objective of the program is to assist with the development of indigenous capabilities for natural resources assessment in the tropical and subtropical regions through the implementation of integrated R&D projects which combine both natural and social scientific expertise to develop rational and sustainable eco-systems. The objectives of the workshop were: (1) to introduce techniques for examining the integrated use of natural resources in relation to the environment, especially those of Land Resources Planning and Management for the tropical and subtropical regions; and (2) to explore the feasibility of establishing a collaborative research program on environmental planning using the variety of expertise in both the industrialized and developing countries.

Besides general introductions, this publication has a dozen country reports on the issues under discussion and recommendations drawn up by the Pacific Nations Group and the African-Asian Nations Group. Until stocks are depleted, this publication is available free of charge.

Requests to: Ms. J. Clark, Division of Water and Land Resources, CSIRO, G.P.O. Box 1666, Canberra, ACT 2601, Australia.

Remote Sensing for Soil Conservation. Water & Soil Misc. Publ. 52. P. R. Stephens, editor. National Water and Soil Conservation Organisation, Wellington, 1983, 232 p. ISSN 0110-4705.

This publication contains the proceedings of a workshop, held in June/July 1982 under the title: A Remote Sensing Manual for Soil Conservators. The workshop was held to introduce soil conservators to the potential of remote sensing to help their work. Besides the presentation of papers on the uses of aerial photography and on developments in the use of satellites, the workshop included a practical exercise for participants.

This volume includes the presented papers and the exercise, together with the results obtained. It is intended that the exercise can be repeated by student groups, using the illustrative material included in the volume.

The papers are presented in three sections: 1. An introduction to remote sensing and how to take and process aerial photographs. 2. How to interpret aerial photographs and extract from them relevant land resource information. This section comprises specially designed do-it-yourself aerial photograph interpretation exercises. These exercises consists of stereograms, questions and answers. The workshop participants' answers have been analysed. 3. How aerial photography can be applied to survey needs. Most presentations in this section are by catchment authority officers from throughout New Zealand who have used some of the Group's imagery. The potential application of satellite data is discussed in an overview paper.

The proceedings conclude with a general discussion which covers a wide range of topics such as – 'how applicable is remote sensing to soil conservation?', and 'where do we go from here?'

Orders to: Water and Soil Division, Ministry of Works and Development, P.O. Box 12-041, Wellington, New Zealand.

Tropical Forested Watersheds. Hydrologic and Soils Response to Major Uses or Conversions. L. S. Hamilton, Westview Press, Boulder, 1983, 168 p. ISBN 0-86531-994-4.

Tropical forests are being altered or replaced at a rate that has aroused much concern among the global scientific community. Of particular importance is the effect on soil and water of activities involving alterations and conversions of forests for cultivation, grazing, logging or other purposes. This book synthesizes current knowledge about the effects of twelve different human activities on various water and soil phenomena, including groundwater, spring, and well levels: streamflow quantity, timing and distribution; on-site erosion; sediment in streams; and nutrient outlfow.

In attempting this state-of-knowledge synthesis on tropical forest influences and effects of forest alterations, the workshop participants and the authors were dismayed at the paucity of reliable data. It was therefore necessary to rely to some extent on professional judgments based on information from small plots and short time periods. Sorely needed are more studies on entire small- and medium-size watersheds having measuring weirs or flumes and good instrumentation, with periods of calibration and records over periods of 5 to 25 years. Such long-term experiments are extremely rare in the developing countries where most of the world's tropical forests are found.

It was therefore necessary to fall back at times on research results from temperate zone watersheds and to suggest that the hydrologic processes should not be different. Again, professional judgments are required and were made in order that the ultimate objective be realized, namely, providing information to those making land-use policies for tropical watersheds. It is the author's opinion that too many of the land-use policies for tropical uplands are being made on the basis of misinformation and mythology and that imperfect information is being used in cases where there is more information available. For this reason, each chapter is concluded with a summary that attempts to put the forest land-use activity and its effects into a form that speaks to policymakers.

Price: US$ 23.00.

Orders to: in the U.S.A.: Westview Press, 5500 Central Avenue, Boulder, CO 80301, U.S.A. Elsewhere: R. R. Bowker, P.O. Box 88, Borough Green, Sevenoaks, Kent, England TN15 8PJ.

A World Bank Glossary: Forestry terms English-French; Glossaire de la Banque Mondiale: Terminologie forestière, Français-Anglais. J. E. Gorse. The World Bank, Washington DC, 1984, 42 p. ISBN 0-8213-0175-6.

The purpose of this glossary is to put together some practical and useful terms relating to various aspects of forestry, especially in arid and semiarid zones. With world attention focused on the energy crisis and disruption of the environment, the World Bank has become increasingly involved in wood-based energy and erosion-control projects, while the fuelwood problem and desertification have become more acute in many developing countries.

Some of the terms used in this glossary have been taken from existing glossaries, some have been drawn from forestry publications and reports, others have been contributed by forestry specialists. With the growing interest in managing forests for development, it is hoped that this glossary, by providing ready access to these terms, will help reduce the time spent by translators and others in individual research. Updated editions of this glossary may be produced as necessary.

Price: US$ 5.00.

Orders to: Publications Sales Unit, The World Bank, 1818 H Street, N.W., Washington DC 20433, U.S.A.

Bodemkaart van Nederland (Soil Map of the Netherlands) 1:250,000. G. G. L. Steur and F. de Vries, editors. Stichting voor Bodemkartering, Wageningen, 1985. Legend booklet and four coloured maps.

This new soil map is a successor to the 1:200,000 map of 1961. It is mainly based on the ongoing national survey at scale 1:50,000. Over 100 mapping units are given. In the explanatory book the major soil characteristics influencing the uses of the soil are analysed, and the areal extent is given. A glossary explains the terminology used. The text is in Dutch, but an English version is in preparation.

Price: Dfl. 65.00.

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

Will the Bounty End? The Uncertain Future of Canada's Food Supply. G. L. Fairbairn. Western Producer Prairie Books, Saskatoon, 1984, 160 p. ISBN 0-88833-142-8.

The author, a journalist, offers in this interesting publication a warning about the precarious position of agriculture in Canada. It details about the forces of erosion, both natural and man-made, which strip away the topsoil, about the loss of prime farmland to creeping urbanization, and about the shortage of funds for agricultural research to develop crop varieties and farming techniques to gain maximum productivity on a sustainable basis.

Price: Can $ 13.95.

Orderss to: Western Producer Prairie Books, P.O. Box 2500, Saskatoon, Sask. Canada S7K 2C4.

Soil Science. Principles and Practices. Third edition. R. L. Hausenbuiller. Wm. C. Brown Publishers, Dubuque, 1985, xiv + 610 p. ISBN 0-697-05856-5.

The third edition of this well-known textbook is intended for use in introductory soils courses at the North American college level. It deals with fundamental chemical, physical, and biological properties of soils and the relation of these properties to soil classification and use. Principal uses considered are plant culture, engineering works, and the abatement of environmental pollution, as in the disposal of organic wastes. An important theme throughout much of the text is the need for careful husbandry of the soil as a vital natural resource essential to all life on earth.

In many respects, this edition contrasts with the first two. Major changes in both organization and content have been made. A number of discussions have been simplified, particularly those on soil mineralogy, on exchange properties, soil water, soil temperature, and plant nutrition and fertility. Through reorganization and the removal of some of the more complex discussion on fertilizers, material on nutrition and fertility has decreased by about one-third, without eliminating important fundamentals of the nature and control of plant nutrition.

Considerable new material has been added. Soil horizons are defined according to the system of horizon classification and symbolization officially adopted by the U.S. in 1981. Old horizon symbols are retained to show their relationship to the new system, however. This edition also contains new material on land use planning as applies to both urban and agricultural environments. Example calculations demonstrating the application of various physical and chemical mathematical formules have been substantially increased, as has the number of illustration. Also given are the Canadian system of soil classification and a glossary.

Price: £ 31.00.

Orders to: Wm. C. Brown Publishers, P.O. Box 539, Dubuque, Iowa 52004-0539, U.S.A.; or: Feffer and Simons, 8 High Street, Arundel, Sussex, England BN18 9AB.

