



bulletin

of the international society of soil science

bulletin

de l'association internationale de la science du sol

mitteilungsblatt

der internationalen bodenkundlichen gesellschaft

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

Founded 19-05-1924; 7200 individual members; 60 affiliated national Societies.

Fondée 19-05-1924; 7200 membres individuels; 60 Associations nationales affiliées.

Gegründet 19-05-1924; 7200 individuelle Mitglieder; 60 angeschlossene nationale Gesellschaften.

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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I Soil Physics/Physique du sol/Bodenphysik

Dr. S. S. Prihar, Dept. of Soils, Punjab Agric. University, Ludhiana 141004, Punjab, India

II. Soil Chemistry/Chimie du sol/Bodenchemie

Prof. Dr. M. H. B. Hayes, Dept. of Chemistry, Univ. of Birmingham, P.O. Box 363, Birmingham B15-2TT, England

III. Soil Biology/Biologie du sol/Bodenbiologie

Prof. Dr. P. B. Tinker, Rothamsted Exp. Station, Harpenden, Herts, AL5-2JQ, England

IV. Soil Fertility and Plant Nutrition/Fertilité du sol et nutrition des plantes/Bodenfruchtbarkeit und Pflanzenernährung

Dr. N. S. Randhawa, Indian Council of Agric. Research, Krishi Bhavan, New Delhi 110001, India

V. Soil Genesis, Classification and Cartography/Genèse du sol, classification et cartographie/Bodengenetik, Klassifikation und Kartographie

Prof. Dr. R. W. Arnold, Soil Conservation Service, U.S. Dept. of Agriculture, P.O. Box 2890, Washington, D.C. 20013, USA.

VI. Soil Technology/Technologie du sol/Bodentechnologie

Dr. G. Várallyay, Research Inst. of Soil Science and Agric. Chemistry, Herman Ottó út 15, Budapest 11, Hungary

VII. Soil Mineralogy/Minéralogie du sol/Bodenmineralogie

Dr. J. B. Dixon, Soil and Crop Science Dept., Texas A & M Univ., College Station TX 77843, USA

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Announcement
IX LATIN AMERICAN CONGRESS OF SOIL SCIENCE
CIAT, Palmira, Colombia, 26–30 August 1985

The 9th Latin-American Congress of Soil Science, combined with the 3rd Colombian Congress of Soil Science, will take place 26–30 August, 1985, at the premises of the Centro Internacional de Agricultura Tropical (CIAT), Palmira, Colombia.

The Congress will have as its central topic 'Soil Management and Conservation in Latin America' presented by invited soil specialists from Latin America (soil erosion, management of watersheds, water and irrigation, soil salinity, organic soils, Oxisols/Ferralsols and Andisols).

Conferencias Magistrales

- Problemas de Erosión y Desertificación en Suelos de América Latina. Dr. Manuel Amaya Garduno, Director Centro de Edafología, Colegio de Postgraduados, Chapingo, México.
- Clasificación y Manejo de Andisoles. Dr. Alfredo Alvarado H., Profesor Universidad de Costa Rica.
- Problemas de Manejo y Conservación de Suelos y Aguas en Zonas de Agricultura de Secano. Dr. Ildefonso Pla Sentis, Profesor Universidad Central de Venezuela.
- La Reforestación en la Conservación de los Suelos. Dr. Mario Peralta, Profesor Facultad de Ciencias Agrarias, Veterinarias y forestales. Universidad de Chile.

Conferencias Especiales

- Nuevas Técnicas de Análisis de Suelos para Recomendar Abonos y Enmiendas Calcáreas. Dr. Bernardo Van Raij, Instituto Agronomico Campinas, Brasil.
- Planificación y Programación para un Programa de Manejo y Conservación de Suelos. Dr. Washington Padilla, INIAP, Ecuador.
- Levantamientos de Suelos en Colombia, Metodología, Realización y Proyecciones. Dr. Dimas Malagón, Instituto Geográfico Agustín Codazzi, Colombia.
- El Papel de las Micorrizas en la Agricultura, Dr. Ewald Sieverding, Científico CIAT, Colombia.
- Los Sistemas de Riego en la Agricultura de Minifundio. Dr. José Antonio Forero, ICA, Colombia.
- El control de la erosión con prácticas agronómicas sencillas. Dr. Reinhart Howeler, CIAT, Colombia.

In addition oral presentation and poster sessions will be included in the program in the following commissions: Soil Physics, Chemistry, Fertility, Microbiology, Genesis and Classification, and Water Management and Irrigation.

During the Congress the Latin-American Federation of Soil Science will hold an organizational meeting to formalize its structure and function. The Colombian Soil Science Society will also hold a general assembly.

Pre- and post-congress field trips will be organized to CIAT Experiment Stations in Quilichao and Popayán, to ICA-CIAT Experiment Station in the Eastern Plains (Carimagua) and to the National Coffee Federation Station in Chinchiná, Caldas.

Address

Sociedad Colombiana de la Ciencia del Suelo, Comité Regional del Valle, Apartado Aéreo 142, Palmira – Valle del Cauca, Colombia S.A.

Announcement
**REGIONAL SYMPOSIUM ON PROPERTIES AND MANAGEMENT OF THE
RED SOILS OF EAST & SOUTHERN AFRICA**
University of Zimbabwe, Harare – Zimbabwe, 24–27 February 1986

The Department of Land Management of the University of Zimbabwe will be holding a 4-day Symposium on the red soils of East and Southern Africa at the University campus from 24th to 27th February 1986.

Theme

The Theme is intended to highlight the fact that most of East and Southern Africa's important agricultural land is on red soils. Much work has been done on these soils but little has been published.

Papers

Papers will be divided into four main categories:

- Peculiarities of red soils and the management problems resulting therefrom.
- Problems of management by small scale farmers in contrast to large scale.
- Conservation and agronomic practices.
- Recent innovations leading to better utilisation and better yields.

Authors

Prospective authors should submit summaries of about 500 words to reach the organising committee preferably by 1st August 1985. Acceptance notices will be issued not later than 31st October 1985. Copies of proceedings will be sent to delegates *after* the conference. The symposium will be conducted in English.

Symposium fees and Travel papers

A fee of Z \$ 200 (aprox. US\$ 160) will be levied to cover accommodation, meals, teas, a one-day field trip and copies of the proceedings. It is the responsibility of each delegate to ensure that his/her travel papers are in order and where applicable, an entry visa for Zimbabwe has been obtained. The symposium organisers are in no position to assist delegates who arrive without proper documentation.

NOTICE OF INTENT

I intend to participate in the Regional Symposium on Properties and Management of Red Soils of East and Southern Africa, February 1986, Harare, Zimbabwe

I intend to submit a paper entitled

.....

Surname, initials and academic title

Position in Organisation

Address

.....

Telephone Telex

Likely source of funds

Please return to Symposium organisers: Dr. Kingston Nyamapfene or Mrs. J. Hussein,
Department of Land Management, University of Zimbabwe, Box MP 167, Mt.
Pleasant, Harare, Zimbabwe. Telephone: 303211, Telex: 4152 ZW
Cables: UNIVERSITY

Announcement
**INTERNATIONAL WORKSHOP ON QUANTIFIED LAND EVALUATION
PROCEDURES**

Washington DC, USA, April 28 – May 2, 1986

This workshop is being organized and sponsored by the ISSS Working Groups on Land Evaluation (LE) and Soil Information Systems (DP), in cooperation with the ISSS Subcommittee on Soil Conservation and Environment. Detailed planning and arrangements are being made by the Soil Conservation Service, U.S. Department of Agriculture, with guidance from the chairmen of the above Working Groups.

Overall purpose: The Workshop will be conducted to study means of achieving effective inventory and evaluation of land resources for planning agricultural development and environmental protection. Special emphasis will be given to quantified land evaluation systems for application at all levels from the national level, regional or state levels, to the local community.

Main themes:

- A) The state-of-the-art of quantitative land evaluation.
 - 1. Existing systems
 - 2. Needs for further methodological work to most effectively assist farmers and planners with key soil use and management decisions.
- B) Structure, management, and application of resource information systems
 - 1. For the production of food, forage, and fiber, with evaluation of management options, including irrigation/dryland.
 - 2. For environmental protection.

Arrangements: The language of the Workshop will be English. A one-day field trip is being arranged to familiarize the participants with farming practices, kinds of soils, and soil conservation activities in the Piedmont region near Washington, D.C.

The number of participants will be limited to approximately 50 to permit effective discussion of concepts. A number of invited speakers will be included. Applications for participation are solicited.

Address: Prof. Dr. K. J. Beek, Chairman ISSS Working Group and Land Evaluation, c/o ITC, P.O. Box 6, 7500 AA Enschede, the Netherlands. Cables AERSUR, telex 44525 NL.

DICTIONNAIRE

Jean Lozet et Clément Mathieu publieront en 1986 un 'Dictionnaire de science du sol' contenant plus de 2000 mots concernant la pédologie générale, la minéralogie, la pétrographie, la micromorphologie, les différents systèmes de classification des sols et la géomorphologie.

Ce dictionnaire contiendra également un glossaire anglais-français, différents tableaux et graphiques, des photos de sols caractéristiques, etc.

Les personnes souhaitant un bulletin de souscription peuvent s'adresser à:

Prof. Dr. J. Lozet, rue Wauters, 77, B 5240 Wanze, Belgique ou Prof. Dr. C. Mathieu, FACAGRO, B. P. 2940, Bujumbura, Burundi.

SOME NOTES ON OUR GENERAL CONGRESSES

Of late, one hears queries on the usefulness of large Congresses. The fact that new societies are formed that split-off from their parent body, is then taken as a signal that an essential change in the scientific situation is taking place. It may be useful to make some remarks about this: Our own Society (ISSS-AISS-IBG) was founded more than 60 years ago by a fairly large group of persons, to provide a broad platform for the necessary internationality of a worldwide operating science. This platform is now, through a membership of over 7000 soil scientists in all parts of the world, broader than even before. As a society of interested, independent, single persons we are a large group indeed! This has two effects:

One of them is *inward*. A Society like ours constitutes a unique forum for members of the most varied scientific interests and geographical origin. This forum is the site at which members with an interest in the same broad subject meet each other, to exchange their views, to receive stimulus, and to have the possibility to form permanent or transient groups of varied kinds on certain subjects.

- Outside such a broad source of potentially interested persons our colleagues will find it difficult to make contact for joint discussions, for the tackling of specialistic problems or the development of new ideas.
- Outside such a broad source of potentially interested persons the results of a special group will not find sufficiently wide dissemination.
- Outside such a broad source of potentially interested persons the work of each group of specialists will become more and more isolated as the specialism deepens. An aspect of one-sidedness may develop, the interest of the researcher himself is often temporary, and the group itself may be short-lived.

The other effect is *outward*. At a time of many neo-formation of scientific societies the sheer number of members, or a society's body mass, carries more weight as a criterion for its prestige in the eyes of the public-at-large than in the past. Groups with a small number of members are easily overlooked in the large array of other such groups. It is not accidental that many specialistic societies after some time get together in umbrella groups, or Unions. It is the consequence of their smallness and the narrow delimitation of their scientific subject. Unions formed this way harbour however the danger of working impersonally, anonymously.

Therefore,

- let us strengthen the weight of our membership of individual persons, and let us stress the common basis of our science through the togetherness of our traditional Congresses;
- let us stimulate the timeliness of our work and the advance of our knowledge through new forms of organisation, but without losing contact with the potential of worldwide general soil science;
- let us, notwithstanding the needs of specialists, not neglect our common roots – otherwise special groups will easily become meaningless and short-lived.

That is, since more than 60 years, the purpose of the General Congresses of our Society – and it is today as meaningful as in the past.

Prof. Dr. K. H. Hartge, President ISSS

QUELQUES RÉFLEXIONS CONCERNANT LA TENUE DE NOS CONGRÈS GÉNÉRAUX

Ces derniers temps l'on s'est pesé des questions concernant l'utilité de grands Congrès. Le fait que de nouvelles associations se créent qui se séparent de l'association mère peut s'entendre comme une signe d'un changement fondamental dans la situation des activités scientifiques. Il est peut-être opportun de formuler quelques réflexions à ce sujet: notre association (AISS – ISSS – IBG) fut fondée il y a 60 ans par un grand groupe de personnes, afin de créer une large base internationale pour une communauté travaillant dans les différents pays du monde. L'étendue de cette base se reflète par l'affiliation de plus de sept mille membres. En tant qu'association de personnes individuelles, engagées et indépendantes, nous formons un groupe important. Ceci a deux effets:

L'effet *interne* consiste dans le fait qu'une association de cette envergure constitue un forum considérable pour les membres travaillant dans différentes disciplines et appartenant à des régions géographiques diverses. Ce forum est l'endroit où les membres intéressés à un même sujet se rencontrent, échangent leurs idées, se stimulent et prennent contact avec d'autres disciplines.

– Sans ce potentiel de personnes intéressées les membres ne trouveraient pas la base nécessaire pour l'établissement de contacts et pour la discussion de problèmes communs et l'élaboration d'idées nouvelles.

– Sans cette source d'intérêts communs il n'y aurait pas de diffusion suffisante des résultats obtenus par des groupes de travail spécialisés.

– Sans l'existence d'une communauté d'intérêts le travail spécialisé risque de s'isoler. De plus l'intérêt de certains spécialistes peut être passager ce qui entraîne la disparition de certaines activités.

L'effet *externe* découle du nombre de membres de l'association. Celui-ci influe sur l'opinion publique et est un critère de l'importance de l'association, surtout dans une période où plusieurs nouvelles associations se créent.

Des groupements n'ayant qu'un nombre restreint de membres sont moins considérées et se confondent dans un grand nombre d'associations de faible rayonnement. Ce n'est pas sans raison que plusieurs de ces associations se groupent en collectifs ou Unions. Cette tendance est la conséquence de leur dimension restreinte et des limites de leur champ d'action.

Ce genre d'unions toutefois courent le risque de travailler d'une façon impersonnelle et parfois anonyme.

Par conséquent

– efforçons-nous d'accroître le poids du nombre de nos membres individuels et mettons l'accent sur la base commune de notre science par le lieu de nos Congrès généraux

– attachons nous à promouvoir le progrès et l'actualisation de nos connaissances par de nouvelles structures organisationnelles, sans négliger le potentiel global de la science du sol en général

– malgré les besoins des spécialistes ne perdent pas de vue l'intérêt commun, sinon de petits groupes de travail perdent rapidement leur signification et risquent d'être éphémères.

Ces objectifs sont ceux de nos Congrès généraux depuis 60 ans. Ils le sont d'autant plus à l'heure actuelle.

Prof. Dr. K. H. Hartge, Président AISS

BEMERKUNGEN ZU UNSEREN ALLGEMEINEN KONGRESSEN

In der letzten Zeit wird gelegentlich nach dem Sinn großer Kongresse gefragt. Die Tatsache, daß neue Gesellschaften entstehen und sich von den Ausgangsgesellschaften abspalten wird als Zeichen dafür angesehen, daß ein grundsätzlicher Wandel der wissenschaftlichen Situation vorliegt. Hierzu ist es vielleicht nützlich einige Bemerkungen zu machen: Unsere Gesellschaft (ISSS-AISS-IBG) wurde von mehr als 60 Jahren von einer größeren Gruppe von Männern gegründet, um die für eine weltweit arbeitende Gesellschaft notwendige Internationalität als breite Basis herzustellen.

Die Breite dieser Basis ist heute durch > 7000 Mitglieder in aller Welt größer als je zuvor. Als Gesellschaft aus engagierten unabhängigen einzelnen Personen sind wir eine große Gruppe. Das hat zwei Wirkungen:

Eine davon ist die Wirkung *nach innen*. Sie besteht darin, daß eine Gesellschaft ein großes Forum für Mitglieder der verschiedensten Arbeitsrichtungen und geographischen Herkunft bildet. Dieses Forum ist der Ort, an dem sich die am gemeinsamen Objekt interessierten Mitglieder treffen, ihre Ansichten austauschen, Anregungen empfangen und zu Gruppen verschiedener Art zusammenschließen können.

- Ohne eine solches Potential an Interessenten als Basis finden die Kollegen schwer den Kontakt für gemeinsame Diskussionen, Bearbeitungen von Spezialproblemen und neuen Ideen.
- Ohne ein solches Potential von Interessenten als Basis finden die Ergebnisse einer speziellen Gruppe nicht die Verbreitung, die sie der Allgemeinheit zugänglich macht.
- Ohne ein solches Potential an Interessenten als Basis steht die Arbeit jeder Spezialistengruppe um so isolierter im Raum, je weiter sie fortschreitet. Es besteht die Gefahr einseitiger Aspekte, das Interesse der Forscher selbst ist dann oft nur vorübergehend, die Gruppe als solche dann Kurzlebig.

Die andere Wirkung richtet sich *nach außen*. Im Zeitalter zahlreicher Neugründungen wissenschaftlicher Gesellschaften ist die Zahl der Mitglieder, also die Masse, für die Öffentlichkeit ein wichtigeres Kriterium für die Bedeutung einer Gesellschaft als früher. Gruppen mit kleinen Mitgliederzahlen werden neben vielen ähnlich großen leicht übersehen.

Es ist kein Zufall, daß viele Gesellschaften sich zu übergeordneten Gruppen (Unionen) zusammenschließen. Das ist die notwendige Folge ihrer Kleinheit und fachlich engen Begrenzung. So entstandene Unionen sind in Gefahr unpersönlich (anonym) zu wirken.

Deshalb:

Laßt uns das Gewicht der aus Einzelpersonen bestehenden internationalen Mitgliedschaft stärken, laßt uns die gemeinsame Basis unserer Wissenschaft durch die Gemeinsamkeit der traditionellen Kongresse betonen.

Laßt uns die Aktualität unserer Arbeit und den Fortschritt unserer Kenntnisse durch neue Organisationsformen fördern, ohne den Kontakt zum Potential der weltweiten allgemeinen Bodenkunde zu gefährden. Laßt uns neben den Bedürfnissen der Spezialisten die Gemeinsamkeiten nicht vernachlässigen – kleine Gruppen werden sonst leicht bedeutungslos und kurzlebig.

Dies ist seit mehr als 60 Jahren der Zweck der großen Kongresse unserer Gesellschaft – er ist heute so aktuell wie eh und je.

Prof. Dr. K. H. Hartge, Präsident IBG.

XIIITH ISSS CONGRESS, 13-20 AUGUST 1986, HAMBURG

The organizing committee informs:

In Bulletin I/84 the forms for letter-of-intent had been incorporated. The feedback of information shows that the scientific sessions (guideword: Demands on soils increasing in variety and diversity) as well as the pre- and post-congress tours draw a lot of interest. So there will be a congress with an overall size as we are used to in our Society.

In Bulletin II/84 details on congress tours were given (routes, timetable, pedologic outline). In the text given here information is presented on registration procedure, as well as a preliminary program for the sessions.

1) Registration procedure

Attached to this Bulletin you find your material for final registration: registration forms for the scientific sessions, congress tours, accomodation. Furthermore information on payment regulations and by-program.

Please check all printed material carefully and *keep the deadlines*. Use the advantage for early registration and payment.

2) Preliminary program

Wednesday, Aug. 13, 1986

- a.m.: 9.00-12.00 Opening session, welcoming speeches
- p.m.: 2.00- 3.00 Plenary session Commission I
3.00- 6.00 Symposium Commission VII
Joint Symposium Commission VI/IBSNAT
Sessions of the Commissions (voluntary papers)
Working Group sessions
Assembly of poster session A

Thursday, Aug. 14, 1986

- a.m.: 9.00-10.00 Plenary session Commission II
10.30-12.30 Symposium Subcommission A
Joint Symposium Commissions I/II
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session A
- p.m.: 2.30- 6.00 Symposium Commission II (a)
Joint Symposium Commission IV/HWW
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session A

Friday, Aug. 15, 1986

- a.m.: 9.00-10.00 Plenary session Commission III
10.30-12.30 Symposium Subcommission B
Joint Symposium Commissions II/VII
Sessions of the Commissions (voluntary papers)
Working Group sessions
Removal of posters A/Assembly of posters B
- p.m.: 2.30- 6.00 Symposium Commission I
Joint Symposium Commissions II/III/IV and IHSS
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session B

Saturday, Aug. 16, 1986

- a.m.: 9.00–10.00 Plenary session Commission IV
10.30–12.30 Symposium Subcommittee C
Joint Symposium Commissions VII/V
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session B
- p.m.: 2.30– 6.00 Symposium Commission V
Sessions of the Commissions (voluntary papers)
Working Group sessions
Removal of posters B/Assembly of posters C

Sunday, Aug. 17, 1986 Local excursions, for details see Bull. II/1984.

Monday, Aug. 18, 1986

- a.m.: 9.00–10.00 Plenary session Commission V
10.30–12.30 Symposium Commission II (b)
Joint Symposium Commissions III/IV
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session C
- p.m.: 2.30– 6.00 Symposium Commission IV
Joint Symposium Commissions B/VIII
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session C

Tuesday, Aug. 19, 1986

- a.m.: 9.00–10.00 Plenary session Commission VI
10.30–12.30 Joint Symposium Commission VII/IPI
Joint Symposium Commissions IV/III
Sessions of the Commissions (voluntary papers)
Working Group sessions
Removal of posters C/Assembly of posters D
- p.m.: 2.30– 6.00 Symposium Commissions VI/I
Joint Symposium Commission III/IV
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session D
- 8.00 Festive night (Hamburg Evening)

Wednesday, Aug. 20, 1986

- a.m.: 9.00–10.00 Plenary session Commission VII
10.30–1 p.m. Symposium Commission III
Joint Symposium Commissions II/IV
Sessions of the Commissions (voluntary papers)
Working Group sessions
Poster session D
- p.m.: 3.00– 6.00 Closing session
Removal of posters D

3) Information on voluntary papers for commission sessions

3.1. *Extended informative summaries*

The Executive Committee decided (Wageningen, Sept. 84) that *extended informative summaries* of the voluntary papers should be printed and distributed to participants at the beginning of the Congress. Within this part of the scientific outcome the most informative presentations are to be expected and authors should be given the opportunity to ascertain priority of publication.

Members of the Society will be accepted only once as senior author of a paper (i.e. speaker or poster-presenter). The extended informative summaries (± 1000 words) should be prepared according to the following directions: texts are to be delivered

print-proof for photo-mechanical reproduction. The size may be two pages written in English, French or German on the sheets attached to this Bulletin. It may contain inkdrawn figures and a short summary in one of the other languages. It should indicate reason, methodical performance and results of the investigations concerned.

All texts will be previewed by two referees. If more voluntary papers are submitted than time for oral presentation would allow then the program-commission will ask authors to join poster exhibitions. These authors will be informed in time.

All summaries that correspond to the formal requirements and are received by the organizing committee before *January the 1st 1986* will be printed in a volume of abstracts independently of the mode of presentation – if the registration fee of the member has been *paid by 31 April 1986*. This volume will be distributed to participants at the beginning of the Congress.

Forwarding address: Organizing Committee, XIIIth ISSS-AISS-IBG Congress, P.O. Box 302480, 2000 Hamburg, Federal Republic of Germany.

3.2. Oral presentation

For oral presentation 15 min. will be allowed for the speaker and 5 min. for discussion. Time limits will be kept strictly. Papers may be read in English, French or German. In the rooms of these presentations there will be no simultaneous translation. Therefore take care to deliver presentation in the most accurate and understandable way. Let slides and transparencies be most easily readable and understandable. Refer frequently to the contents of your abstract, which is easily at hand for every participant. Do not cut down discussion time by overlong reading – discussion without translator tends to be slow but rewardingly direct. Time and allocation of your presentation will be given to you later.

3.3. Poster Exhibitions

For each poster there will be area available of two meters width and 1.3 meter height. Background of the walls will be white. Please use tape for fixing your exhibitions. No thumbtacks! Please ascertain readability of numbers and letters from at least a distance of 2 m.

There will be 4 exhibitions of 2 half-days, each subsequent to another. Preparation time for each of them will be $\frac{1}{2}$ day. Details on time (day), requested presence of authors etc. will be given later.

The best poster of each Commission will be selected and rewarded with a prize on the closing session.

Topics of Plenary Sessions, Symposia, and Joint Symposia.

a. Plenary Sessions

Comm.	Topic	Speaker
I	Soil water and plant productivity.	J. T. Ritchie, Temple, USA
II	Essential and toxic heavy metals in soils and their ecological relevance.	K. G. Tiller, Glen Osmond, Australia
III	Demands and control on organisms in soils	J. M. Lynch, Little Hampton, USA
IV	The influence of soil on world food supplies.	N. C. Brady, Annandale, USA
V	The role of pedology in meeting the increasing demands on soils.	R. Dudal, Leuven, Belgium
VI	Impact of farm systems on soil erosion in the tropics.	R. Lal, Ibadan, Nigeria
VII	Mineralogy of surface-mined lands.	J. B. Dixon, College Station, USA

b. Symposia (each symposium includes about four speeches by invited speakers).

Comm.	Topic	Chairman
I	Optimizing the physical properties of the rooting zone.	S. S. Prihar, Punjab, India
II(a)	Acid sources and acidification processes.	N.N.
II(b)	Ecological effects of soil acidification	B. Ulrich, Göttingen F.R.G.
III	Functional relationships between soil fauna, microflora, and organic matter.	K. E. Lee, Glen Osmond, Australia
IV	Nutrient dynamics in the rhizosphere.	S. A. Barber, West Lafayette, USA
V	Using pedological information to better understand demands on soils.	R. W. Arnold, Washington D.C., USA
VI(a)	Soil structure in fully mechanised cropping systems.	G. Varallyay, Budapest, Hungary
VI(b)	Intensive cultivation of major agricultural soils in China	Zhao Qi-guo, Nanjing, China
VII	New developments in soil mineralogy.	J. B. Dixon, College St., USA
SC.A	Movement and accumulation of salts in soils.	I. P. Abrol, Haryana, India
SC.B	Micromorphology: Techniques and applications	N.N.
SC.C	Processes of soil erosion	R. Lal, Ibadan, Nigeria

c. Joint Symposia

Comm.	Theme	Speaker/Coordinator
I/II	Solute transport mechanisms and solute matrix interactions.	D. R. Nielsen, Davis, USA
II/VII	Soil colloid surfaces.	G. H. Bolt, Wageningen, Netherlands
III/IV	Microbial activity and its influence on redox processes and nutrient transformations.	Y. Takai, Tokyo, Japan
III/IV	Nitrogen dynamics in the soil/plant system.	Y. Dommergues, Dakar, Senegal
VII/V	Mineralogical changes in specific environments	R. W. Arnold, Washington and J. B. Dixon, College St., USA
IV/III	Mycorrhiza and soil fertility.	F. Schönbeck, Hannover, F.R.G.
B/VII	Micromorphology applied to soil mineralogy.	G. Stoops, Gent, Belgium
II/III/IV	Organic and inorganic pollutants in soils – deposition, behaviour, and ecological relevance.	K. G. Tiller, Glen Osmond, Australia
III/II/IV /IHSS	Dynamics of organic matter in soils.	D. Jenkinson, Rothamsted, UK and R. S. Swift, Canterbury, N.Z.
VI/ IBSNAT	The role of soils in systems analysis for agrotechnology transfer.	F. M. Beinroth, Mayaguez, Puerto Rico
VII/IPI	Potassium availability in relation to soil minerals.	M. Robert, Versailles, France
IV/ HWW	Nitrate pollution of ground water.	P. Meiser, Hannover, F.R.G.

XIIIÈME CONGRES DE L'AISS, 13 – 20 AOUT 1986 A HAMBOURG

Le Comité d'Organisation communique:

Les formulaires d'inscription provisoire (lettres d'intention) étaient incorporés dans le Bulletin I/84. Le retour d'information montre que les sessions scientifiques (thème: demandes en sols croissantes en variété en diversité) aussi bien que les excursions avant ou après Congrès suscitent un vif intérêt.

Ainsi aurons-nous un congrès de première grandeur, ce à quoi nous sommes habitués dans notre Société.

Dans le Bulletin II/84 tous détails ont été donnés sur les excursions (itinéraires, horaires, aperçu pédologique).

Dans le présent texte on trouvera d'informations sur les procédures d'inscription et un programme préliminaire des sessions.

1) Procédures d'inscription

Vous trouverez adjoit au présent Bulletin tous les éléments nécessaires à votre inscription définitive: formulaires d'inscription pour les sessions scientifiques, les excursions, les réservations hôtelières, informations supplémentaires sur les conditions de paiement et programmes annexes.

Veuillez remplir tous les imprimés soigneusement et *respecter les dates limites*. Profitez des avantages inhérents à une inscription et à un règlement précoces!