Growth Regulators in Root Development. M. B. Jackson and A. D. Stead, editors. Monograph No. 10. British Plant Growth Regulator Group, Wantage, 1983, ix + 116 p. ISBN 0-906673-08-9.

Root systems have attracted much less research attention than aerial shoot systems. The relative paucity of research effort into the workings of roots may spring from assumptions (wrongly held) that roots are simple (i.e. etiolated, passive absorbers of water and nutrients) and offer insufficient challenge to many research workers, or that the size and form of roots are irrelevant to the performance of the 'pre-eminent' photosynthetic organs.

A better understanding of roots should help to identify the kinds of system (eg. deeply penetrating, or smaller, more branched, etc.) that most favours agricultural yield in given climates and soil types. Hitherto plant breeders have ignored root system characteristics in selecting desirable phenotypes. We may therefore presume that large differences in structure and size of root systems that exist between species of crop plant and their cultivars or genotypes are products of evolutionary selection relating more closely to survival than to heavy agricultural yields. Therefore, considerable scope probably exists for selecting more agriculturally desirable root systems. However, the immense practical difficulties in screening root systems on the scale required may preclude significant progress in this direction. An alternative is to regulate root growth by chemical means.

The purpose of the Monograph, and the meeting on which it is based, has been to draw together examples of studies that assess current knowledge concerning the regulation of root growth and development by both endogenously produced and exogenously applied chemicals. The first four papers are concerned mostly with endogenous growth regulators. The next four papers consider more applied subjects. The final paper assesses the properties of growth regulators for changing the size and shape of root systems.

Price: £ 6.00 or US$ 12.00.

Orders to: Dr. M. B. Jackson, BPGRG, AFRC Letcombe Lab., Wantage, Oxfordshire OX12 9JT, England.

Proceedings of the 7th International Peat Congress, Dublin, June 1984. In 4 volumes. The Irish National Peat Committee, 1985, 2082 p.

An International Peat Symposium was held in Dublin in 1954, which was subsequently recorded as the 1st International Peat Congress of the International Peat Society. Special emphasis was given to the 30th anniversary of the first international gathering of peat specialists by choosing the same location for the 7th Congress. The location of this Congress was selected neither for historical reasons nor to emphasize the past. Ireland holds now, as it has for thirty years, a remarkable position in the international peat family. Its extensive utilization of peat and peatlands along with its high level of peat technology make Ireland even now one of the leading countries in the field.

It is only natural that the number of participants and the multitude of problems to be discussed were of a completely different magnitude than in the first. Little by little the scope of Congresses has grown. It not only discusses peat technology, but also covers the whole scope of peat and peatland research and utilization more extensively and in a more balanced way. Peat technology to some extent probably still predominates, both in regard to quantity and quality. Scientific and technological development continues to be very strong in this section. The papers are on a geographically much wider area than at earlier Congresses.

The activities of the Society have so far been strongly centralized in the circum-polar area (Soviet Union, Northern and Central Europe, Great Britain and the Republic of Ireland, Canada and the United States of America). Little by little, it has become clear, however, that there are peatlands almost everywhere. In Indonesia 20 million hectares of peatlands have been inventoried, in Africa the area of peatlands is estimated at some 100 million ha, Jamaica has begun peat extraction on a practical scale, and both Brazil and China have enormous peat resources.

Papers are presented in the following sections: survey, classification, ecology and conservation of peatlands (Volume 1, 36 papers; Volume 2, 7 papers); winning, harvesting, storage, transportation and processing of peat and sapropel for industrial, agricultural and horticultural purposes (Volume 2, 31 papers; Volume 3, 12 papers); bog cultivation and peatland forestry. The use of peat, peat products and sapropel in agriculture and horticulture (Volume 3, 28 papers; Volume 4, 8 papers); chemistry, physics, biochemistry and microbiology of peat and sapropel. Production and utilization of physiologically active substances, growth stimulators, medical preparations and related material (Volume 4, 25 papers). Volume 4 also contains a paper on peat standards and on peat balneology and therapeutics and reviews on papers presented in three commissions. A rapid survey of this wealth of information shows that the potential use of peat and sapropel as raw material for the production of valuable materials is probably very large.

Price: IR£ 70.00.

Orders to: The Irish National Peat Society, c/o Bord na Mona, Scientific Office, Droichead Nua, Co. Kildare, Ireland.

Meeting the Expectations of the Land. Essays in Sustainable Agriculture and Stewardship. W. Jackson, W. Berry and B. Colman, editors. North Point Press, Berkeley, 1985, xviii + 250 p. ISBN 0-86547-171-1 (cloth), 0-86547-172-X (paperback).

The problems facing agriculture today are well known: topsoil erosion, lowered water tables, reliance on pesticides, dependence on machinery, the overcapitalization of agriculture, the decline of the rural economy, the energy and dollar cost as well as the health problems associated with commercial fertilizer, the shrinking number of family farms, the increasing dependence on fossil fuels.

Under the direction of an agricultural researcher, a farmer and writer, and an editor and environmentalist, leading theoreticians and practitioners from many fields – economists, soil scientists, ecological researchers, historians, and others – have joined their substantial forces to address these issues. In 17 essays, the authors discuss a wide range of issues surrounding the failure of our current agricultural system and the need for agrarian reform. From the perspectives of their varied fields of expertise, the contributors collectively make an impassioned plea for a 'sustainable agriculture' – an agriculture that does not deplete soils or people – at a time when the incorporation of environmental responsibility into agricultural policy is critical.

This is not a soils-book *per se*, but many soil scientist willl be interested to read about the preservation of the soil, as a basis for a sustainable agriculture.

Price: US$ 25.00 (cloth); US$ 12.50 (paperback).

Orders to: North Point Press, 850 Talbot Avenue, Berkeley CA 94706, U.S.A.

Fifth Meeting of the Eastern African Sub-committee for Soil and Land Evaluation. Wad Medani, December 1983. World Soil Resources Report 56. FAO, Rome, 1985, 207 p. ISBN 92-5-102240-2.

This report mainly contains the ten technical papers, presented at the meeting. These concern the properties, classification and management of Vertisols in the region extending from Ethiopia and Sudan in the north to Zambia and Lesotho in the south. Descriptions and analytical data of seven pedons visited on a field tour are given, as well as a list of conclusions.

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

Natural Zeolites. Minerals and Rocks 18. G. Gottardi and E. Galli. Springer-Verlag, Berlin, Heidelberg, 1985, xii + 409 p., 218 figures. ISBN 3-540-13939-7 (German ed.); 0-387-13939-7 (U.S.A. ed.).

This is the first book that is entirely and systematically devoted to natural zeolites. Up to now information on natural zeolites was scattered in the literature and, unsystematically, contained in conference proceedings. Although it may be expected that new zeolites will still be found, it was high time that a synoptical treatise would be available both for students in the field and for potential users of these versatile materials. The book offers a detailed listing of all the relevant information of most if not all zeolites known so far. The description of individual zeolites systematically includes: 1. history and nomenclature, 2. crystallography, 3. chemistry and synthesis, 4. optical and other physical properties, 5. thermal and other physico-chemical properties. 6. occurrence and genesis, 7. uses and applications.

Data are given in tables and the book is illustrated with excellent photographs, many of them by electron microscope.

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

L. P. van Reeuwijk, Wageningen

Advances in Soil Science. K. V. Paliwal, editor, Volume 1, 1983. Books and Periodicals Agency, New Delhi, 1985, 296 p. ISSN Series 0254-9689.

The knowledge of soil science, in its many branches, as soil chemistry, physics, mineralogy, biology, fertility and genesis etc., is expanding exponentially and the development of sophisticated equipments, electronics revolution and use of computers in monitoring laboratory and field data, has opened several new dimensions of soil research.

A periodic critical evaluation of the available world data on the development of concepts and their adoption at field level, is very essential. In this first volume of Advances in Soil Science, few topics at international level of soil research and to make suggestions for future lines of research.

Out of seven articles, two are devoted to soil fertility i.e. one dealing with soil potassium evaluation, the other on modelling for soil-test crop response and fertilizer recommendations, and one each on biofertilizers, solute transport in soils, clay minerals in Indian soils, physical environment and root growth, and cobalt in soil plant system.