2) Programme préliminaire

Mercredi 13 Août 1986

matin	9.00–12.00	Séance inaugurale. Allocutions de bienvenue
après midi	2.00– 3.00	Séance plénière Commission I
	3.00– 6.00	Symposium Commission VII
		Symposium commun Commission VI/IBSNAT
		Séances des Commissions (présentation des communications)
		Séances des Groupes de Travail
		Mise en place des posters A

Jeudi 14 Août 1986

matin	9.00–10.00	Séance plénière Commission II
	10.30–12.30	Réunion Sous-Commission A
		Symposium commun Commissions I/II
		Séances des Commissions (présentation des communications libres)
		Séance de posters A
après midi	2.30– 6.00	Symposium Commission II (a)
		Symposium commun Commission IV/HWW
		Séances des Commissions (présentation des communications libres)
		Séances des Groupes de Travail
		Séance de posters A

Vendredi 15 août 1986

matin	9.00–10.00	Séance plénière Commission III
	10.30–12.30	Réunion Sous-Commission B
		Symposium commun Commission II/VII
		Séances des Commissions (communications libres)
		Séances des Groupes de Travail
		Dépose des posters A/Mise en place des posters B
après midi	2.30– 6.00	Symposium Commission I
		Symposium commun Commissions II/III/IV et IHSS
		Séances de Commissions (communications libres)
		Séances des Groupes de Travail
		Séance de posters B

Samedi 16 août 1986

matin	9.00-10.00	Séance plénière Commission IV
	10.30-12.30	Symposium Sous-Commission C Symposium commun Commissions VII/V Séances des Commissions (communications libres) Sessions des Groupes de Travail Séance de posters B
après midi	2.30- 6.00	Symposium Commission V
		Séances des Commissions (communications libres)
		Sessions de Groupes de Travail
		Dépose des posters B/mise en place des posters C.

Dimanche 17 août 1986

Excursions locales: pour les détails, se reporter au Bulletin II/1984.

Lundi 18 août 1986

matin	9.00-10.00	Séance plénière Commission V
	10.30-12.30	Symposium Commission II (b) Symposium commun Commissions II/III Séances des Commissions (communications libres) Sessions de Groupes de Travail Séance de posters C
après midi	2.30- 6.00	Symposium Commission IV
		Symposium commun Commission B/VII
		Séances des Commissions (communications libres)
		Sessions de Groupes de Travail
		Séance de posters C

Mardi 19 août 1986

matin	9.00-10.00	Séance plénière Commission VII
	10.30-12.30	Symposium commun Commission VII/IPI Symposium commun Commissions IV/III Séances des Commissions (communications libres) Sessions des Groupes de Travail Dépose des posters C/mise en place des posters D
après midi	2.30- 6.00	Symposium Commissions VI/I
		Symposium commun Commissions III/IV
		Séances des Commissions (communications libres)
		Sessions des Groupes de Travail
		Séance de posters D
	8.00	Festivités nocturnes (soirée Hambourgeoise)

Mercredi 20 août

matin	9.00-10.00	Séance plénière Commission VII
	10.30- 1.00	Symposium Commission III Symposium commun Commissions II/IV Séances des Commissions (communications libres) Sessions des Groupes de Travail Séance de posters D
après midi	3.00- 6.00	Séance de clôture
		Dépose des posters D

3) Information sur les communications (volontaires) présentées en séances de Commissions

3.1 Résumés développés d'information

Le Comité exécutif a décidé (Wageningen, 1984) que les résumés développés d'information seraient imprimés et distribués aux participants au début du Congrès.

Afin que l'apport scientifique (des communications) soit valorisé au maximum, la présentation la plus explicite possible est souhaitée, donnant ainsi aux auteurs la possibilité de s'assurer la priorité de la publication.

Chaque membre de la Société ne pourra figurer qu'une fois comme auteur principal d'une communication (p. ex. conférencier *ou* présentateur de poster).

Les résumés développés (± 1000 mots) sont à préparer selon les directives suivantes:

- Les textes seront fournis à l'état d'épreuves bonnes pour la reproduction photomécanique.
- La longueur autorisée est de deux pages rédigées en anglais, français ou allemand sur feuilles attenantes à ce Bulletin. On peut y inclure des figures tracés à l'encre et un court résumé en l'une des deux autres langues admises.
- Ce résumé doit indiquer les motivations, la démarche méthodologique et les résultats des recherches présentées.

Tous les textes seront préexaminés par deux rapporteurs. Si les communications sont trop nombreuses au regard du temps prévu pour la présentation orale, la Commission demandera aux auteurs de s'intégrer aux présentations de posters. Les auteurs concernés seront informés en temps utile.

Tous les résumés qui satisfont à ces exigences et seront reçus avant le 1er janvier 1986 seront imprimés dans un volume de résumés, indépendamment du mode de présentation, *si les droits d'inscription ont été réglés au 30 avril 1986*.

Ce volume sera distribué aux participants au début du Congrès.

Adresse d'expédition:

Comité d'Organisation, XIIIe Congrès ISSS-AISS-IBG, P.O. Box 302400, 2000 Hambourg, République Fédérale Allemande.

3.2 Présentation orale

Pour la présentation orale, 15 minutes sont allouées pour le conférencier et 5 minutes pour la discussion. Ces limites seront respectées strictement. Les communications peuvent être présentées en Anglais, Français ou Allemand. Les salles de conférences ne sont pas équipées pour la traduction simultanée. En conséquence, on prendra soin d'assurer la présentation de la manière la plus précise et la plus intelligible. Les diapositives et rétroprojections doivent être facilement lisibles et compréhensibles. Référez-vous fréquemment au contenu de votre résumé que chaque participant aura sous la main. N'empiétez pas sur le temps de discussions par un exposé trop long. La discussion sans traducteur tend à être lente, mais fructueusement directe.

L'heure et la programmation de votre intervention vous seront indiquées ultérieurement.

3.3 Expositions de posters

Pour chaque poster, on disposera d'une surface de 2 m en largeur sur 1.30 m en hauteur.

La teinte de fond des murs sera blanche. Prière d'utiliser des bandes adhésives pour fixer vos panneaux. Pas de punaise s.v.p.! On est prié de s'assurer que les chiffres et les lettres seront lisibles à une distance d'au moins 2 mètres.

Il y aura 4 expositions de deux demi-journées, se succédant l'une l'autre. Le temps de préparation de chaque exposition est de $\frac{1}{2}$ journée. Les détails sur le jour et l'heure ou la présence des auteurs est requise seront communiqués ultérieurement.

Le meilleur poster de chaque Commission sera sélectionné et récompensé par un prix à la séance de clôture.

Sujets des Sessions Plénières, Symposiums et Symposiums communs

a. Séances plénières

Comm.	Sujet	Orateur
I	Eau du sol et productivité végétale	J. T. Richie, Temple, USA
II	Les métaux lourds essentiels et toxiques dans les sols et leurs incidences écologiques	K. G. Tiller, Glen Osmond, Australie
III	Demande en sols et contraintes biologiques	J. M. Lynch, Little Hampton, USA
IV	L'influence du sol sur les ressources alimentaires mondiales	N. C. Brady, Annandale, USA
V	Rôle de la pédologie face à une demande croissante en sols	R. Dudal, Leuven, Belgique
VI	Impact des systèmes de culture sur l'érosion des sols en zone tropicale	R. Lal, Ibadan, Nigeria
VII	Minéralogie des régions d'extractions minière à ciel ouvert	J. B. Dixon, College Station, USA

b. Symposiums

Comm.	Sujet	Président de la Session
I	Optimisation des propriétés physiques de la zone d'enracinement	S. S. Prihar, Punjab, India
II (a)	Sources d'acidité et processus d'acidification	N. N.
II (b)	Effets écologiques de l'acidification des sols	B. Ulrich, Göttingen, R.F.A.
III	Relations fonctionnelles entre la faune des sols, la microflore et la matière organique	K. E. Lee, Glen Osmond, Australie
IV	Dynamique des nutriments dans la rhizosphère	S. A. Barber, West Lafayette, USA
V	Utilisation de l'informatique pédologique pour mieux répondre à la demande en sols	R. W. Arnold, Washington D.C., USA
VI (a)	Structure du sol en systèmes de culture complètement mécanisés	G. Varallyay, Budapest, Hongrie
VI (b)	Culture extensive des principaux sols agricoles en Chine	Zhao Qu-guo, Nanjing, Chine
VII	Nouveaux développements en minéralogie des sols	J. B. Dixon, College Station, USA
SC.A	Mouvements et accumulation des sels dans les sols	I. P. Abrol, Haryana, India
SC.B	Micromorphologie: techniques et applications	N. N.
SC.C	Processus d'érosion des sols	R. Lal, Ibadan, Nigeria

c. Symposiums communs

Comm.	Sujet	Orateur/Coordinateur
I/II	Mécanismes de transfert des solutés et interactions solutés-matrice	D. R. Nielsen, Davis, USA
II/VII	Surfaces des colloïds du sol	G. H. Bolt, Wageningen, Hollande
III/IV	L'activité microbienne et son influence sur les processus redox et les transformations des nutriments	Y. Takai, Tokyo, Japan
III/V	Changements minéralogiques dans des environnements spécifiques	J. B. Dixon, College Station, USA
IV/III	Mycorhizes et fertilité du sol	F. Schönbeck, Hannover, RFA
B/VII	Micromorphologie appliquée à la minéralogie des sols	G. Stoops, Gent, Belgique
II/III/ IV	Polluants organiques et inorganiques dans les sols; dépôt, comportement et incidences écologiques	K. G. Tiller, Glen Osmond, Australie
III/II/ IV/IHSS	Dynamique de la matière organique dans les sols	D. Jenkinson, Rothamsted, UK et R. S. Swift, Canterbury, Nouvelle Zelande
VI/IBSNAT	Rôle des sols dans l'analyse de systèmes en vue du transfert agro-techo-logie	F. M. Beinroth, Mayaguez, Puerto Rico
VII/IPI	Disponibilité du potassium en relation avec les minéraux du sol	M. Robert, Versailles, France
IV/HWW	Pollution des nappes par les nitrates	P. Meiser, Hannover, R.F.A.

Final prices of the excursions (in DM.)			
Exc.	Time	double room	single room
A	03.-12.08. (or 02.-11.08., 01.-10.08. overnight stay 02./03.08. (or 01.08., 31.07.) in München	1850 85	2000 105
B	02.08.-11.08.	1860	2085
C	22.08.-29.08.	2090	2300
D	21.08.-25.08. overnight stay 25./26.08. in München	930 85	990 105
E	20.08.-26.08. overnight stay 26./27.08. in Plieningen	1190 46	1290 67
F	21.08.25.08. overnight stay 26./27.08. in Hamburg	850 79	950 110
G	21.08.-24.08.	830	930
H	21.08.-24.08. overnight stay 24./25.08. in Amsterdam	630 75	700 120
N	21.08.-27.08.	1600	1800
One-day excursion before and during the Congress: I, K and L = 64 DM each, M = 74 DM; plus 10 DM for the excursion guide (valid for all excursion). For other details of the excursions see Bulletin 66.			

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

Das Organisationskomitee informiert:

Im Bulletin I/1984 war ausser den damals verfügbaren Detailangaben ein Formular für die vorläufige Anmeldung enthalten gewesen. Der Rücklauf an diesen Formularen lässt erkennen, dass sowohl für die Vortragstagung (Leitwort: 'Böden unter steigender Intensität und Vielfalt der Beanspruchung') als auch für die Exkursionen ein lebhaftes Interesse besteht und dass der Kongress den in unserer Gesellschaft gewohnten Umfang sicher erreichen wird.

Im Bulletin II/1984 waren Details zum Exkursionsprogramm gegeben worden (Routen, Zeitplan, pedologische Ausrichtung).

Im Nachstehenden erhalten Sie nunmehr die nächsten Informationen zum Registrierungsverfahren sowie zum Ablauf der wissenschaftlichen Vortragstagung:

1) Das Anmeldeverfahren:

Diesem Bulletin sind die Unterlagen für die verbindliche Anmeldung beigelegt.

Sie enthalten: Anmeldeformular für die Vortragstagung, für die Exkursionen, für die Unterbringung, sowie Informationen zum Vorgang der Registrierung, dem Zahlungsmodus und zum Rahmenprogramm.

Bitte prüfen Sie die Unterlagen sorgfältig und halten sie vor allem *die darin angegebenen Termine* sorgfältig ein.

Beachten Sie bitte, dass frühes Anmelden und Zahlen Ihnen Vorteile bringt.

2) Vorläufiges Programm für die Vortragstagung

Mittwoch, 13.8.1986

Vormittags: 9.00–12.00	Eröffnungssitzung, Begrüßungen
Nachmittags: 14.00–15.00	Plenar-Sitzung Kommission I
15.00–18.00	Symposium Kommission VII
	Joint-Symposium Kommission VI/IBSNAT
	Kommissions-Sitzungen (freie Vorträge)
	Arbeitsgruppen-Sitzung
	Aufbau f. Poster-Ausstellung A

Donnerstag, 14.8.1986

Vormittags: 9.00–10.00	Plenar-Sitzung Kommission II
10.30–12.30	Symposium Subkommission A
	Joint-Symposium Kommissionen I/II
	Kommissions-Sitzungen (freie Vorträge)
	Arbeitsgruppen-Sitzung
	Poster-Ausstellung A
Nachmittags: 14.30–18.00	Symposium Kommission II (a)
	Joint-Symposium Kommission IV/HWW
	Kommissions-Sitzungen (freie Vorträge)
	Arbeitsgruppen-Sitzung
	Poster-Ausstellung A

Freitag, 15.8.1986

Vormittags: 9.00–10.00	Plenar-Sitzung Kommission III
10.30–12.30	Symposium Subkommission B
	Joint-Symposium Kommissionen II/VII
	Kommissions-Sitzungen (freie Vorträge)
	Arbeitsgruppen-Sitzung
	Abbau Poster A/Aufbau Poster B
Nachmittags: 14.30–18.00	Symposium Kommission I
	Joint-Symposium Kommissionen II/III/IV und IHSS
	Kommissions-Sitzungen (freie Vorträge)
	Arbeitsgruppen-Sitzung
	Poster-Ausstellung B

Sonntag, 16.8.1986

Vormittags:	9.00–10.00	Plenar-Sitzung Kommission IV
	10.30–12.30	Symposium Subkommission C Joint-Symposium Kommissionen VII/V Kommissions-Sitzungen (freie Vorträge) Arbeitsgruppen-Sitzung Poster-Ausstellung B
Nachmittags:	14.30–18.00	Symposium Kommission V Kommissions-Sitzungen (freie Vorträge) Arbeitsgruppen-Sitzung Abbau Poster B/Aufbau Poster C

Sonntag, 17.8.1986

Lokale Fachexkursionen, s. Bull. II/1984.

Montag, 18.8.1986

Vormittags:	9.00–10.00	Plenar-Sitzung Kommission V
	10.30–12.30	Symposium Kommission II (b) Joint-Symposium Kommissionen III/IV Kommissions-Sitzungen (freie Vorträge) Arbeitsgruppen-Sitzung Poster-Ausstellung C
Nachmittag:	14.30–18.00	Symposium Kommission IV Joint-Symposium Kommissionen B/VII Kommissions-Sitzungen (freie Vorträge) Arbeitsgruppen-Sitzung Poster-Ausstellung

Dienstag, 19.8.1986

Vormittags:	9.00–10.00	Plenar-Sitzung Kommission VI
	10.30–12.30	Joint-Symposium Kommission VII/II Joint-Symposium Kommissionen IV/III Kommissions-Sitzungen (freie Vorträge) Arbeitsgruppen-Sitzung Abbau Poster C/Aufbau Poster D
Nachmittags:	14.30–18.00	Symposium Kommission VI/I Joint-Symposium Kommissionen III/IV Kommissions-Sitzungen (freie Vorträge) Arbeitsgruppen-Sitzung Poster-Ausstellung D
Abends:	20.00	Abschlußfeier (Hamburg Abend)

Mittwoch, 20.8.1986

Vormittags:	9.00–10.00	Plenar-Sitzung Kommission VII
	10.30–13.00	Symposium Kommission III Joint-Symposium Kommissionen II/IV Kommissions-Sitzungen (freie Vorträge) Arbeitsgruppen-Sitzung Poster-Ausstellung D
Nachmittags:	15.00–18.00	Schluß-Sitzung Abbau Poster D

3) Informationen zu den freien Beiträgen (= Kommissionssitzungen)

3.1 Informative Kurzfassungen

Das Exekutivkomitee beschloss auf seiner Sitzung in Wageningen im September 1984, dass anstelle von Zusammenfassungen (Summaries) ausführliche und *informative Kurzfassungen* erstellt und zu Kongressbeginn fertig gedruckt an die Teilnehmer ausgeliefert werden sollen. In diesem Bereich der Kongresspublikationen sind nämlich am meisten Innovationen zu erwarten und die Autoren sollen die Möglichkeit haben, Publikationspriorität hier wahrzunehmen.

Beachten Sie bitte den im Hinblick hierauf festgelegten späten Ablieferungstermin.

Bei diesen informativen Kurzfassungen soll jedes Mitglied nur einmal als Senior-Autor (= Vortragender bzw. Poster-Repräsentant) auftreten.

Für diese Kurzfassungen (etwa 1000 Worte) wurden die folgenden Richtlinien erarbeitet:

Die Texte müssen in druckfertigem Zustand (f. photomechanische Wiedergabe) auf den mitgelieferten Vordrucken (Guide sheet) abgegeben werden. Der Umfang der Darstellung darf maximal 2 Seiten betragen, die einzellig beschrieben werden sollen. Der Text kann auf Deutsch, Englisch oder Französisch abgefasst sein. Er soll Angaben zu Problemstellung, Methodik und Ergebnissen und nach Möglichkeit eine kurze Zusammenfassung in mindestens einer der beiden anderen Sprachen enthalten. Strichzeichnungen und Tabellen sind möglich, sofern sie innerhalb der zwei Seiten untergebracht werden.

Alle Texte werden von zwei Referenten begutachtet werden. Falls die Zahl der eingehenden Anmeldungen für den mündlichen Vortrag die verfügbare Zeit überschreitet, wird die Programm-Kommission Autoren bitten, sich auf Poster-Präsentationen einzurichten. Diese Autoren werden rechtzeitig benachrichtigt.

Alle Kurzfassungen, die den formalen Anforderungen entsprechen und *bis zum 1. Januar 1986* beim Organisationskomitee vorliegen, werden unabhängig von der Art der Präsentation in die Tagungsberichte aufgenommen, wenn die Autoren die Teilnahmegebühr bis zum *31. April 86* bezahlt haben. Der Band wird den Teilnehmern zu Kongressbeginn ausgehändigt.

Adresse für die Einsendung:

Organisationskomitee, XIII. ISSS-AISS-IBG-Kongress, Postfach P.O. Box 302480, 2000 Hamburg, Bundesrepublik Deutschland

3.2 *Mündliche Präsentation*

Für die Redezeit sind 15 Min. vorgesehen, dazu kommt 5 Min. Diskussionszeit.

Bitte richten Sie sich auf strikte Einhaltung dieser Zeitspanne ein. Die Vorträge können auf Deutsch, Englisch oder Französisch gehalten werden. In den Sitzungsräumen wird es keine Simultanübersetzung geben. Bitte achten Sie daher besonders sorgfältig auf deutlichen Vortrag, Verständlichkeit und Lesbarkeit von Abbildungsunterschriften und Texten. Halten Sie sich deutlich an die jedem Teilnehmer vorliegenden Kurzfassungstexte. Schränken Sie in Ihrem eigenen Interesse die Diskussionszeit nicht ein – denn die Diskussion ohne Dolmetscher ist langwierig, aber besonders persönlich. Raum und Zeit der Präsentation Ihres Vortrages werden später mitgeteilt.

3.3 *Poster-Ausstellung*

Für die Poster der freien Beiträge ist jeweils ein Platz von 2 m Breite und 1,3 m Höhe vorgesehen.

Der Untergrund der Fläche ist weiss. Bitte benutzen Sie Klebebänder. Reissbrettstifte sind nicht zu verwenden!

Es gibt 4 aufeinanderfolgende Posterausstellungen. Die Vorbereitungszeit beträgt jeweils 1/2 Tag. Für die Ausstellungszeit sind zwei halbe Tage vorgesehen. Einzelheiten hierzu sind im vorläufigen Programm enthalten.

Achten Sie bitte auf die Lesbarkeit von Text und Zahlen auf mindestens zwei Meter Entfernung.

Zeit für Vorbereitung, Ausstellung und persönliche Anwesenheit des Autors werden Ihnen später mitgeteilt.

Der beste Poster-Beitrag jeder Kommission der Gesellschaft wird ausgezeichnet und der Autor auf der Abschluss-Sitzung genannt.

Themen der Plenarsitzungen, Symposien und Gemeinschafts-Symposien

a. Plenar-Sitzungen

Komm.	Thema	Sprecher
I	Bodenwasser und Productivität der Pflanzen	J. T. Ritchie, Temple, U.S.A.
II	Wichtige und toxische Schwermetalle in Böden und ihre ökologische Bedeutung	K. G. Tiller, Glen Osmond, Australien
III	Massnahmen zu Förderung und Unterdrückung von organismen in Böden	J. M. Lunch, Little Hampton, U.S.A.
IV	Der Einfluss der Böden auf das Nahrungsangebot auf der Welt	N. C. Brady, Annandale, U.S.A.
V	Die Bedeutung der Pedologie im Hinblick auf die Steigende Beanspruchung der Böden	R. Dudal, Leuven, Belgien
VI	Der Einfluss der Bewirtschaftungssysteme auf die Bodenerosion in den Tropen	R. Tal, Ibadan, Nigerien
VII	Die Mineralogie vom Übertage-Bergbau betroffener Böden	J. B. Dixon, College Station, U.S.A

b. Symposien

In jedem Symposium werden etwa vier Vorträge von eingeladenen Redern gehalten.

Komm.	Thema	Vorsitzender
I	Optimierung der physikalische Bodeneigenschaften der Durchwurzelungszone	S. S. Prihar, Punjab Indien
II (a)	Quellen des Säureeintrages und der Prozess der Versauerung der Böden	N. N.
II (b)	Ökologische Auswirkungen der Bodenversauerung	B. Ulrich, Göttingen, B.R.D.
III	Funktionelle Beziehungen zwischen Bodenfauna, Mikroflora und organischer Substanz im Boden	K. E. Lee, Glen Osmond, Australien
IV	Nährstoffdynamik in der Rhizosphäre	S. A. Barber, West Lafayette, U.S.A.
V	Die Verwendung pedologischer Informationen zwecks besseren Verständnisses der Beanspruchung der Böden	R. W. Arnold, Washington, D.C., U.S.A.
VI(a)	Die Bodenstruktur in der vollmechanisierten Feldwirtschaft	G. Varallyay, Budapest, Ungarn
VI (b)	Intensive Bewirtschaftung der wichtigsten Landwirtschaftlich genutzten Böden Chinas	Zhao Qi-guo, Nanjing, China

Komm.	Thema	Vorsitzender
VII	Neue Entwicklungen im Bodenmineralogie	J. B. Dixon, College Station, U.S.A.
SK. A	Bewegung und Anreicherung von Salzen in Böden	I. P. Abrol, Haryana, Indien
SK. B	Mikromorphologie: Techniken und Anwendungen	N. N.
SK. C	Prozesse der Erosion	R. Lal, Ibadan, Nigerien

c. Gemeinschaftssymposien

Komm.	Thema	Sprecher/Coordinator
I/II	Mechanismen des Transportes in Lösung und gegenseitige Beeinflussung von Lösung und Bodenmatrix	D. R. Nielsen, Davis, U.S.A.
II/VII	Oberflächen von Bodenkolloiden	G. H. Bolt, Wageningen, Niederlande
III/IV	Mikrobielle Aktivität und ihr Einfluss auf Redoxvorgänge und Nährstoffumsetzungen	Y. Takai, Tokyo, Japan
III/IV	Stickstoffdynamik im System Boden-Pflanze	Y. Domergues, Dakar, Senegal
VII/V	Mineralogische Veränderungen unter spezifischen Umgebungsbedingungen	R. W. Arnold, Washington, D.C., U.S.A. J. B. Dixon, College Station, U.S.A.
IV/III	Mykorrhiza und Bodenfruchtbarkeit	F. Schönbeck, Hannover, B.R.D.
B/VII	Anwendung der Mikromorphologie in der Bodenmineralogie	G. Stoops, Gent, Belgien
II/III/IV	Organische und anorganische Schadstoffe in Böden, Einlagerung, Verhalten und ökologische Bedeutung	K. G. Tiller, Glen Osmond, Australien
III/II/IV und IHSS	Dynamik der organische Substanz in Böden	D. Jenkinson, Rothamsted, England und R. S. Swift, Canterbury, Neuseeland
VI/IBSNAT	Die Stellung der Böden in der Systemanalyse für die Übertragung von Agrartechnologien	F. M. Beinroth, Mayaguez, Puerto Rico
VII/IKI	Die Kalium-Verfügbarkeit in Beziehung zur den Mineralen in Böden	M. Robert, Versailles, Frankreich
IV/HWW	Nitratverunreinigung des Grundwassers	P. Meiser, Hannover, B.R.D.

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

**INTERNATIONAL WORKSHOP ON LAND EVALUATION FOR
LAND USE PLANNING AND CONSERVATION IN SLOPING AREAS**
Enschede, The Netherlands, 17-21 Dec., 1984

This Workshop was held from 17 to 21 December 1984 at ITC, Enschede, in the Netherlands and was organized by ITC in cooperation with ISSS and FAO. The main themes of the Workshop were:

- The application of the FAO Framework for Land Evaluation for land use planning and conservation in sloping areas; potentials and constraints.
- Land degradation hazard and conservation needs as a function of land characteristics and land qualities.
- Land evaluation for conservation to support decisions in land use planning.

The workshop was attended by 45 participants from 19 different countries and representing a variety of different organizations and institutions. As could be expected, the papers presented covered a wide range of aspects of land evaluation and conservation on sloping land.

The subject of modelling received a great deal of attention. While it was generally agreed that modelling will become increasingly important in land evaluation and land use planning in the future, at present it has its limitations largely because of the lack of the right type solid data on which to base the models. The point was also made that modelling must be looked upon as another tool for the use of the land use planner and must not be seen as an end in itself.

Another point to emerge from the meeting was the growing interest and concern in soil erosion on sloping lands. A number of participants showed great interest in identifying the type of formation which should be gathered in surveys to assist the soil conservationists with the planning of the necessary works and practices. Emphasis was also laid on the need to relate soil losses through erosion to losses in soil productivity and to find better ways to evaluate soil conservation costs and benefits.

Although the majority of the participants were from the fields of physical science, considerable attention was given to the importance of social and economic aspects of land use planning and conservation. The general consensus was that more use should be made of the local knowledge of soils of the farmers themselves. It was also agreed that farmer participation was essential in all stages of land evaluation and planning if workable plans were to be produced.

The suggestion for production of a handbook about land evaluation for conservation was not followed through. However, it was reported that FAO is in the process of producing a number of new Soils Bulletins on different aspects of soil conservation as well as land evaluation for irrigation and for extensive grazing.

It is planned that the proceedings for the Workshop will be published in due course by ITC.

D. W. Sanders, FAO, Rome

INTERNATIONAL SYMPOSIUM ON THE MANAGEMENT OF NITROGEN AND PHOSPHORUS FERTILIZERS IN SUB-SAHARAN AFRICA

Lomé, Togo, March 26–28, 1985

World attention is currently focused on the famine that is ravaging much of sub-Saharan Africa. Although the current tragic situation is the result of a 3-year drought, it should not be forgotten that over the past 20 years per capita food production in this region has declined by 1.1%/year.

Because of intensive leaching and severe weathering, many soils of tropical Africa have relatively low inherent fertility. Traditional agricultural systems depended on organic matter accumulations to supply nutrients and maintain soil productivity through shifting cultivation. Increases in population pressure, introduction of perennial crops, and introduction of high-yielding crop varieties necessitate the development of different systems to maintain and if possible improve fertility of tropical African soils.

Against this background, the International Fertilizer Development Center (IFDC), a nonprofit international research organization located in Muscle Shoals, Alabama, U.S.A., began a fertilizer research program in sub-Saharan Africa in 1982. The program, which was developed in collaboration with the International Institute of Tropical Africa (IITA), Ibadan, Nigeria, and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Niamey, Niger, has as its main objectives:

1. Evaluation of the potential of Africa's phosphate deposits for direct application or the production of phosphate fertilizers at minimum cost.
2. Evaluation of the role and efficiency of nitrogenous fertilizers applied to different crops and soils including monitoring fertilizer management practices that maximize efficiency in environments where nitrogen applications are a sound practice.
3. Understanding the effect of cropping systems and farm management practices on soil productivity sustenance and fertilizer use and efficiency.

Funds were provided by the International Fund for Agricultural Development

At a symposium held during March 26–28 at Lomé, Togo, 57 scientists from 17 countries reviewed current information on fertilizer and soil fertility problems of tropical Africa; occurrence, properties, and processing problems of phosphate ores indigenous to tropical Africa and the results of agronomic trials conducted by IFDC scientists and scientists from collaborating national agricultural research centers.

The results of 3 years of agronomic research conducted in collaboration with nine national research programs and presented at this symposium showed that:

1. Phosphorus was the most limiting nutrient in the Sahel.
2. Of the phosphate rock deposits in tropical Africa thus far tested, only the Tilemsi rock (Mali) and Matam rock (Senegal) are suitable for direct application where environmental conditions are suitable. Partial acidulation of the unreactive African rocks has led to improved agronomic performance.
3. Nitrogen use efficiency was greatest in the subhumid environments. In very wet years, substantial amounts of applied N are lost in humid regions. In the semiarid environments, up to one-half of the N-applied to crops can be lost as ammonia.
4. In many ecosystems deficiencies of sulfur, magnesium, potassium, and zinc are prevalent. Addition of sulfur to phosphorus fertilizers in some environments doubled the response to phosphorus.