Price: Rs. 250.00 in India, US$ 50.00 elsewhere.

Orders to: Books and Periodicals Agency, B-1, Inder Puri, New Delhi-110 012, India.

Proceedings of the Seminar on Soil Productivity in the High Rainfall Areas of Zambia, Lusaka, 8–10 February 1983. Occasional Paper No. 6 H. Svads, editor. Agricultural University of Norway, Aas, 1983, 386 p. ISSN Series 0800-1189.

The Soil Productivity Research Programme in the high rainfall areas of Zambia began in 1981. The overall aim is to establish a long term soil productivity research programme which will develop more permanent farming systems for people at different levels of technology in the high rainfall zones of the country. The major target is the smallholder in the area. Evidence so far assembled would appear to indicate that the potential of agriculture in these areas is large. While the destructive Chitemene system has been condoned and banned in these areas no alternative forms of farming system has been defined or developed for the area. The practice of Chitemene system was conducted by the inhabitants of these areas for the simple reason of maintaining soil fertility and therefore producing some kind of food stuff out of soils that are said to be inherently infertile. The practice therefore evolved into some kind of system which was viable as long as forests continued to be available. However, the rate at which human population has been increasing has made it impossible for the system to continue to support this increased population. The rate at which trees regrow is to slow as to allow for meaningful continuation of the Chitemene system.

The present proceedings address the following issues: (1) nature of soil in the high rainfall areas, mainly in Zambia; (2) soil fertility and soil management; (3) plant breeding and agronomy; and (4) socio-economics and farming systems.

Orders to: University Bookstore, Agricultural University of Norway, 1432 Aas-NLH, Norway.

Water Table Levels and Water Contents of Some Indiana Soils. D. P. Franzmeier et al., Dept. of Agronomy, Purdue University, West Lafayette, 1984, 49 p.

Soil moisture regime affects the oxygen status of the soil and the oxygen status determines the kind and colour of iron minerals and compounds formed. Since iron compounds greatly influence the colour pattern of soil horizons, there should be some relationship between soil colour pattern and the soil moisture regime. These relationships are known for some time, but few systematic studies have been made.

For the work reported here, the depth of the water table was periodically measured and related to the soil colour pattern for several soils in Indiana, U.S.A. Also measured were seasonal changes in water content of unsaturated soils and these results were related to key water retention measurements made in the laboratory. These results can be used to predict water table levels and soil water content of many other soils. It was found that a good correlation could be established between the soil colour pattern and the moisture regime.

Requests to: Prof. D. P. Franzmeier, Agronomy Dept., Purdue Univ., West Lafayette, IN 47901, U.S.A.

Guidelines: land evaluation for irrigated agriculture. FAO Soils Bulletin 55. FAO, Rome, 1985, 231 p.

Some fifty million hectare of land could be developed for irrigated agriculture in the next twenty-five years. An even larger area needs rehabilitation or changes connected to intensified production. Irrigation developments are expensive and usually require investment and credit facilities, and mistakes are very costly. Therefore, almost all of this vast area will neeed to be evaluated to ascertain its suitability for the proposed irrigation systems.

Irrigation is a major kind of land use with special requirements. So guidelines are needed to ensure that the methods adopted for evaluating and classifying land suitability are adequate. They are intended to provide guidance to land classification teams in the field and also to agencies responsible for investing in irrigation development so that they can make sure that the land resources evaluation provides a satisfactory basis for predicting the results of development.

This bulletin is written for all concerned with land evaluation or irrigation planning, and is divided into two parts. Part One explains the recommended procedures of land evaluation and land suitability classification for irrigated agriculture and is based on the FAO Framework for Land Evaluation (1976). Part Two provides technical information on individual factors commonly of importance for the specification of critical limits in land suitability classification. The bulletin can be used as a general reference, for example, as a source of checklists, or more specificaclly, as a detailed guide to procedures and technical information.

The procedures described are not intended as formal instructions but as optional guidelines to assist people to improve their own evaluations of their land and water resources. Likewise, the critical limits for land classes are guides which must be adapted to local circumstances.

Price: US$ 9.70.

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

Erosion-induced loss in soil productivity: trends in research and international cooperation. M. Stocking and L. Peake. FAO and Overseas Development Group, University of East Anglia, Norwich, 1985, 52 p.

Erosion-induced loss in soil productivity is the major negative impact of erosion. As a measure of the potential rate of accumulation of energy for vegetative production, soil productivity is a function of the soil, environment and plant. Yield is the most accepted proxy measure for productivity.

This paper collates all the research in erosion-induced loss in soil productivity that the authors have been able to find. Some 195 items of research are categorised according to geographical area, soil type, crop, research method and parameters studied. Analyses of research activity indicate that Aridisols and Oxisols are under-represented and good quantitative information is lacking on other major soil types.

There is too little cross-disciplinary work, employing quantitative methods that generate the results required by decision-makers.

This analysis highlights the seriousness of productivity losses from erosion and our dearth of knowledge on it. Only a coordinated international response to erosion-induced loss in soil productivity can meet the urgent technical, social and economic challenge.

Price: £ 2.00 for handling and postage.

Orders to: Dr. M. Stocking, Univ. of East Anglia, Norwich, England NR4 7TJ.

Guidelines for the Control of Soil Degradation. UNEP and FAO, Rome, 1983, 38 p. ISBN 92-5-101404-3.
Directives pour la Lutte contre la Dégradation des Sols, 1983, 40 p. ISBN 92-5-101404-3.
Directrices para el Control de la Degradacion de los Suelos, 1984, 38 p. ISBN 92-5-101404-0.

Rapid increases in the world's population demand the production of ever increasing quantities of food, fibre and fuel from the land. To meet this need vast tracts of land are being farmed more intensively. Additionally, new and often marginal land is being brought into production. The total area of cultivable land available to us is however limited as is its productive potential. Land must be carefully managed if its productivity is to be maintained or increased. If it is not well managed, or if it is used in a way which is beyond its potential, some form of soil degradation inevitably occurs. At present, as the pressure on the land increases, large areas are being misused. The results of poorly managed land can be seen in various expressions of soil degradation such as desertification, erosion, salinization, toxicity and water logging.

Fortunately, the processes of soil degradation are now well understood and many technical solutions are possible. In spite of this knowledge, not enough is being done to control degradation. The reasons for this neglect include the need for greater awareness of the problems and their possible solutions with, at the same time, a lack of the necessary administrative, organizational, and institutional arrangements to allow the necessary action to be taken.

These guidelines are therefore addressed mainly to policy makers, to planners and administrators. They are not a technical manual or textbook but rather a document which will help create an awareness of the existence and consequences of the soil degradation problem and which will provide a framework for the necessary administrative actions which are required for its control.

Requests to: Environmental Management Service, UNEP, P.O. Box 30552, Nairobi, Kenya; or: Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100, Rome, Italy.

Land Resources Regions and Major Land Resource Areas of the United States. Agriculture Handbook 296. United States Dept. of Agriculture, Soil Conservation Service, Washington, 1981, 156 p., with map at a scale of 1:7,500,000.

This handbook is an assemblage of currently available information about the land in the U.S.A. as a resource for farming, ranching, forestry, engineering, recreation, and other uses. It is a revision of Agriculture Handbook No. 296 published in 1965. Revisions consists of: (1) Refined delineations of land resource regions and major land resource areas, (2) identification of the soils of each region and area according to the system of Soil Taxonomy (1975), (3) a brief discussion concerning the potential natural vegetation of the resource regions and areas, and (4) inclusion of major land resource areas and land resource regions for the states of Alaska and Hawaii and the territory of Puerto Rico.

The information in this handbook affords a basis for making decisions about national and regional agricultural concerns, identifies needs for research and resource inventories, provides a broad base for extrapolating the results of research within national boundaries, serves as a framework within national boundaries, and serves as a framework for organizing and operating resource conservation programs.

The dominant physical characteristics of the land resource regions and of the 204 major land resource areas are described briefly under the headings land use, elevation and topography, climate, water, soils, and potential natural vegetation.