Domestic arrangements were first class, thanks in no small measure to the staff of Direction des Etudes Pedologiques et de l'Ecologie Generale (DEPEG), an institute in the Togolaise Ministry of Rural Management. All delegates felt the 3 days were well spent and commended IFDC and its collaborators for a job well done.

Uzo Mokwunye, Muscle Shoals, USA

ISSS-SSSA WORKSHOP ON SOIL SPATIAL VARIABILITY

Las Vegas, USA, November 30 – December 1, 1984

Attendance far exceeded original expectations for this workshop held in Las Vegas, Nevada during the two days immediately following the American Society of Agronomy 1984 Annual meetings. Over two hundred soil scientists, agronomists, engineers and members of related disciplines participated in the workshop, which was sponsored jointly by the Soil Science Society of America, the Cooperative States Research Service of the USDA, and the International Soil Science Society (Commission I). The program was intended to outline in broad terms our current understanding of soil spatial variability and to identify the next important research steps required to advance that understanding. Even though most workshop participants were involved in their fifth and sixth consecutive days of professional papers and discussions, there was clear agreement that the workshop was a complete success and of great benefit to all attendees.

Workshop organizers D. R. Nielsen (SSSA) and J. Bouma (ISSS) constructed a program consisting of invited papers and extended discussions in four general areas. The resulting one-half day sessions focussed on general statistical concepts of quantifying variability, and upon applications to hydrology, soil survey, miscible displacement and leaching. In each session two of three invited speakers presented 30–45 minute lectures designed as reviews of conceptual models, statistical approaches and experimental methods useful in studies of spatial variation. Each speaker's presentation was followed by an open discussion during which workshop participants were encouraged to present comments based upon their own experiences or were allowed the opportunity to question the speaker. This format resulted in substantial interaction during both the formal sessions and in the relatively private, informal hours that followed. Despite the larger than expected attendance, this worked effectively to generate discussion and exchange of ideas.

The opening half-day session focused on both geostatistics and alternative statistical methods of quantifying spatial variability. A large share of the attendees were familiar with the general concept of geostatistical analysis of variability, yet relatively inexperienced in operational or applied aspects of the methods. Similarly, although a number of attendees were obviously well-trained in classical statistical methods, the application of principles of time series analysis to spatial series was also relatively new to most. It was clear that although a number of scientists want to apply such methods, these scientists must accomplish quite a lot of dedicated study before the subtleties of the techniques will be enough understood that sound scientific application of them will result. It was clear that increased interdisciplinary exchange between statisticians and agronomists, soil scientists, or hydrologists will probably be necessary and advantageous if such techniques are to be employed in the near future. Such cooperative efforts were clearly promoted during the workshop.

The balance of the presentations concerned applications of particular experimental and interpretive methods of relevant real-life problems of spatial variability. It was strongly established that the field of soil classification and morphology has long recognized soil variability and has evolved a conceptual framework for condensing and summarizing that variation. It was stated numerous times that impact upon environmental management will only be made in the long run by relating current efforts on statistical and mathematical interpretation of variability to the many previous soil classification programs. There was also substantial discussion of the relationship between the scale of observation and the scale of measured variability. Whether the objective is stochastic modeling of hydrologic processes, relating soil variation to soil survey

data, or providing maps of plant nutrients (all discussed in the workshop), the influence of sampling density and technique upon estimated variability must be considered.

The workshop accomplished its purpose of establishing the achievements of the last five years worth of study on soil spatial variability. There is obviously much additional work to be done, but the promising results of the initial several years should offer encouragement to all those concerned with such issues. The proceedings of this workshop including the text of all invited papers as well as all comments, questions and replies will soon be published by PUDOC so that a broad range of professionals can benefit from the material discussed.

R. J. Wagenet, Cornell Univ., U.S.A.

Compte-rendu du
IV COLLOQUE PÉDOLOGIE ET TÉLÉDÉTECTION
Wageningen – Enschede, Hollande, 3–9 Mars, 1985

Le 4^{ème} Colloque du Groupe de Travail 'Pédologie et Télédétection' (Soil Science and Remote Sensing) s'est tenu en Hollande à Wageningen puis à Enschede, du 3 au 9 Mars 1985. Il a rassemblé 52 participants venant de 14 pays. Le Comité d'organisation était composé de M. A. Mulders (Université d'Agronomie de Wageningen), F. W. Hilwig (International Institute for Aerospace Survey and Earth Sciences) et de diverses personnes du Netherlands Soil Survey Institute. Les principaux responsables de ce groupe de travail, depuis sa création en 1974, étaient présents: Dr. M. Baumgardner, U.S.A.; Prof. Dr. Girard, France (ancien vice-président et Président); Prof. Dr. Bialousz, Pologne (Président actuel); Dr. Hilwig (vice-président); Dr. Danfors (secrétaire). Nous avons eu la chance de rencontrer le Dr. Sombroek (secrétaire général de L'AISS), et le Dr. Dudal (Président de La Commission V lors de création du Groupe de Travail).

Il y a eu 28 communications réparties en 3 sessions: Visible et proche infra-rouge (13 communications), infra-rouge thermique (5 communications), micro-ondes (8 communications). Deux communications présentaient les programmes futurs aux Etats-Unis et en France.

Das exposés ont montré que divers pays commencent à utiliser la télédétection à des fins de gestions, de mise au point cartographique et de mise en valeur. Plusieurs communications ont porté sur l'utilisation des images Landsat pour les levés cartographiques des sols. Les utilisations classiques du traitement des données issues des bandes magnétiques sont utilisées dans divers pays en voie de développement.

Des diverses communications, il ressort un intérêt de plus en plus grand pour l'interprétation des éléments directement décelables du sol: Matière organique, Calcaire, Fer, Humidité, flux thermiques et rugosité. Les supports de ces études sont des images (Landsat, Thematic-Mapper) ou des photographies aériennes ou spatiales (Spacelab 1) dans le visible ou proche infra-rouge, mais aussi des images dans le thermique prises par avion au satellites (NOAA, Nimbus, Thematic-Mapper...), et des données des micro-ondes.

Les données spectrales donnent une très bonne information en ce qui concerne la surface du sol (visible, infra-rouge) et la subsurface (thermique, micro-ondes). Plusieurs communications ont porté sur ce thème en proposant une meilleure description de la surface du sol. Cette dernière est très mal prise en compte dans la caractérisation des sols durant les levés classiques des sols. Les critères de surface sont presque absents des caractères servant à classer les sols dans les diverses classifications. Ceci est dommageable à la pédologie puisque ces critères sont très importants pour la mise en valeur agronomique et pour la susceptibilité des sols à l'érosion. Il est nécessaire maintenant d'en tenir compte dans les classifications. En effet, tant que l'on observait les sols

sur fosse, on ne pouvait pas prendre en compte ces critères d'une manière correcte. Ceci devient possible avec la Télédétection. Et c'est à partir de ces critères que l'on pourra au mieux définir des unités cartographiques de sol avec les nombreuses couvertures pluri-annuelles par satellites. la Télédétection incite donc à mieux étudier cet horizon très superficiel que constitue la surface du sol: interface dans lequel se joue les échanges d'énergie et de matière entre l'atmosphère et la pédosphère.

Un groupe de chercheurs s'est constitué pour étudier particulièrement cet aspect. Une table ronde a eu lieu à ce sujet. Elle a débouché sur une première série d'éléments à décrire pour analyser la surface du sol.

L'appréhension du relief est possible dès maintenant sur les photographie de Space-lab et bientôt avec les images Spot. On sait l'importance que cela revêt dans l'interprétation des sols. Une nouvelle voie s'ouvre donc pour l'analyse des pédopaysages, qui sont déboucher sur de meilleures interprétations en matière de Cartographie pédologique. Cela allie les méthodologies classiques de la photographie aérienne avec celles du traitement des images satellitaires à petite ou moyenne échelle pour lesquelles le champ de vision utilisable est très grand.

Une attention aux formes des unités interprétées est prise dans des études topologiques. Des algorithmes d'analyse des formes sont à l'étude. Les études diachroniques sont de plus en plus utilisées et permettent de suivre l'évolution de la surface des sols.



Some of the participants of the 4th Symposium of the Working Group on Remote Sensing for Soil Survey: looking up to the blue yonder, where the remote action is.....

En matière spectrale, la bande 1,55–1,75 micromètre de Thematic-Mapper semble pouvoir apporter des informations nouvelles sur les sols. En ce qui concerne le domaine des micro-ondes, des mesures de la constante diélectrique ont été présentées. Cette propriété dépend de la densité du sol, de son humidité, de sa texture, de sa température, de sa capacité d'échange et de sa salinité. Ces mesures ont été faites en laboratoire et sur le terrain. Par contre, les images du SAR 580 et de Seasat ne semblent pas avoir apporté des résultats satisfaisants en cartographie pédologique à moyenne échelle sur l'Angleterre.

Enfin, les Systèmes d'Information Géographiques qui sont en train de se mettre en place semblent pouvoir apporter des renseignements précieux pour ceux qui sont chargés de la mise en valeur des terres. Ces S.I.G. comportent en effet, stockées en bases de données, sous forme cartographique, des informations comportant la géologie, l'hydrographie, la topographie, la végétation, les limites administratives, etc... et les données de Télédétection, à diverses dates. Il est possible de combiner ces diverses informations à la demande et donc d'obtenir des cartes thématiques qui évoluent dans le temps. Ces S.I.G. ont fait l'objet d'une table ronde.

Une excursion a eu lieu entre Wageningen et Enschede sur une zone test pour laquelle un livret guide particulièrement intéressant avait été donné aux participants. Il y a eu deux séances de Posters, l'une à Wageningen, l'autre à Enschede. Des visites de l'I.T.C. ont été organisées. Le Colloque s'est terminé par une excursion dans le Flevo-land où l'on a pu comparer les paysages et les sols avec leurs aspects sur diverses images satellitaires.

M-C. Girard, Grignon, France

WORKSHOP ON ACID TROPICAL SOIL MANAGEMENT

Yurimaguas-Peru and Brasilia, April-May 1985

A workshop on Acid Tropical Soils Management was held at Yurimaguas, Peru and in Brasilia between 24 April and 3 May, 1985. The new International Board for Soil Research and Management (IBSRAM, see ISSS Bulletin no. 64), with EMBRAPA of Brazil and INIPA of Peru organized this workshop in cooperation with USAID, ORSTOM, the US Soil Management Support Services, North Carolina State University and ACIAR from Australia.

The purpose of the workshop was to launch the Acid Tropical Soils Management Network – as one of the four management networks foreseen by IBSRAM. The organisation was in the able hands of Dr. Pedro Sanchez (USA), Dr. Wenceslau Goedert (Brazil), Dr. Pushparajah (Malaysia) and the recently appointed IBSRAM director Dr. Marc Latham (ORSTOM).

The workshop started with a visit to the work being done at Yurimaguas in the Amazon lowland of Peru, to inspect the high- and low-input technology that has been developed overthere, to allow a sustained food crop production on the acid soils of the humid tropics. The workshop discussions were held in Brasilia, after a visit to the Planaltina Cerrado Soil research station nearby.

After reviewing research on acid tropical soils management in various parts of the world, the meeting broke in six working groups which considered various aspects of tropical soil management (pedology and fertility; acidity; phosphorus; tillage and soil surface behaviour; rehabilitation of degraded lands; soil dynamics).

The working group discussions resulted in a first outline for a network programme, in its final form to be submitted to a number of Donor Agencies of funding.

Scientists from 13 countries in the tropics (3 from Asia, 5 from Africa, 5 from Latin America) attended the meeting, as well as representatives of several international institutes, research organisations from industrialised countries and some donor agencies.

W. G. Sombroek, Wageningen, Holland

HISTORY OF SOIL AND WATER CONSERVATION: A SYMPOSIUM

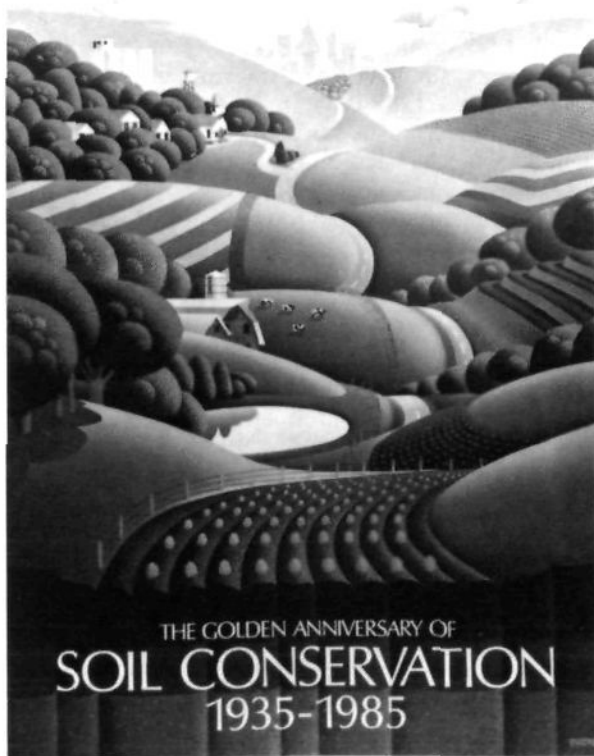
Missouri, USA, 23–26 May, 1984

A symposium on the history of soil and water conservation was held at the University of Missouri, May 23–26, 1984, under the sponsorship of the university, the U.S. Agricultural History Society, and the U.S. Soil Conservation Service. The symposium was one of several events commemorating the 50th anniversary of the soil conservation movement in the United States and the Soil Conservation Act of April 27, 1935, which created the Soil Conservation Service.

All of the papers were of a historical nature, but the multidisciplinary symposium included speakers from the fields of economics, engineering, geography, history, and soil science. Topics included 'A World Review of the Development of Soil Conservation,' by Norman Hudson and 'Soil Conservation in Colonial Africa,' by Michael Stocking. Sandra Batie provided the historical perspective to 'Soil Conservation Policy in the 1980s.' Other speakers' topics described institutional arrangements for providing assistance in soil conservation in the United States, research on erosion by wind and by water, returning crop land to grass land in the 'Dust Bowl', explorations to find erosion-retarding plants, sand dune control, the roles of forestry and anthropology in the Soil Conservation Service, and a review of soil erosion in the eastern United States.

Susan Flader of the department of history at the University of Missouri and Douglas Helms of the Soil Conservation Service coordinated the symposium and edited the symposium volume. The April 1985 issue of the quarterly journal *Agricultural History* will include the seventeen articles and two commentaries from the meeting. The Agricultural History Society will also publish a cloth edition which will be available about April 1985. Inquiries about purchasing copies should be directed to Dr. Morton Rothstein, Editor, Agricultural History Center, University of California, Davis, California – 95616, USA.