Price: US$ 6.50, plus handling charges.

Orders to: Superintendent of Documents, U.S. Government Printing Service, Washington, DC 20402, U.S.A.

Documentation – Bibliographique Commentée No. 2801 (2ème éd.). Salinité-Gypse. Résumés préparés par J.-O. Job et T. Mouheich. ACSAD, Damas, 1981, 59 p.

Documentation – Bibliographique Commentée No. 1600. Phosphore-Phosphate. Résumés préparés par J.-O. Job et T. Mouheich. ACSAD, Damas, 26 p.

The compilation of these abstracts has been carried out by the staff of ACSAD's soil laboratory using its own library. Revision and up-dating shall be made whenever enough material is collected. The abstracts are limited to common methods of analysis usually performed in laboratories of soil survey, soil conservation and general agriculture with special emphasis on soils of arid zones. Specific research topics have been excluded, though some papers dealing with interpretation of results or theoretical aspects of methods have been also reviewed.

For each abstract a number is coded in a machine readable form for fast retrieval and it is envisaged to publish them by computer printing in a near future.

It is the objective to help the soil analyst in finding the publication which could be useful to him.. To fulfill this expectation, the number of papers reviewed must be as high as possible. The first bibliography has 59, the second 26 entries, nearly all in English.

Requests to: Dr. T. Mouheich, ACSAD, P.O. Box 2440, Damascus, Syria.

Soil Mesofauna of Arable Land and its Significance for Decomposition of Organic Matter. O. Andrén. Dissertation. Swedish University of Agricultural Sciences, Uppsala, 1984. ISBN 91-576-2104-7.

Soil mesofauna, mainly Collembola, Mites and Enchytraeids, were investigated in agricultural systems in Sweden. The investigations encompass several areas, including improvements of extraction methods, field sampling, litter-bag experiments and laboratory experiments.

A microcomputer-controlled extractor for soil microarthropods was devised from a canister extractor, a microcomputer and a separate cooler unit. Its main feature is automatic, accurate temperature control which is independent of ambient temperature. It also produces a graph for documentation of the temperature regime during extraction.

The abundance of microarthropods and Enchytraeids in long-term field experiments was investigated, and the results were subjected both to standard analysis of variance and multivariate ordination (PCA). Mesofaunal abundance was often higher than previously reported for arable land, possibly due to the efficient extraction techniques used. Manure and nitrogen fertilizer were found to be beneficial for soil mesofauna and the herbicides investigated had small effects.

Microarthropods and Enchytraeidae were not found to influence decomposition rates, but their activity might be important in later stages of decomposition and in nutrient release and availability for plants.

Requests to: Dept. of Ecology and Environmental Research, Swedish University of Agricultural Sciences, S-750 07 Uppsala, Sweden.

Proceedings of Republic of China – Fed. Rep. of Germany Seminar on Plant Nutrition and Soil Science. Taipei, September 1981. K. H. Houng, editor. NSC Symposium Series 5. National Science Council, Taipei, 1983, 233 p. ISSN Series 0252-8177.

This volume contains 29 papers presented at the symposium. Session A – Nutrients of Plants, has 12 papers; Session B – Growth Regulators and Plant Yield Production, Tissue Culture, 6 papers and Session C – Soil Science, has 11 papers. About half of the papers is concerned with Taiwan, the others are of a general nature.

Orders to: National Science Council, 2 Canton Street, Taipei, Taiwan 107, Rep. of China.

Inventur der Paläoboden in der Bundesrepublik Deutschland. D. Pfeiffer, Redaktion. Geologisches Jahrbuch, series F, no. 14, 1982, 361 p. ISSN 0341-6445.

Paleosol investigations have a long tradition in Germany, both as old weathering residua and as pedogenetic horizons within Pleistocene sediments. This impressive volume results from the initiative of the German Working Group on Paleopedology to compile an inventory of recognized and investigated paleosols in West Germany. Following the introductory chapter by E. Mückenhausen, the first chairman of the Working Group, there are eight major chapters and numerous subsections by no less than 43 different authors, mainly active in the various geological surveys and institutes of the German States. English and Russian abstracts are provided at the beginning of each major chapter. Both Pleistocene and pre-Pleistocene paleosols are dealt with; Holocene paleosols receive much less attention. There is little uniformity in the presentation of the data. In some chapters the full paleosols sections, with soil profile descriptions and laboratory data are presented, in others only references to published material and data are given.

The German soil classification system is used throughout and serves as the basis for paleo-climatic interpretations. The paleosols include Braunerde, Parabraunerde, Chernozems, Podsols, Pseudogley and Gley, mainly on loess and fluvial sediments, Terra Fusca and Terra Rossa on calcareous rocks, and Rotlehm, Braunlehm and Plastosols on igneous rock. Stratigraphic position is the main criterion for paleosol ages, with interglacial or interstadial chronostratigraphic units in the Pleistocene sections, or as lithostratigraphic formations in the older rocks. Long-distance correlations have not been attempted and hence the terms pedoderm, geosol or other pedostratigraphic appelations have not been introduced. The wealth of material is considerable and the main value of the book no doubt turn out to be its concentration in one volume and the exhaustive bibliography which it contains. Unfortunately there is no subject index, nor an index of author's or place names.

The German Paleopedology Working Group is to be congratulated on a significant achievement. Hopefully it may serve as an example to similar groups in other countries.

D. H. Yaalon, Jeruzalem, Israel

(from: Paleopedology Newsletter)

Orders to: E. Schweitzerbart'sche Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Federal Republic of Germany.

Land Types of the Maps Bray, Morokweng, Mafeking and Vrijburg. Memoirs on the Agricultural Natural Resources of South Africa No. 1, C. N. MacVicar, editor. Dept. of Agriculture, Pretoria, 1984, 281 p. and 4 maps. ISBN 0-62)-06964-7.

The growing demand for food places ever-increasing pressure on countries worldwide to exploit fully and to best advantage all natural resources wich can be utilized for agriculture. At the same time, cities, industries and mines, amongst others, are competing more strongly for land and water so that the risk is becoming greater that natural resources with a high production potential will be irrevocably lost to agriculture. Against the background of these considerations, it became clear that an inventory of our natural resources was indispensable for rational land use planning. This is particularly true for the RSA., where good arable land is scarce and perennial water sources limited, and where climate ranges from one extreme to another.

The present publication is the first of a series of memoirs which will contain the results of a country-wide natural resources investigation at a time when roughly two thirds of this very large task, known as the land type survey, has been completed. This memoir accompanies four 1:250000 scale land type maps covering a 5809620 ha portion of the Highveld plain of South Africa between longitudes 22° and 26° and south latitudes 25° and 27°.

Each of the 65 land types in the area displays a marked uniformity of climate, terrain form and soil pattern. For each land type this memoir provides information on the following: (1) subject to the availability of data, six rainfall parameters, Class A-Pan evaporation, thirteen temperature parameters and seven frost parameters; (ii) area, slope, slope length, slope from and mechanical limitations of the crests, scarps, midslopes, footslopes and valley floors which are present; (iii) soil series and land classes present (including depth and mechanical limitations), their position in the landscape and the proportions of these which occur on slopes less than 12% (i.e. ploughable).

Also given are 47 profile descriptions of representative soils and analytical data.

Prices: Memoir R 11.30. Each land type map R 3.25.

Orders to: Director, Division and Agricultural Information, Private Bag X144, Pretoria 0001, Rep. of South Africa.

The Vegetation of the Alps. Nature and Environment Series 29. P. Ozenda. Council of Europe, Strasbourg, 1983, 102 p. and 1 map. ISBN 92-871-0277-5. (in French: **La Végetation de l'Arc Alpin,** ISBN 92-871-0276-7).

After earlier publications on the vegetation of Europe, European peatlands, dry grasslands and alluvial forests, this publication on the vegetation of the Alpine Mountains features the following sections: the natural environment, the flora, the Alpine biogeography as inferred from the forest mantle, ecosystems of the vegetation belts, and human life and vegetation in the Alps. The full-colour map is at a scale of 1:2,250,000.

Orders to: Sales Agents for publications of the Council of Europe. In the U.S.A. and Canada: Manhattan Publ. Comp., P.O. Box 650, Croton, NY 10520, U.S.A.