D. Helms, Washington



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

ISSS Commission VI

The International Symposium on Mapping of the Soil-Water Balance, scheduled to take place in Budapest-Hungary in August 1985 unfortunately had to be *cancelled*. There has been an such an overwhelming interest to participate, that the local organizing committee – Hungarian Society of Soil Science & Budapest Research Institute of Soil Science and Agricultural Chemistry – has been unable to arrange for the required financial and administrative resources.

Hopefully, a new data and venue for the Symposium can be arranged at the forthcoming Hamburg General Congress.

Prof. Dr. G. Varallyay
Chairman of the Commission

ISSS Commission V

Where else in the world are these environments similar to the ones where you live, or work, or are interested in? And do they also have similar soils? If so, then their behavior to use and management should also be similar. Yes, for must of us, soils are a major clue to transferring information and often times for predicting the outcome of applying technology.

You can be an active participant in helping gather, synthesize, and evaluate soil information at a scale of 1:1 million. As soil scientists we would like to share our knowledge, to expand our own views, and to assist in the wise use of land resources.

There is increasing national and international interest in updating and expanding the soil data base used for the 1:5 million FAO/UNESCO soil map of the world. We now know more and have access to better information. Using digitized mapping techniques, reproduction of sheets will be relatively cheap, and continuous updating becomes a feasible proposition. If you want to be a member of a provisional Working Group to initiate an international effort to provide and share information relevant to a 1:1 million digitized soil resource map, please send your name and address to Dr. Wim Sombroek, ISRIC, P.O. Box 353, 6700 AJ Wageningen, Holland. A first workshop on the subject, with the aim to prepare a feasibility study for such a program, is likely to be held in January 1986.

Although a legend must eventually be developed, at first land divisions based on physiography and materials likely will be used. Areas having similar soil properties (combinations of soil diagnostic features) can be proposed and delineated without reference to a particular soil classification system.

Send us your name and address and any suggestions you wish to offer. Thank you.

Dr. Richard W. Arnold,
Chairman of the Commission

ISSS Working Group IRB

The Working Group for the elaboration of an International Reference Base for soil classification (cf. Bulletin no. 65, page 22, and earlier reports) has started its technical work, although the formal decision of UNEP on funding part of the project is still awaited.

For all 16 Working Committees the respective Convenors have now been identified and all have accepted their nomination. Most names and addresses of these Convenors have already been published in Bulletin 65. The other ones are:

Group 4. *Saline/alkaline soils*: Dr. B. S. Stolbovoy, Dokuchaev Soil Institute, Pyjevski 7, Moscow 17, U.S.S.R.

Group 7. *Umbric and shallow soils*: Dr. P. Vijarnsorn, Soil Survey Division, Department of Land Development, Bangkok, Bangkok 9, Thailand.

Group 9. *Fersialic soils*: Dr. R. Sant'anna, FAO, Regional Soil Resources Office for Africa, P.O. Box 1628, Accra, Ghana.

Group 11. *Andic soils*: Dr. W. Luzio, Facultad de Agronomia, Universidad Chile, Casilla 1004, Santiago, Chile.

Group 15. *Pergelic soils*: Prof. Dr. E. V. Sokolov, Dokuchaev Soil Institute, Pyjevski 7, Moscow 17, U.S.S.R.

Group 16. *Anthropogenic soils*: Prof. Cheng-Fan Xi, Nanjing Institute of Soil Science of the Academia Sinica, P.O. Box 821, Nanjing, People's Republic of China.

All ISSS members interested in contributing to the work of one or more of the Committees are kindly requested to contact the respective Convenors and/or the undersigned (P.O. Box 700562, D-7000 Stuttgart 70, F. R. of Germany).

Prof. Dr. E. Schlichting
Chairman of the Working Group

ISSS Working Group DP

Meeting of the Group on Soil Information Systems at the Hamburg Congress.

Call for short papers

Participants are requested to submit titles and abstracts of short communications to be presented at the Congress. Due to the restricted time available, the number of papers will be limited (8–10). All abstracts will be submitted for scientific review. Communications should fall in one of the following themes:

1. Soil Information Systems
2. Microcomputer Applications
3. Geostatistics and Spatial Analysis
4. Expert Systems

Call for posters

Participants wishing to present posters under any one of the above themes are encouraged to submit abstracts of their posters.

Demonstration of microcomputers software and electronic field recording systems.

Abstracts of recording systems, computer programs and applications (systems costing less than \$ 50,000) may also be submitted. For software demonstration please announce the area needed (for commercial groups the costs may be asked from the organisers) and whether or not you will bring your own hardware. If you need hardware, please state requirements clearly (including operating system) and the organisers will attempt to provide a suitable configuration. But note that the range of machine supportable by local firms is limited.

Excursion to the Soil Survey at Hannover

Intending participants of a half-day excursion for demonstrating and discussing information systems of the Soil Survey of Lower Saxony and other German groups should indicate their interest in time.

Abstracts for short papers, posters and computer demonstration as well as notifications for the excursion should be sent before the general Congress deadline to: Dr. J. Lamp, Institut für Pflanzenernährung und Bodenkunde der Universität, Olshausenstr. 40, 2300 Kiel, Federal Republic of Germany.

ISSS Working Group on the History, Philosophy and Sociology of Soil Science

...YOU MAY BE INTERESTED TO KNOW...

The first volume of materials on the *History of Pedology*, edited by J. Boulaine, has been published as no. 13 of SOLS of the Institut National Agronomique, Paris-Grignon. Prof. J. Boulaine is also collecting material and preparing a volume on *V. V. Dokuchaev*.

Walter Pittman, Professor of History at the Mississippi University of Women, Columbus, is planning a volume on *Eugene V. Hilgard*.

Mr. Kevin Stuart, of the University of Hawaii, is preparing a dissertation on the *history of ideas in soil science*.

Recent numbers of the Bulletin of the International Soil Science Society have included one or two illustrated pages of some historical event in soil science. Additional suitable material is solicited and should be sent to the ISSS office in Wageningen. You may recall that on the occasion of the fiftieth anniversary of the ISSS in 1974 the entire no. 45 of the ISSS Bulletin was devoted to the *history of ISSS* activities and its predecessors from 1909.

An excellent chapter on the *Origins and Early Evolution of Soil Science in Australia*, by C. B. Wells and J. A. Prescott is included in the outstanding volume *Soils: an Australian Viewpoint*, Division of Soils, CSIRO and Academic Press, 1933.

Roy, W. Simonson is publishing a series of articles on the *Historical Aspects of Soil Survey and Soil Classification* in the US in *Soil Taxonomy News*, beginning with no. 6, 1983.

In connection with the 50th anniversary celebrations of the Soil Conservation Service of the USDA a symposium on the *History of Soil and Water Conservation* was held in May 1984 in Columbia, jointly organized by the Agricultural History Society, the Soil Conservation Service, USDA, and the Missouri Cultural Heritage Center. Proceedings will be available in 1985.

Douglas Helms, historian of the SCS-USDA, has prepared several articles on the history of soil conservation, is conducting oral history interviews and building up a reference file on the *history of the Soil Conservation Service*.

The Missouri State Historical Society and the University of Missouri-Columbia maintain a reference file and collection on *Curtis Fletcher Marbut* and will be pleased to receive additional material and information for the collection.

A chapter on the *Historical Development of Soil Taxonomy* by its main originator *Guy D. Smith* (107-1981) is included in the multiauthored book *Pedogenesis and Soil Taxonomy: Concepts and Applications*, published by Elsevier, 1983.

Dr. Yvon Chatelin of ORSTOM-Paris, who in 1979 published the ORSTOM memoir no. 88 on *Une Epistemologie des Sciences du Sol*, edited in 1982 a volume on the same subject with contributions by Z. Z. Marcos, J. Boulaine, J. P. Miller, Y. Chatelin, J. F. Richard, M. Leneuf, B. G. Rozanov and J. Papadakis (Cahiers ORSTOM, Pedologie vol. 19, no. 1).

Earth Science History is a new journal of the History of Earth Science Society which started publishing in 1982, edited by G. M. Friedman. For subscription apply to Ellis Yochelson, Museum of Natural History, Washington, D.C. 20560.

SOIL COLLOIDS AND THEIR ASSOCIATIONS IN SOIL AGGREGATES

Workshop at the University of Ghent, Belgium, September 2-8, 1984

The Working group to promote studies of the 'Nature and Properties of Soil Colloid Surfaces' was proposed at the 11th ISSS Congress in Edmonton in June 1978. Subsequently, at a meeting held in Louvain-La-Neuve on October 4th, 1978 (ISSS Bulletin, 55, 26-29, 1979) an adhoc 'Steering Committee' and a 'Committee at Large' were appointed, and it was decided to request selected authors to present 'Position Papers' outlining what is known and what needs to be known of the composition, structures and surface properties of soil colloidal components. It was suggested that when these papers were received relevant projects might be designed and appeals made to national and to international funding agencies, and to sections of industry for financial support to get them underway. Consideration was given to the eventual setting up of a reference collection of soils and of oxyhydroxide substances.

The 'Position Papers' were published in ISSS Bulletin, 66, 59-88, 1981, but attempts to raise funds for the promotion of research aims were thwarted as the result of the world-wide economic recession.

The Working Group was recognised officially by the ISSS at the 12th International Congress in New Delhi in February, 1982, and an official 'Steering Committee' of nine and a 'Committee at Large', composed of nine persons from Europe, six from the Americas, five from Asia, and three from Australasia, were appointed.

At a meeting held in Louvain-la-Neuve on October 14th, 1982, it was decided that an effort should be made to seek support for a 'Workshop' meeting which would concentrate in depth on aspects of soil colloids and of their associations in soil aggregates. Application for funds was made to the NATO Office in Brussels, under the name of Professor M. F. L. De Boodt (University of Ghent), a member of the Committee of Large. Subsequently application was made also to the EEC, and Professor De Boodt approached the Belgian National Science Foundation and the Belgian Ministry of Education for assistance. All of these Organisations promised assistance, and seven industrial concerns agreed to provide some support and to send observers to the Workshop scheduled for Ghent in September 1984.

The theme of the Workshop 'Soil Colloids and their Associations in Soil Aggregates' was divided into two main parts. The first concentrated on the structures and properties of soil clays, oxyhydroxides, organic colloids, on the association between the colloidal components, and on the behaviour and properties of microorganisms at soil surface.

Views of the structure of the phyllosilicate minerals common in soil clays were provided by G. Brown, and of their properties by A. C. D. Newman, both of the Rothamsted Experimental Station. Information about the formation and properties of oxyhydroxides of iron were provided by R. M. Taylor (CSIRO, Australia) and U. Schwertmann (Tech. Univ., Munich), those of manganese by J. B. Dixon (with co-authors from Texas A and M), and of allophanes and imogolites by V. C. Farmer and J. D. Russell (The Macaulay Institute, Aberdeen). B. A. Goodman (The Macaulay Institute) described applications of Mössbauer spectroscopy for the study of colloidal materials.

Knowledge of the genesis, structure, size and shapes of humic colloids was reviewed by M. H. B. Hayes (Univ. of Birmingham) and R. S. Swift (Lincoln College, Canterbury, N. Z.), and a similar treatment for soil polysaccharides was provided by M. V. Cheshire (The Macaulay Institute) and M. H. B. Hayes. R. G. Burns (The Univ. of Kent) discussed microorganisms and enzymes at soil colloid surfaces.

Interactions with kaolinite of stable and metastable monomeric iron (III) species were outlined by W. E. Stone and A. J. Herbillon (with contributions to the authorship by their colleagues of the Catholic Univ., Louvain-La-Neuve). Organo-alumino polymer associations were discussed by P. M. Huang (Univ. of Saskatchewan), and the difficult subject area of associations between clays, oxyhydroxides, and soil organic substances was dealt with in separate contributions by J. M. Bremner (with co-author D. A. Genrich of the Iowa State Univ) and J. M. Oades (Univ. of Adelaide).

The second part of the Workshop was devoted to water and soil particle associations, and to the stabilization of soil aggregates and the control of erosion. D. Tessier (INRA, Versailles) discussed the behaviour and organization of clay-water systems, and J. J. Tuck and M. H. B. Hayes (Univ. of Birmingham) dealt

with inferences from neutron scattering studies of the structure and dynamics of water at soil colloid surfaces. Methodological approaches to the study of the fabric of soil materials in the presence of varying amounts of water were described by R. Prost and A. Bruand (INRA, Versailles).

A discussion of interparticle forces with reference to the stability of soil aggregates was prepared by J. P. Quirk and R. S. Murray (Univ. of Adelaide) and presented by J. P. Quirk. The contribution on the formation and stability of soil aggregates, prepared by W. W. Emerson (CSIRO, Glen Osmond, S. A.) and D. J. Greenland (IRRI, The Philippines) was presented by Dr. Emerson.

The Ghent group, led by Professor De Boodt dealt with applications of synthetic polymers for the stabilization of aggregates in agricultural soils (M. F. L. De Boodt), in soils for civil engineering purposes (D. Gabriels), and for more efficient use of water under arid conditions (P. Stradiot, also of Cairo, Egypt). A treatise on soil erosion in tropical climates was given by N. Keersebilck (also of Indonesia).

Preprints of the papers and/or extensive outlines for these were provided for the audience. Those who had done their homework for the different presentations, and who had contributions to make to the different sessions were encouraged during the course of the extensive discussion which was allowed for in each Session. Discussion was invariably lively, and 'no holds were barred' where opinions and interpretations differed. In this way the views of the authors were sometimes changed, and emphasis was altered on occasion. The Workshop provided an ideal stage on which to have new concepts and ideas 'refereed' by a well-versed audience.

The authors have taken their manuscripts home for revision in the light of the comments and suggestions put forward during the week-long period of presentation and discussion. Members of the Workshop have been encouraged to continue to study each contribution in detail and to forward to the authors any additional suggestions which they might have as the result of their extended considerations. It is hoped that the final manuscripts will review comprehensively what is known in the different areas, and outline the modern research approaches which are leading to, or are likely to lead to, advancement of knowledge in the different areas. The manuscripts are expected also to indicate what is not known but needs to be known, and to suggest ways in which this needed information might be obtained. Manuscripts will be completed by December 1st, 1984, and the Workshop Organising Committee of M. F. L. De Boodt, M. H. B. Hayes and A. J. Herbillon will act as editors. The publication, by Plenum Press, will be available during 1985.

The varied programme included a field trip to view the results from soil conditioning experiments, where synthetic polymers were used. There were also some very pleasurable interludes. Members were grateful to the Ghent Harbour Authority for a boat tour (with dinner) of the Ghent Harbour area, to the City of Brugge for a splendid banquet, and to the Faculty Club of the University of Ghent who placed their dining facilities at the disposal of the Workshop for a memorable farewell banquet. All expressed their genuine gratitude to Professor De Boodt who made all the local arrangements and was the prime mover in the general fund raising and organisation.

Prof. Dr. M. H. B. Hayes, Birmingham, UK
Secretary of the Working Group

ISSS Working Group PP – INQUA Commission on Paleopedology

Following discussions with a number of colleagues, the Chairman of the Commission has issued a call for collaborators for the preparation of paleopedological maps for specific periods of the Quaternary. Initially it is proposed to prepare small scale paleopedological maps for 18 K years B.P. The purpose of the maps is to show the most probable distribution of the main soil types or soil associations on a regional or continental scale, on the basis of all evidence available. It is proposed to use the CLIMAP base map for the maximum glacial period as base and to construct an appropriate fairly simple legend for the main mapping units. Besides showing the probable distribution of the major soil landscapes, useful for comparison with modern soils, the maps should be suitable for the estimation of the total carbon storage in soils and thus contribute to the evaluation of the effect of glaciation on the carbon budget. A few colleagues have already confirmed their active collaboration.

Address: Dan H. Yaalon, Chairman Working Group PP, Dept. of Geology, Hebrew University, Jerusalem 91000, Israel.

For more information on paleopedology: see the Working Group's Newsletter no. 5 of March 1985, to be obtained from Dr. K. W. G. Valentine, Agriculture Canada, 6660 NW Marine Drive, Vancouver, B. C., Canada V6T 1X2.

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

NEW: Soil Science Society of Cuba

The Institute for Soil Science of the Academy of Sciences of Cuba celebrated its 20th Anniversary on 20–22 February 1985, in the presence of the Deputy Secretary-General ISSS. More than 150 participants attended and nearly 100 papers and communications were presented in the plenary sessions and in 3 working groups:

- Soil genesis and cartography
- Ameliorization and utilization of soils
- Soil chemistry and biology

On the last day of the meeting the Soil Science Society of Cuba was established. Until the National Congress of the Society, which is planned two years hence, the following temporary board will be in charge:

President:	Abilio Cardenas Garcia
Secretary:	Joaquin Hernandez Borroto
Treasurer:	Arnaldo J. Rodriguez Pichardo

Address of the Society: Abilio Cardenas Garcia, Academia de Ciencias de Cuba, Instituto de Suelos, Capdevila, KM 8 1/2, Cuba.

From 8th to 20th April 1985 the Cuban Academia de Ciencias, together with ORSTOM-INRA of France, organized the '1er Seminario científico de Pedología para la región de Centro América y el Caribe' with the title 'Suelo y Agua'.

The meeting was attended by about 100 scientists, mainly from Cuba and France, but also some delegates from Mexico, Nicaragua, Venezuela and Brazil. The Secretary-General ISSS and the Director-General ORSTOM, Dr. Alain Ruellan, participated for a few days.

About 30 papers were presented, followed by round-table discussions on *Las problemas de clasificación de los suelos* and *Fertilidad y utilización de los suelos*. Two days of field studies completed this successful first scientific seminary.

ISSS cordially welcomes the new Cuban Society of Soil Science, and hopes that Cuban soil scientists will fully participate in its international meetings and activities.



New Zealand Society of Soil Science

Officers and Council 1985/86:

President:	Dr. P. J. Tonkin, dept. of Soil Science, Lincoln College, Canterbury
Vice-President:	Dr. R. Lee, Soil Bureau, DSIR, Lower Hutt
Immediate Past-Pres.	Dr. C. W. Childs, Soil Bureau, DSIR, Lower Hutt
Secretary:	Mr. J. G. Bruce, Soil Bureau, DSIR, Lower Hutt
Treasurer:	Dr. T. W. Speir, Soil Bureau, DSIR, Lower Hutt
Council:	Mr. I. B. Campbell, Nelson; Dr. P. E. H. Gregg, Palmerston North; Dr. H. K. J. Powell, Christchurch; Mr. P. R. Stephens, Palmerston North; Prof. R. S. Swift, Canterbury; Mr. J. P. C. Watt, Havelock North.

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

Soil Science Society of America

At the Annual Meeting of the Society in Las Vegas Nev. from 25 to 30 November 1985 – jointly with the American Society of Agronomy and the Crop Science Society of America – the following new Officers were elected:

President:	Prof. Edward C. A. Runge, Dept. of Soil and Crop Sciences, Texas A & M, College Station, Texas
President-elect:	Prof. John Pesek, Dept. of Agronomy, Iowa State Univ., Ames, Iowa
Past-President:	Prof. Donald R. Nielsen, Univ. of California, Davis, California
Acting Executive Vice-President:	Dr. David M. Kral

Drs. G. J. Campbell (Washington State Univ.), R. B. Daniels (SCS), J. G. A. Fiskell (Univ. of Florida), R. L. Fox (Univ. of Hawaii), J. R. Freney (CSIRO – Australia), P. H. Hsu (Rutgers Univ.), T. L. Jackson (Oregon State Univ.), C. W. Ralston (Duke Univ.), J. D. Rhoades (Univ. of Cal.) I. Shainberg (Israel), M. E. Summer (Univ. of Georgia), L. D. Swindale (ICRISAT – India), M. A. Tabatabai (Iowa State Univ.), K. H. Tan (Univ. of Georgia) and A. W. Warrick (Univ. of Arizona) were all elected as Fellows of the Society.

Dr. Morris Schnitzer of Ottawa, Canada, received the SSSA Soil Science Award, Prof. Philip F. Low of Purdue University the Bouyoucos Soil Science Award and Drs. Don Kirkham, Thomas M. McCalla and Wayne H. Scholtes, all of Iowa State Univ., received a Soil Science Distinguished Service Award.

The spring 1985 issue of the SSSA quarterly *Soil Survey Horizons* is devoted to articles on the life and work of Curtis Fletcher Marbut. The articles deal with Dr. Marbut as a geologist, geographer and soil scientist. One article reflects upon Dr. Marbut's Ozark heritage. James Thorp in an article gives his impressions of Dr. Marbut based on their association from 1921 to 1935. There are some old photos of Dr. Marbut in a photo story. A list of unpublished materials of Curtis Fletcher Marbut is chronologized, and there is a curriculum vitae of Marbut. The articles in this issue come from papers presented at the 1983 annual meeting of the Missouri Association of Professional Soil Scientists.

The summer 1985 issue will have an interview with Dr. Thorp conducted in August 1983 titled 'James Thorp Talks About Soil Survey, C. F. Marbut, and China.'

Address of the Society: S.S.S.A., 677 South Segoe Road, Madison, Wis, 53711 USA.

Bodenkundliche Gesellschaft der Schweiz – Société Suisse de Pédologie

Vorstand/Comité 1985–86

Präsident/Président:	Dr. Thomas Mosimann, Geographisches Institut der Universität, Basel
Vize-Präsident/Vice-président:	Peter Lüscher, Inst. f. Holz u. Waldforschung ETHZ, Birmensdorf
Beisitzer/Assesseur:	Dr. Jean-Auguste Neyroud, Station féd. de recherches agron. de Changins, Nyon
Sekretär/Secrétaire:	Dr. L.-F. Bonnard, Eidg. Forschungsanstalt f. landw. Pflanzenbau, Zürich-Reckenholz
Kassier/Caissier:	Alfred Kaufmann, Schweiz. landw. Technikum, Zollikofen

Adresse der Sekretär/Adresse du Secrétaire: Eidg. Forschungsanstalt für landwirtschaftlichen Pflanzenbau, Zürich-Reckenholz, 8046 Zürich, Switzerland.

Bodenkundlichen Gesellschaft der Deutschen Demokratischen Republik

Jahrestagung 1984, zum Thema 'Erhöhung der Bodenfruchtbarkeit auf Moränen- und Moorstandorten'

Vom 21.5 bis 23.5.1984 fand in Schwerin die 15. Jahrestagung und Mitgliederversammlung der Bodenkundlichen Gesellschaft der Deutschen Demokratischen Republik statt.

Moränenstandorte nehmen ca. 50%, Moorstandorte (Histosols) ca. 7,5% der landwirtschaftlichen Nutzfläche der DDR ein. Die Moränenstandorte sind durch folgende Bodenformen gekennzeichnet: Arenosols, Cambisols, Luvisols, Podzoluvisols, Planosols, Gleysols. Im Verlauf der Tagung wurden 3 Plenarvorträge und 35 Vorträge gehalten sowie 20 Posterdiskussionen geführt. Neben ca. 200 Mitgliedern der Bodenkundlichen Gesellschaft der DDR und Gästen aus Forschungseinrichtungen und Praxisbetrieben nahmen auch Vertreter der Bodenkundlichen Gesellschaften Ungarns und Polens teil.

Die Vorträge und Diskussionen wurden in zwei Symposien geführt. Im Symposium 'Standortkennzeichnung und Melioration' wurden Ergebnisse vorgestellt zu Ursachen, Dynamik und Kennzeichnung von Bodenstrukturschäden und Möglichkeiten zu ihrer Beseitigung gezeigt. Damit in Zusammenhang stehend wurden schwerpunktmäßig behandelt: Erosion und Maßnahmen zu ihrer Bekämpfung, Entstehung von Naßstellen und Verfahren zu ihrer Beseitigung, Prozeßablauf auf entwässerten Niedermoorstandorten bei intensiver landwirtschaftlicher Nutzung und Empfehlungen zur standortgerechten Bewirtschaftung. Weiterhin wurden Ergebnisse zur Heterogenität der Bodendecke von Moränenstandorten vorgestellt.

Schwerpunkte des Symposiums 'Ackerbau und Düngung' waren: Einfluß langjährig differenzierter Düngung in Fruchtfolgen auf N-Metabolismus, Humusreproduktion, Kapazitäts- und Intensitätswerte des labilen Bodenphosphats, Verminderung von N-Verlusten bei flüssigen organischen Düngern durch Nitrifizide, Nährstoffauswaschung in Abhängigkeit von Düngerart und -menge, Schutz des Bodens vor Wassererosion, optimale Bodenbearbeitung, Analyse des Einflusses verschiedener Bodeneigenschaften (Bodenfruchtbarkeitskennziffern) auf die Ertragshöhe in Versuchen ohne Eingriff sowie der Einsatz von Kleinflugzeugen zur aerovisuellen Beurteilung von Standortverhältnissen und Bewirtschaftungsintensität. Am letzten Tag der Tagung führte eine Exkursion auf Moränen- und Moorstandorte in die nähere Umgebung Schwerins. An ausgewählten Beispielen wurde die Wirkung von Meliorationsmaßnahmen auf die Beseitigung von Vernässungen und die Veränderung des Bodens gezeigt. Neben einer besseren Kennzeichnung des heterogenen Bodenmosaiks müssen insbesondere acker- und pflanzenbauliche Maßnahmen zur Prophylaxe und eine standortgerechte differenzierte Anwendung von Maßnahmen zur Bodenwasserregulierung auf den Teilflächen durchgeführt werden.

J. Quast, Berlin, DDR

Adresse Sekretariat, Bodenkundliche Gesellschaft der DDR, Krausenstrasse 38/39, Berlin 1086, DDR

Indian Society of Soil Science

The Indian Society of Soil Science, founded in 1934 at Calcutta, celebrated its Golden Jubilee at its present headquarters the Indian Agricultural Research Institute, New Delhi, from December 7 to 10, 1984. Nearly 500 delegates from all parts of India attended these functions. The Chief Guest at the Inaugural function was Rao Birendra Singh, Hon'ble Union Minister of Agriculture, Govt. of India. On this occasion the Society has brought out special publications namely, *Soil Science in India; Cumulative Index of the Journal of the Indian Society of Soil Science, Vol. 1-30, 1953-1982; Nitrogen in Soils, Crops and Fertilizers; Abstracts of Papers and Souvenir*. Eleven scientists were conferred with the Golden Jubilee Honour in recognition of their meritorious service to the Society and to the cause of Soil Science, and two other distinguished scientists were elected as Honorary members.

In the seminar on *Soil Resources and Productivity Management* organised as part of the Golden Jubilee celebrations, about 250 research papers covering all the seven approved commissions of the International Society of Soil Science, were presented and discussed both in poster and oral sessions, held concurrently. Three special lectures delivered by Dr. J. S. Kanwar, Dr. B. P. Ghildyal, and Dr. L. N. Mandal were thought-provoking and were very well received by the audience. Yet another attraction of the celebrations was an exhibition on *Soil Resources and Their Management*, in which leading national institutes and organisations dealing with the soil resources of the country participated enthusiastically with attractive and imaginatively prepared visuals.

The Council of the Indian Society of Soil Science was reconstituted with the following office bearers, for 1985.

President:	Dr. A. B. Ghosh
Vice Presidents:	Dr. J. S. P. Yadav, Dr. G. Dev, Dr. Mahendra Singh
Secretary:	Dr. N. N. Goswami
Joint Secretary:	Dr. T. G. Sastry
Treasurer:	Dr. G. Narayanasamy

Address of the Secretary: c/o Division of Soil Science and Agricultural Chemistry, IARI, New Delhi 110012, India.

Nederlandse Bodemkundige Vereniging

The Dutch Society of Soil Science will celebrate its 50th anniversary on Thursday 7th November 1985 with a special meeting in Wageningen on the theme 'Modern developments in soil science'. Four invited specialists of international standing will deliver review papers, as follows:

- Prof. Dr. D. Nielsen, University of California, Davis, USA on 'Spatial variability studies in soil science'
- Dr. R. Dudal, Leuven, Belgium on 'Soil science and development cooperation'
- Prof. Dr. B. Ulrich, Göttingen, BRD, on 'The role of soils in the biosphere'
- Prof. Dr. Ir. C. T. de Wit, Wageningen, Holland, on 'Application of modelling in soil science'.

A poster session will highlight current research in soil science by the various Dutch institutions dealing with soil-related subjects.

The organisation of the meeting is in hands of a special committee, chaired by Dr. Ir. G. W. W. Elbersen (ITC, P.O. Box 6, 7500 AA Enschede, the Netherlands).

Address of the Secretariat of the Dutch Society: NBV, Oosterweg 92, Haren (Gr.) The Netherlands.

Australian Society of Soil Science Incorporated

The Society has recently appointed a new Federal Executive which will run until June, 1986:

President:	Dr. L. A. Douglas, University of Melbourne, Parkville (ASSSI Representative on the Council of ISSS)
Vice-President:	Dr. J. R. Freney, CSIRO, Division of Plant Industry, Canberra City
Secretary:	Dr. B. L. Finlayson, University of Melbourne, Parkville
Treasurer:	Mr. R. T. Costello, Land Conservation Council, Melbourne
Editor:	Mr. P. Clinnick, Soil Conservation Authority, Kew.

Address of the Secretary: Department of Geography, The University of Melbourne, Parkville, 3052, Victoria, Australia.