Etude des phénomènes d'hydromorphie dans les sols des régions tropicales à saison contrastées. Dynamique de fer et différentiation des profils. Travaux et Documents de l'O.R.S.T.O.M., 165. J.-F. Vizier. O.R.S.-T.O.M., Paris, 1983, 294 p. ISBN 2-7099-0703-8.

Dans les régions tropicales à saisons contrastées, les sols hydromorphes peuvent couvrir d'importance superficies. L'excès d'eau qui détermine l'évolution particulière des ces sols, est souvent la cause de leur faible utilisation, en raison des difficultés d'accès et de mise en valeur des zones hydromorphes pendant la saison humide. Mais cet excès d'eau peut aussi constituer un facteur intéressant, permettant une diversification de la production agricole. Aussi les projets d'aménagements de dimensions variables, nécessaires pour l'utilisation rationnelle de ces sols, retiennent-ils de plus en plus l'attention des responsables du développement agricole de ces régions.

Pendant plusieurs années l'auteur a étudié ces sols et leur répartition sur de vastes superficies, lors des travaux de cartographie qui ont été réalisés au Tchad dans la plaine située entre les cours du Logone et du Chari et à Madagascar.

Cette synthèse comporte quatre parties: La première partie rappelle l'importance qui est généralement attribuée à l'hydromorphie dans l'évolution des profils, avant de présenter une brève revue des principales modifications enregistrées dans les sols subissant un excès d'eau. Le deuxième partie est consacrée à la présentation des différences mises en évidence dans les profils de sols étudiés au Tchad et à Madagascar et diversement marqués par l'hydromorphie, suivant leur position topographique.

La troisième partie, consacrée à l'étude du comportement des sols subissant un excès d'eau, rassemble les résultats acquis in situ mais surtout sur des modèles expérimentaux et, se référant essentiellement à la dynamique du fer, traite successivement des variations de l'état du fer et de ses possibilités de migrer dans les profils. La quatrième partie enfin, est un essai d'interprétation physicochimique des phénomènes intervenant dans la dynamique du fer. Ces phénomènes, dont la nature et l'importance suivant le milieu considéré permettent d'expliquer certaines différences observées dans les sols étudiés au Tchad et à Madagascar, démontrent l'intérêt que présente le fer à être considéré comme un indicateur de l'hydromorphie.

Prix: FF 120.00.

Commandes à: Editions de l'ORSTOM, 70–74 route d'Aulnay, F-93140 Bondy, France.

Capacidad Productiva de Los Suelos de Galicia. Mapa 1:200.000. F. Diaz-Ferros Viqueira e F. Gil Sotres. Univ. de Santiago de Compostela, 1984, 82 p. ISBN 84-7191-341-0.

FAO's Framework for Land Evaluation (1976) has been applied to existing data to produce a 1:200.000 map of Galicia supplying information for the analysis of alternative land utilization schemes, whether under the present agricultural regime or any foreseeable future development. The basic data was obtained from soil and geological maps, topographical maps, aerial photographs and 124 weather stations. The map units were checked in field trips totalling 12.000 kms. As a preliminary step the classification of slope, terracing, rock outcrops, soil depth and risk of erosion were adapted to Galician conditions, and a map of slopes and maps of frost hazard and rainfall deficit were prepared.

The land properties considered are in accordance with the FAO methodology. The whole map itself is presented on 19 maps at about A-4 size, included in the report itself.

Orders to: Servicio de Publicaciones, Universidad de Santiago de Compostela, Santiago, Spain.

Glossary of Terms used in Agrometeorology (enlarged edition). CAgM Report No. 20. World Meteorological Organization, Geneva, 1984, 244 p.

Agricultural meterology is an applied science which is in the process of rapid development, spurred in particular by the need of many countries of the world for scientific advice and technical guidance to accelerate food production for a rapidly increasing population.

Agricultural meteorology is concerned with the interactions between meterological and hydrological factors, on the one hand, and agriculture in the widest sense, including horticulture, animal husbandry and forestry, on the other. Specialists engaged in these disciplines have formulated a need for a glossary of agrometeorological terminology understandable not only to the practising agrometeorologists but also to the field workers, researchers, students and specialists in the related areas. The present Glossary is an initial attempt to place together in one compact volume terms that are considered useful to the agrometeorologists and others concerned.

In addition to purely agrometeorological terms, the Glossary includes some relevant pedological, agricultural and hydrological terms, terms pertaining to agrometerological aspects of crop and animal diseases, and names of plants and animals, together with their latin names. Meteorological terms, which are found in the meterological glossary, and of interest to agrometeorologists, have been included in this enlarged initial edition.

It is hopen that this publication will promote the further collaboration and understanding among specialists.

A **simplified edition** (Report No. 21, with 134 pages) is also published. It excludes meterological terms and is especially prepared for those people that do have ready access to the existing meteorological glossary.

Both publications are also available in French: **Glossaire des termes ultilisés en météorologie agricole (édition élargie)**. Rapport CMAg No. 20; and: **Glossaire des termes utilisés en météorologie agricole (édition simplifiée)** Rapport CMAg No. 21.

Requests to: World Meteorological Organization, Case Postale 5, CH-1211 Geneva 50, Switzerland.

Statistical Procedures for Agricultural Research, Second ed. An International Rice Research Institute Book. K. A. Gomez and A. A. Gomez. John Wiley & Sons, New York, Chichester, 1984, 680 p. ISBN 0-471-87931-2.

There is universal acceptance of statistics as an essential tool for all types of research. The acceptance and ever-proliferating areas of research specialization have led to corresponding increases in the number and diversity of available statistical procedures. In agricultural research, for example, there are different statistical techniques for crop and animal research, for laboratory and field experiments, for genetic and physiological research, and so on. Although this diversity indicates the availability of appropriate statistical techniques for most research problems, it also indicates the difficulty of matching the best technique to a specific experiment.

Choosing the correct statistical procedure for a given experiment must be based on expertise in statistics and in the subject matter of the experiment. Thorough knowledge of only one of the two is not enough.

For most agricultural research institutions in the developing countries, the presence of trained statisticians is a luxury. Of the already small number of such statisticians, only a small fraction have the interest and experience in agricultural research necessary for effective consultation. Thus, the authors feel the best alternative is to give agricultural researchers a statistical background so that they can correctly choose the statistical technique most appropriate for their experiment. The major objective of this book is to provide the developing-country researcher that background.

The primary emphases of the chapters are as follows: Chapters 2 to 4 cover the most commonly used experimental designs. Chapter 5 gives the procedures for comparing specific treatment means. Chapters 6 to 8 detail the modifications of the procedures described in Chapters 2 to 4 necessary to handle the special cases of experiments. Chapters 9 to 11 give the three most commonly used statistical techniques for data analysis in agricultural research besides the analysis of variance. Chapters 12 to 14 covers the most important problems commonly encountered in conducting field experiments and the corresponding techniques for coping with them. Chapter 15 describes the principles and procedures for developing an appropriate sampling plan for a replicated field experiment. Chapter 16 gives the problems and procedures for research in farmers' field. Chapter 17 covers the serious pitfalls and provides guidelines for the presentation of research results.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, England PO19 1UD; or; 605 Third Avenue, New York, NY 10158, U.S.A.

Atlas of sedimentary rocks under the microscope. A. E. Adams, W. S. MacKenzie and C. Guilford. Longman, Halsted Press, 1984, 104 p. ISBN 0-582-30118-1.

The study of rocks using thin sections and a petrographic microscope was initiated by Henry Clifton Sorby in the middle of the nineteenth century and the first rocks he described were silicified limestones from the Jurassic in Yorkshire. This work was published in 1851.

The present book is designed to be a laboratory handbook for the student beginning a study of sedimentary rocks in thin section, whether he or she is an amateur or an undergraduate. Only a basic knowledge of mineralogy and palaeontology is assumed. Photographs of most of the components of sedimentary rocks encountered in thin sections during an undergraduate course in geology are included.

The book is in three parts, Part 1 deals with the terrigenous clastic rocks and concentrates on sandstones, since the petrographic microscope is most usefully employed with rocks of this grain size. Part 2 deals with the carbonate rocks and is the longest section in the book. This is because to the newcomer to carbonate petrology, limestones contain a bewildering variety of grain types. Most of the photographs of limestones are from stained thin sections and acetate peels. Photographs of unstained limestones sections are included throughout to remind the reader what untreated material looks like. Part 3 illustrates ironstones. cherts, evaporites, phosphorites and carbonaceous rocks in thin section. The more than 200 colour illustrations are of a very high quality.

Three appendices are included. Appendix 1 describes how a thin section may be made. Appendix 2 describes a method of staining thin sections of limestones and Appendix 3 contains instructions on how to make acetate peels.

Price: £ 9.50, net in U.K.

Orders to: Longman, Longman House, Burnt Mill, Harlow, Essex, England CM20 2JE.

In the Rainforest. C. Caufield. Heinemann, London, 1985, 305 p. ISBN 0-434-11208-9.

Now being destroyed at the high rate, the tropical rainforests are the richest, the oldest and the most threatened areas on earth. This book is a fascinating and eye-opening excursion into this vanishing wilderness, a first-hand look at the effects on land, wildlife and people of our unthinking assault on the forests.

The author, who is a journalist, spent tree years in exploration and research, travelling widely in Australia, Asia, Central America and the Amazon region. Everywhere she saw the devastating effects of deforestation – ancient cultures wipid out, the land irreversibly degraded, the climate disrupted, unique plants and animal driven to extinction. By contrast she describes the rich wildlife of the forests, the extraordinary mechanisms that allow them to thrive in difficult conditions, and their great importance to forest tribes and industrial societies alike.

Price: £10.95, net in U.K.

Orders to: Heinemann, 15–16 Queen Street, London, England W1 X 8BE.

The Nature and Properties of Very Sensitive Clays: A Descriptive Bibliography. UW Library Bibliography No. 12. N. H. Maerz and I. J. Smalley. University of Waterloo Library, Waterloo, Canada, 1985, 135 p. ISBN 920834-36-1.

This bibliography is designed to complement the comprehensive bibliography of sensitive soils produced by McKay (1979). The McKay bibliography, issued in two parts in 1979 and 1982, is a comprehensive list of references to papers which deal with, or touch on, the topic of sensitive clays. It is a major work, but makes no attempts to differentiate between major and minor works or between those which concentrate on the soil materials and those which deal mainly with landslide phenomena or case histories.

The term sensitivity applied to a soil or sediment, means the ratio of the undisturbed strength to the disturbed or remoulded strength. The remoulded strength tends to be less than the undisturbed strength; if it is a lot less, then geotechnical problems can arise – usually in the form of landslides.

In this bibliography the authors have some definite aims: 1. they have concentrated on the soil material – the sensitive clay itself, addressing mineralogists, gemorphologists and sedimentologists as well as civil and geological engineers. 2. This is a selective bibliography and includes a relatively small proportion of the sensitive clay literature which has appeared (mostly) over the last fifty years. The aim is to select the major items and to present them in enough detail for the major conclusions or the main thrust of the article to be appreciated. The entries are not supposed to substitute for the actual papers but they should contain enough detail to be useful. 3. The bibliography is descriptive in that it provides some basic scientific data as well as listing references. The reader should be able to discern developments in the field of study.

This bibliography contains 107 entries. They are presented in chronological order and there are comprehensive author, location, and subject indexes. This bibliography is a contribution by the Glacial Soils Project at the University of Waterloo to the work of the International Association of Engineering Geology Working Group on Soil Properties related to their Genesis, and to the joint sensitive soils investigations at Laval University, Quebec and the University of Waterloo.

Price: Can $ 15.00.

Orders to: University Publication Distribution Service, Dana Porter Library, Univ. of Waterloo, Ontario, Canada N2L 3G1.

Soil Erosion: Quiet Crisis In the World Economy. Worldwatch Paper 60. L. R. Brown and E. C. Wolf. Worldwatch Institute, Washington, 1984, 50 p. ISBN 0-916468-60-7.

Over the past generation world food output has more than doubled. Coming at a time when little new land was brought under the plow, this was an impressive achievement. But we can now see that this remarkable feat has a high price: Some of the agricultural practices that boosted food production have also led to excessive soil erosion.

Spurred by both population growth and rising affluence, world demand for food climbs higher each year. In the face of this continuously expanding demand and the associated relentless increase in pressure on land, soil erosion is accelerating. Today soil erosion has increased to the point where it far exceeds the natural formation of new soil. As the demand for food climbs, the world is beginning to mine its soils, converting a renewable resource into a non-renewable one.

According to the present study, close to half the world's cropland it losing topsoil at a rate that is undermining its inherent productivity. It is estimated that world soil losses from erosion are 25400 million tons per year.

This paper is an updated version of the chapter 'Conserving Soils' that appeared in State of the World 1984 (W. W. Norton & Co., 1984).

Price: US$ 4.00.

Orders to: Worldmatch Institute, 1776 Massachusetts Avenue, N.W. Washington, DC 20036, U.S.A.

Agricultural Extension by Training and Visit. The Asian Experience. M. M. Cernea, J. Coulter and J. F. A. Russell. The World Bank, Washington, DC, 1983, xvi + 17 P. ISBN 0-8213-0301-5. Stock no. BK 0301.

The World Bank is strongly committed to promoting agricultural development in its member nations – and to helping least advantaged farmers to improve their productivity. If they are to do so, small farmers must use scientifically based agricultural technologies that are suitable for their location and farming system and that have been adapted for accessibility and clear usefulness. If agricultural development is to succeed, mutually reinforcing and open communication must exist between agricultural researchers and farmers.

One of the most promising ways of achieving such communications is the Training and Visit (T & V) system of agricultural extension. This volume captures nearly ten years of experience with the T & V extension system, most of it in Asia. Five issues are addressed: Farmer participation, the research-extenstion linkage, training system management, and monitoring and evaluation. Within this framework, extension system managers and evaluators from six Asian countries and six discussants present their experience and analyses. Introductory and concluding overviews give the larger context for the discussion.

The valuable, first-hand experience documented here will be of use to agricultural policy-makers, projects designers, rural sociologists, extension workers, and agricultural researchers.

Price: US$ 13.50.

Orders to: The World Bank, 1818 H Street, N.W., Washington, DC 20433, U.S.A.

Global Change. T. F. Mallone and J.G. Roederer, editors. Published on behalf of the ICSU Press by Cambridge University Press. Cambridge University Press, Cambridge, London, New York, 1985, xxviii + 512 p. ISBN 0-521-30670-1 (hardback); 0-521-31499-2 (paperback).

This book comprehensively explores the interactions between the physical and living world by examining the Earth, its environment and life in the biosphere as a single system. It is a synthesis of a symposium, sponsored by the International Council of Scientific Unions (ICSU) in Ottawa, September 1984.

This symposium was intended to be the first step in a two-year systematic exploration by ICSU and its constituent bodies of the question: Is the time ripe to launch a cooperative, interdisciplinary, international program to illuminate the complex and synergistic physical, chemical and biological processes in the Sun-Earth system that determine its changes? These processes not only govern but are also profoundly influenced by living things – especially by human activity. As the number of humans increases, and their demands on the environment of a finite earth grow, a deepened understanding of anthropogenically induced global change is becoming an imperative of contemporary society.

Thoughtful and well-designed programs are already in place to study many of these processes. They constitute an important and necessary base for developing a new paradigm for research in the earth sciences: life as a planetary phenomenon.

The objective of the symposium was not to identify or the define the elements of a new paradigm for studying the earth and its environs. The central question was whether it is timely to begin the development of such a concept through an international endeavor.

The symposium papers, and the comments which are included in these proceedings, are, then, simply a starting point. The atmosphere, hydrosphere, lithosphere and biosphere, together with the solar-terrestrial domain, are considered together as an interactive whole, with a view to drawing up a sound, scientific strategy for dealing with environmental crisis. Emphasis is placed on the wide-ranging effects of global change (including changes induced by mankind) and consideration is given to the tools and technology involved in monitoring global change itself. The book ends with a summary of the present concept of an international geosphere-biosphere program, through which one could contribute to the better management of the biosphere in which we live.

Climatologists, meteorologists and environmental and earth scientists will all find this book both a valuable summary of our current knowledge of the effects of global change, and a stimulating pointer towards the way to greater understanding in the future.

For a report on the symposium reference is made to Bulletin 66, p. 52.

Price: £ 35.00 or US$ 59.50 (hardback ed.).

Orders to: Cambridge University Press, the Pitt Bldg., Trumpington Street, Cambridge, England CB2 1RP; or: 32 East 57th Street, New York, NY 10022, U.S.A.

Prévention et Lutte contre la Pollution des Sols. Prevenirea si combaterea poluarii solurilor. C. Rauta et St. Cirstea. Edit. CERES, Bucuresti, 1983, 239 p.

Parue dans un moment où la pollution présente de plus en plus d'acuité, ce nouveau livre excellement documenté, décrit d'une part la situation dans le monde et d'autre part, la situation en Roumanie.

Groupés en 9 chapitres, les problèmes de la pollution sons traités succintement. Les trois premiers chapitres donnent au lecteur la notion de sol, milieu et pollution. Les deux suivants se réfèrent à la nature et aux sources de pollution. De nombreux exemples de littérature, ainsi que les résultats de recherches du Laboratoire pour la Pollution du Sol de l'Institut de Recherche de la Science du Sol et de l'Agrochimie de Bucarest, donnent un vigoureux signal d'alarme. Les pluies acides, la pollution par les métaux lourds, les substances radioactives, les déchets et résidus anorganiques et organiques, les pesticides, les travaux d'excavation à jour sont tour à tour présentés. Ayant comme résultats la dégradation des sols, l'acidité, la salinité, la destruction de la structure et la compaction du sol, l'excès d'humidité et les pertes de fertilité, sont considérés par les auteurs, aussi comme des polluants. Les quatre derniers chapitres se réfèrent aux systèmes de monitoring et de protection des sols, à la classification des sols pollués et à la politique concernant la pollution.

Prix: 22 Lei.

Commandes à: Edit. CERES, Bucarest, Roumanie. N. Pons-Ghitulescu, Wageningen

Landwirtschaftliche Wasserbau Begriffe. Bodenkundliche Grundlagen. DIN 4047, Teil 3, 32 S., 1985. Der Boden als Pflanzenstandort. DIN 4047, Teil 10, 36 S., 1985. Normenausschuss Wasserwesen, DIN Deutsches Institut für Normung, Berlin, Bundesrep. Deutschland.

These two parts with German terms on water engineering aspects of agricultural land only contain standards of those terms that are not used homonymous in Germany. English translations of the terms, but not of the definitions, are given. Part 3 has chapters on basic soil science terms, parent materials, soil horizons and the German soil classification system. Part 10 has chapters on soil texture, organic matter, soil structure, soil water, soil physics, soil chemistry, soil conservation and improvement, and land assessment and site evaluation. Both parts have many references to other DIN standards.

Orders to: Beuth Verlag GmbH, Burggrafenstrasse 4–10, D-1000 Berlin 30, Fed. Rep. of Germany.

New Journals/Nouveaux Périodiques/Neue Zeitschrifte

Soilless Culture. International Periodical covering all Aspects of Hydroponics and its Substrates. A. A. Steiner and J. J. Uittien, editors. Two issues per year. International Society for Soilless Culture, Wageningen. ISSN 0256-9701.

This new periodical covers all aspects of soilless culture: nutrient solution; fluid or solid substrates and all techniques based on these substrates; plant breeding for soilless culture; installations; and automatization and mechanization. The journal also has sections on courses, symposia and congresses, as well as on new publications.

Subscription price: (1986) Dfl. 75.00, including surface mail charges.
Orders to: Secretariat ISOSC, P.O. Box 52, 6700 AB Wageningen, The Netherlands.

MIRCEN, Journal of Applied Microbiology and Biotechnology. A Research Journal for Biotechnology in the Developing World. J. C. Senez and F. A. Skinner, editors. Oxford University Press in association with Unesco.

This new journal is designed to provide an outlet for papers describing the results of original work in applied microbiology and biotechnology, on topics of particular relevance to the needs of the developing world. The journal is not restricted to work from the MIRCEN's (Microbiolgical Resources Centres) and it is intended to publish papers, in English or in French, from scientists in the developed as well as the developing countries who are involved in experimental work on the biological and ecological problems of the third world and in the application of recent advances in biotechnology to these problems.

The journal contains research papers of substantial length, short communications, and review articles. Communications on the following topics are well-suited to this new journal: all aspects of biological nitrogen fixation with special emphasis on the Rhizobium-legume symbiosis in warmer climates, management of culture collections, microbiology of fermented beverages, foods and feeds, microbiology, sincle-cell proteins, *fuel production from biomasses, waste re-cycling and biogas production, pollution control,* deseases of tropical food plants, public health and veterinary problems in the tropics.

The journal will be of interest to academics working on the application of microbiological techniques, and to those involved in research in industry. It will also be of value to agriculturalists, food scientists and biologists working in the field.

Subscription price: (vol. 1, 1985 and vol. 2, 1986) £ 20.00 in U.K., US$ 45.00 in U.S.A., £ 25.00 elsewhere, per volume.
Orders to: Journals Subscription Dept., Oxford University Press, Walton Street, Oxford, England OX2 6DP.

The Journal of Tropical Ecology. Quarterly. INTECOL and Cambridge University Press. A. G. Marshall, Chief Editor.

This new journal is launched by the International Association for Ecology (INTECOL), the General Ecology Section of the International Union of Biological Sciences. The Journal will publish papers in the general field of the ecology of tropical regions. Papers may either be devoted to the results of original research, either experimental or descriptive, or may form significant reviews. Short communications are also welcome, in the expectation that these will allow discussion to develop between readers. It is hoped that the journal will not only act as a valued means of communication between established ecologists, but will, by the breadth and quality of its papers, its format and price, stimulate the research activities of young ecologists in tropical nations. To encourage information dissemination, the journal will be available at a much reduced costs to subscribers in developing countries.

Subscription price: institutions £ 45 or US$ 90; members £ 18 or $ 36; members in developing countries £ 9 or $ 18.
Orders to: Cambridge University Press, Trumpington Street, Cambridge, England CB2 1RP.

The Biosphere. Newsletter for the World Council for the Biosphere – International Society for Environmental Education. Quarterly. R. Merideth, editor.

To enhance communication among environmental educators and professionals, this new Newsletter features short articles on issues related to education for ecologically sustainable development, as well as brief reports of important topics and items. It includes reports from organization and societies, descriptions of relevant publications, news on events and activities.

Requests to: The Biosphere, Institute for Environmental Studies, University of Wisconsin, 1007 WARF Bldg., Madison, WI 53705, U.S.A.

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Dr. P. K. R. Nair, ICRAF – Kenya

There is space for more!

ISSS FELLOWS FUND

As announced in Bulletin *66*, page 20/21, the ISSS Fellows Fund provides partial support for travel costs or subsistence to young ISSS members (in principle below 35 years of age) to promote active participation in international scientific meetings, especially the meetings sponsored by ISSS and preferably those taken place on the applicant's own continent. Contributions to the travel funds were made through the Dutch and the British Societies, by COSTED (ICSU Committee on Science and Technology in Developing Countries). Also of the Soil Science Society of America and of the Canadian Society of Soil Science have now decided that part of their local membership fees will be earmarked for the ISSS Fellows Fund. In 1985 support has already been given to young scientists in order to participate in the IX Latin American Congress of Soil Science, Cali, Columbia; La Réunion Internationale de Micromorphologie des Sols, Paris, France; and the IVth International Conference on Soil Conservation, Maracay, Venezuela.

DO NOT THROW AWAY YOUR OLD ISSS BULLETINS!

It happens that institutes are asking for old ISSS bulletins, mainly for library purposes, in order to complete their set of ISSS bulletins. Unfortunately the secretariat is almost running out of old copies and will appreciate receiving old bulletins from those members who are intending to throw that 'old stuff' away, especially bulletin no. 61 (1982/1).

CORRECTION

The short training course 'College of Soil Physics' of the International Centre for Theoretical Physics, Trieste, Italy (course leaders Drs Gabriels and Skidmore; see Bulletin no 67, page 55) is not held every year, but once per two years. The next course will therefore take place in April-May 1987, not 1986.

MEMBERSHIP APPLICATION FORM/FICHE DE DEMANDE D'AFFILIATION/AUFNAMEANTRAG FORMULAR

ISSS - AISS - IBG

International Society of Soil Science (ISSS)
Association Internationale de la Science du Sol (AISS)
Internationale Bodenkundliche Gesellschaft (IBG)

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Specially interested in the activities of/particulièrement interessé au activités de/besonders am folgenden Bereichen interessiert:

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- [1] I Soil Physics/Physique du sol/Bodenphysik
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- [3] III Soil Biology/Biologie du sol/Bodenbiologie
- [4] IV Soil Fertility and Plant Nutrition/Fertilité du sol et nutrition des plantes/Bodenfruchtbarkeit und Pflanzenernährung
- [5] V Soil Genesis, Classification and Cartography/Genèse du sol, classification et cartographie/Bodengenetik Klassifikation und Kartographie
- [6] VI Soil Technology/Technologie du sol/Bodentechnologie
- [7] VII Soil Mineralogy/Minéralogie du sol/Bodenmineralogie

Subcommissions/Sous-commissions/Subcommissionen

- [1] A Salt Affected Soils/Sols salins/Salzböden
- [2] B Micromorphology/Micromorphologie/Mikromorphologie
- [8] C Soil Conservation and Environment/Conservation du sol et environment/Bodenerhaltung und Umwelt

Working Groups/Groupes de Travail/Arbeitsgruppen

- FT Soil Fertility Trials/Essais de fertilité des sols/Bodenfruchtbarkeitsproben (Comm. IV)
- DP Soil Information Systems/Informatique en pédologie/Informationssysteme i.d. Bodenkunde (Comm. V)
- DC Desertification/Désertification/Verwüstung (Subcomm. C)
- FS Forest Soils/Sols forestiers/Waldböden (Comm. V)
- RB International Reference Base for Soil Classification/Base internationale de référence pour la classification des sols/Internationale Referenzbasis für Bodenklassifikation (Comm. V)
- PP Paleopedology/Paléopédologie/Paläopedologie (Comm. V, with/avec/mit INQUA)
- RS Remote Sensing for Soil Surveys/Pédologie et Télédétection/Fernerkundung für Bodenkartographie (Comm. V)
- LE Land Evaluation/Evaluation des terres/Landbewertung (Comm. VI)
- CO Soil Colloid Surfaces/Surfaces des colloïdes de sol/Kolloidale Oberflächen in Böden (Comm. II)
- EP Engineering Properties of Soils/Propriétés constructuelles des sols/Ziviltechnische Eigenschaften von Böden (Comm. VI)
- AS Acid Sulphate Soils/Sols sulfatés acides/Saure Sulfatböden (Comm. V)
- HP History, Philosophy and Sociology of Soil Science/Histoire, philosophie et sociologie de la science du sol/Geschichte, Philosophie und Soziologie der Bodenkunde (Comm. V)
- MV Moisture Variability of Field Soils/Variabilité en humidité des sols sur le terrain/Veränderlichkeit von Bodenfeuchtgehalt im Gelände (Comm. I)

(T) **Preferred language/Langue préférée/gewünschte Sprache**

- [1] English
- [2] Français
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Subcommissions/Sous-Commissions/Subkommissionen – Chairmen/Présidents/Vorsitzende

A. Salt affected soils/Sols salins/Salzböden
Dr. I. P. Abrol, Central Soil Salinity Research Institute, Karnal 132001, Haryana, India

B. Soil Micromorphology/Micromorphologie du sol/Bodenmikromorphologie
Prof. Dr. G. Stoops, Geologisch Instituut, Universiteit van Gent, Krijgslaan 271, 9000 Gent, Belgium

C. Soil Conservation and Environment/Conservation du sol et environnement/Bodenerhaltung und Umwelt
Dr. K. W. Flach, Soil Conservation Service, U.S. Dept. of Agriculture, P.O. Box 2890, Washington, D.C. 20013, USA

Working Groups of the Commissions/Groupes de Travail des Commissions/Arbeitsgruppen der Kommissionen – Chairmen/Présidents/Vorsitzende

ZO Soil Zoology-Pedofauna/Zoologie du Sol/Bodenzoologie (Comm. III; with/avec/mit IUBS).
Dr. K. E. Lee, CSIRO Division of Soils, P.B. 2, P.O. Glen Osmond, S.A. 5064, Australia.

FT Soil Fertility Trials/Essais de fertilité des sols/Bodenfruchtbarkeitsproben (Comm. IV)
Prof. Dr. E. von Boguslawski, Versuchsstation Rauisch-Holzhausen, Justus-Liebig-Universität Giessen, 3557 Ebsdorfergrund 4, BRD

DP Soil Information Systems/Informatique en pédologie/Informationssysteme i.d. Bodenkunde (Comm. V)
Dr. J. Lamp, Institut f. Pflanzenernährung u. Bodenkunde, Oslhausenstrasze 40, D-2300 Kiel 1, BRD.

DC Desertification/Désertification/Verwüstung (Subcomm. C)
Prof. Dr. H. E. Dregne, Texas Technical Univ., P.O. Box 4169, Lubbock, TX 79409, USA

FS Forest Soils/Sols forestiers/Waldböden (Comm. V)
Dr. R. Saly, Dept. of Soil Science and Geology, Sturova 2, 96001 Zvolen, Czechoslovakia

RB International Reference Base for soil classification/Base internationale de référence pour la classification des sols/Internationale Referenzbasis für Bodenklassifikation (Comm. V)
Prof. Dr. E. Schlichting, Institut für Bodenkunde und Standortlehre, Universität Hohenheim, P.O. Box 106, D-7000 Stuttgart-70, BRD

PP Paleopedology/Paléopédologie/Paläopedologie (Comm. V; with/avec/mit INQUA)
Prof. Dr. D. H. Yaalon, Department of Geology, Hebrew University, Jerusalem 91000, Israel

RS Remote Sensing for Soil Surveys/Pédologie et Télédétection/Fernerkundung für Bodenkartographie (Comm. V)
Dr. S. Bialousz, Ul. Belska, 24M24, 02.638, Varsovie, Poland

LE Land Evaluation/Evaluation des terres/Landbewertung (Comm. VI)
Prof. Dr. K. J. Beek, I.T.C., P.O. Box 6, 7500 AA Enschede, Netherlands

CO Soil Colloid Surfaces/Surfaces des colloïdes de sol/Kolloidale Oberflächen in Böden (Comm. II)
Prof. Dr. G. H. Bolt, Dept. of Soil Science and Plant Nutrition, Agricultural University, P.O. Box 8005, 6700 EC Wageningen, Netherlands

EP Engineering Properties of Soils-Pedotechnique/Propriétés constructuelles des sols/Ziviltechnische Eigenschaften von Böden (Comm. VI)
Dr. G. Wilson, Land Resource Inst. C.E.F., K. W. Neatby Bldg., Ottawa, Ont. K1A OC6, Canada

AS Acid Sulphate Soils/Sols sulfatés acides/Saure Sulfatböden (Comm. V)
Prof. Dr. L. J. Pons, Dept. of Soil Science and Geology, Agric. University, P.O. Box 37, 6700 AA Wageningen, Netherlands

HP History, Philosophy and Sociology of Soil Science/Histoire, philosophie et sociologie de la science du sol/Geschichte, Philosophie und Soziologie der Bodenkunde (Comm. V)
Prof. Dr. D. H. Yaalon, Department of Geology, Hebrew University, Jerusalem 91000, Israel

MV Moisture Variability of Field Soils/Variabilité en humidité des sols sur le terrain/Veränderlichkeit von Bodenfeuchtgehalt im Gelände (Comm. I)
Dr. D. R. Nielsen, Dept. of Water Science and Engin., Univ. of California, Davis, CA 95616, USA

Committee on Rules/Comité du règlement/Satzungkomitee
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