Association Tunisienne de la Science du Sol

L'Association a tenu son assemblée générale ordinaire au mois de décembre 1984 et a renouvelé la composition de son bureau. Les résultats des élections sont les suivants:

Président:	Souissi, Ahmed
Vice-Président:	Mami, Abderrahman
Secrétaire Général:	Mhiri, Ali
Secrétaire Général Adjoint:	Aloui, Tahar
Trésorier:	Bahri, Chérif

De même, ce nouveau bureau a décidé de changer *l'adresse* de l'association qui est celle du nouveau secrétaire général: INAT, 43, Av. Charles Nicolle, 10012 Belvédère, Tunis, Tunisie.

Sociedad Venezolana de la Ciencia del Suelo

During the recently held VIII Congreso Venezolano de la Ciencia del Suelo, 4-10 November 1984, the Venezuelan Society of Soil Science elected a new Board for the two-year period 1985-86, as follows:

President:	Prof. Dr. Ildefonso Pla Sentis, Facultad de Agronomía - Universidad Central de Venezuela
Vice-President:	Ing. Agr. Pedro Garcia, Ministerio del Ambiente y de los Recursos Naturales Renovables
Secretary:	Ing. Agr. Julia Gilabert de Brito, Centro Nacional de Investigaciones Agropecuarias - FONAIAP
Treasurer:	Ing. Arg. Reina Goitia, Ministerio del Ambiente y de los Recursos Naturales Renovables
Member:	Ing. Agr. Edgar Amézquita, Fundación Servicio para el Agricultor.
Deleg. Internacional:	Ing. Agr. Pedro Brito

It was also decided that the next IX Congreso Venezolano de la Ciencia del Suelo will be held in 1986 in Maracaibo (Zulia State).

The Venezuelan Society is also in charge of the organization of the 4th International Conference on Soil Conservation, to be held in Maracai, Venezuela from 3 to 9 November 1985.

Address of the Secretariat: Apartado 1208, Santa Rosa, Maracai, Venezuela.

APPOINTMENTS, HONOURS/NOMINATIONS, DISTINCTIONS ERNENNUNGEN, AUSZEICHNUNGEN

Dr. C. **Fred Bentley** of Edmonton-Canada, Past-President of ISSS and at present Chairman of the Boards of ICRISAT and IBSRAM, who is a specialist in soil fertility, crop rotations, fertilizers and plant nutrition, received a honorary Doctor of Science degree from the University of Guelph, Canada.

Mr. **Maurice Purnell** was appointed as Senior Officer of FAO's Soil Resources Group, Dr. **Charles Ofori** as Senior Officer of its Soil Management Group, Mr. **David Sanders** as Senior Officer of its new Soil Conservation Group and Mr. **Jan Hendrik Bruin** as Technical Officer Land Classification, all in Rome.

Dr. **Washington Padilla** of Maracai-Venezuela was appointed as Senior Officer Soils at UNEP's Environmental Management Branch in Nairobi.

Dr. **Gerrit Jan Koopman**, a land and water management specialist from Amsterdam-Holland, was appointed Deputy Director General for Research of ICARDA in Aleppo-Syria; Dr. **Johnny W. Pendleton**, professor of Agronomy from Wisconsin-U.S.A., was appointed Deputy Director General for Research at IITA, Ibadan-Nigeria.

IRRI, the International Rice Research Institute at Los Baños-Philippines, and one of the oldest of the CGIAR group of international agricultural research institutes, is celebrating its silver jubileum this year.

NEW/NOTEWORTHY

World Resources Institute, a center for policy research.

Address: WRI, 1735 New York Avenue, NW Washington, DC 2006, U.S.A.

International Centre for Integrated Mountain Development (ICIMOD)

Address: Prof. Colin Rosser, Director, ICIMOD, 4/80 Jawalakhel, GPO Box 3226, Kathmandu, Nepal.

International Irrigation Management Institute (IIMI), Kandy, Sri Lanka.

Address: P.O. Box 2075, Dr. Thomas Wickham, Director General, Colombo, Sri Lanka.

Anthropological Study Group of Agrarian Systems (ASGAS)

Newsletter 'Culture and Agriculture' *available* on request from: The Editor (C6A), Dept. of Human Ecology, Rutgers University, Cook College, New Brunswick, N7, U.S.A. *or:*

Emilio Moran, Coordinator of ASGAS 1985-87, Dept. of Anthropology, Indiana University, Rawles Hall 108, Bloomington, IN 47405, U.S.A.

The International Center for Soil Conservation Information (ICSI), upon the retirement of its Director Prof. Norman W. Hudson, changed its structure to a reference library or archive of information on soil conservation, particularly non-serial, non-journal publications.

Address: ICSI, The Clock House, 2 Bedford Street, Amptill, Bedford MK45-2NB, England.

PUTTING US OUT OF BUSINESS...?:

International Society for Soilless Culture (ISOSC), formerly the International Working Group on Soilless Culture (Hydroponics).

Address: Ing. A. A. Steiner, Secretary-General, P.O. Box 52 6700 AB Wageningen, The Netherlands.

CELEBRATION DU CINQUANTENAIRE DE L'ASSOCIATION FRANCAISE POUR L'ETUDE DU SOL

La Commémoration du Cinquantenaire de l'Association Française pour l'Etude du Sol (A.F.E.S.), fondée en 1934 à l'initiative et sous la présidence d'Albert Demolon a donné lieu à une série de Manifestations, que se sont déroulées à Paris le 25 octobre 1984 en présence de M. K. Hartge, Président de l'Association Internationale de la Science du Sol (A.I.S.S.).

1) Remise de Médailles de la Ville de Paris à MM. G. Drouineau, S. Henin et G. Aubert.

A l'occasion de ce Jubilé, Monsieur Jacques Chirac, Maire de Paris, a décidé d'honorer l'Association en décernant la Médaille de la Ville de Paris à 3 membres éminents de l'AFES, qui ont été les élèves directs d'Albert Demolon; il s'agit en même temps de 3 personnalités bien connues de l'Association Internationale de la Science du Sol: MM. G. Drouineau, S. Henin et G. Aubert.

La cérémonie officielle s'est déroulée le 25 octobre 1984 à 11 h 30 dans les salons de la Mairie du 8^e arrondissement en présence d'une nombreuse assistance composée de parents, élèves et amis. C'est Monsieur François Lebel, Adjoint au Maire de Paris et Maire du 8^e arrondissement, qui a procédé à la remise des Médailles, après avoir évoqué la vie et les mérites scientifiques des personnalités récompensées. Monsieur George Pedro, Président de l'Association Française pour l'Etude du Sol a alors remercié la Mairie de Paris de l'honneur qu'elle faisait par ce geste à toute la Science du Sol, puis exprimé la gratitude de l'Association aux 3 maîtres éminents qui en suivant le chemin tracé par Albert Demolon, ont assuré ainsi, grâce à leurs travaux, le développement de cette discipline en France.

2) Séance extraordinaire de l'Association

Après une réunion avec la presse, les manifestations du Jubilé se sont poursuivies à 16 h par une séance solennelle dans la salle de conférences du Palais de la Découverte.

La séance a débuté par une intervention de M. Georges Pedro, Président de l'AFES, qui a permis de saluer M. le Président de l'AISS, le Professeur K. Hartge qui s'était déplacé spécialement, ainsi que les diverses personnalités françaises et étrangères présentes à la Manifestation. Il a ensuite brossé un tableau des diverses opérations organisées à l'occasion du Cinquantenaire: Exposition sur les Sols, Edition d'un Livre jubilaire sur la Science du Sol, et Préparation d'un répertoire général des thèses de Science du Sol réalisées en France depuis la fin de la première guerre mondiale. Cette présentation lui a alors permis de remercier tout particulièrement les responsables de chacune des opérations: J. Servant, C. Scoupe, M. C. Girard et V. Eschenbrenner pour l'Exposition; M. C. Girard pour le Livre jubilaire et J. P. Legros pour l'Inventaire des thèses. Cette présentation générale a été suivie d'une adresse du Professeur K. Hartge, qui au nom de l'Association Internationale de la Science du Sol a félicité l'AFES pour tout le dynamisme qu'elle a su montrer depuis sa formation en 1934.

La séance de travail exceptionnelle a comporté 5 interventions:

- une introduction générale: *L'Association Française pour l'Etude du Sol et la Science du Sol au cours du demi-siècle écoulé (1934-1984)*, par M. Georges Pedro, Président de l'Association.
- 3 conférences de base:
 - *La Science du Sol et les Sciences de la Terre*, par M. G. Millot, Président du Comité National Français de Géologie.
 - *La Science du Sol et l'Agronomie*, par M. S. Henin, Membre de l'Académie d'Agriculture.
 - *Pédologie et développement: la Science du Sol française au Service du développement des pays du Tiers-Monde*, par M. A. Ruellan, Directeur Général de l'Institut Français de Recherche Scientifique pour le Développement en Coopération.



La tribune officielle pendant la séance solennelle. De gauche à droite: M. M. Alain Ruellan, Directeur Général de l'Orstom; Georges Millot, de l'Académie des Sciences; Georges Pedro, Président de l'Association Française pour l'Etude du Sol; K. Hartge, Président de l'Association Internationale de la Science du Sol et Stéphane Henin, de l'Académie d'Agriculture de France.



M. François Lebel, Adjoint au Maire de Paris remet la Médaille de la Ville de Paris à M. Georges Aubert. A l'arrière plan, un autre récipiendaire: M. Stéphane Henin.

- enfin les conclusions générales de la séance jubilaire ont été tirées par M. J. J. Herve, Chargé de mission au Ministère de l'Agriculture et représentant Monsieur Michel Rocard, Ministre de l'Agriculture.

La réunion solennelle a été alors clôturée par le Président, qui a convié l'assistance à se déplacer vers la salle 54 du Palais de la Découverte afin de procéder à l'inauguration de l'Exposition.

3) Inauguration de l'Exposition 'Podzols, rendzines et les autres... connaissez-vous les Sols?' (Paris, 25 octobre 1984 – 28 avril 1985)

Après une introduction de M. Michel Hulin, Directeur du Palais de la Découverte, l'exposition a été présentée à la nombreuse assistance par le Président de l'AFES, M. Georges Pedro, qui a alors évoqué brièvement les cinq grands thèmes envisagés:

a) *Le sol, épiderme de la terre*

Evolution des idées et passage de la connaissance populaire à l'approche rationnelle. Acquisition et diffusion des connaissances en France. But et intérêt de la science du sol.

b) *Formation des Sols: Altération et pédogénèse*

Le sol, milieu superficiel et organisé, à la rencontre du monde minéral et du monde vivant. Phénomènes d'altération des roches et de transformation des matières organiques. Modes d'intervention des organismes vivants. Différenciation des profils et développement des épaisses couvertures d'altération (latérites, bauxites...). Les différents niveaux d'organisation.

c) *Distribution des Sols: Prospection et cartographie*

De la prospection de terrain au tracé de la carte pédologique. Les grandes classes de sols, en France et dans le monde. Les différentes échelles d'étude et de représentation. De la notion de type de sol au concept de couverture pédologique continue dans l'espace et dans le temps.

d) *La terre arable: Constitution et propriétés.*

Définitions et dénominations des terres. Nature et propriétés des argiles. Constituants organiques et complexe argilo-humique. Le sol, milieu structuré et poreux.

e) *Gestion et utilisation des sols*

Contraintes (érosion, dégradation, pression humaine...) et potentialités. Utilisation raisonnée de l'espace pour la mise en valeur. Techniques et aménagements agricoles: Fertilisation raisonnée, Préparation du sol et façons culturales, Adaptation de la mécanisation à la gestion des sols, Drainage et assainissement, Irrigation. Le sol, système épurateur. Le sol, matière première.

Puis l'assistance a visité en détail l'exposition, qui est composée de 57 panneaux dont 3 animés, 2 dispositifs informatiques (cartographie automatique et contrôle de l'irrigation), 5 dispositifs expérimentaux: altération et érosion expérimentales, action des vers de terre, mise en évidence des carences et caractérisation rapide des terres. 5 vitrines, 7 monolithes et enfin 3 diaporamas consacrés respectivement aux principaux types de sols du monde, aux organismes du sol et à l'utilisation de la télédétection en pédologie; au total, 78 sites.

Après la visite de l'exposition, le jubilé s'est terminé par un cocktail amical, qui a réuni près de 400 personnes. En définitive, une belle journée, qui fait l'honneur de l'A.F.E.S., mais surtout à la Science du Sol en général.

IN MEMORIAM

Prof. Dr. I. P. Gerasimov, Academician of the Academy of Sciences of the USSR (1905–1985)



Prof. Dr. I. P. Gerasimov, the outstanding Soviet soil scientist and geographer, who is well known not only in the USSR but also abroad, died after a heavy illness on 30 March, 1985. The international community of soil scientists suffered an irreparable and grievous loss.

Born December, 9, 1905 in Kostroma, he received his early education at the geographic faculty of the Leningrad State University. Since 1926 I. P. Gerasimov was employed at the Dokuchaev Soil Institute first in Leningrad and then in Moscow, where he became the head of the department of soil geography and cartography. In 1936 he obtained a doctorate for his researches in Central Asia. In 1946 under his guidance the chair of soil geography was organized at the geographic faculty of Moscow State University, which was headed by him till 1956. Since 1943 I. P. Gerasimov worked at the Institute of Geography of the USSR Academy of Sciences.

In 1951 he was appointed Director of this Institute and he was active in that position to the very end of his life. In 1946 I. P. Gerasimov became corresponding member and in 1953 academician of the Academy of Sciences of the USSR.

Prof. Dr. I. P. Gerasimov was esteemed and widely recognized as a prominent soil scientist who took all the best advanced views in studies of soils and continued the V. V. Dokuchaev's creative legacy together with his disciples such as S. S. Neustruev, L. I. Prasolov, and E. N. Ivanova.

Being a man of brilliant gift and great erudition Prof. Dr. I. P. Gerasimov was noted for his inexhaustible industry and enormous devotion to the science. His knowledge in soil science, geography, ecology, geomorphology and paleogeography was generally recognized. A great impact was provided by his contribution relating soil cartography, genesis of loesses, and studies of soils in several regions of the USSR. He first advanced the idea of the soil-bioclimatic belts of the world and formulated the idea of a multitude of structures of the vertical zonality. Prof. Dr. I. P. Gerasimov was also known as a founder of the teaching about the elementary soil processes and about the relative and absolute age of soils. His original investigations of soils and the soil cover in different countries made his fame as a talented scientist and a great friend to many researchers throughout the world.

Prof. Dr. I. P. Gerasimov was always faithful to his principles and ideas and has performed great services for the soil science in establishing new soil types especially podzolic, pseudopodzolic, and pseudogley ones. His scientific contribution was found to draw nearer different approaches to soil studies, adopted in the Soviet Dokuchaev school of soil science and in the soil science schools of other countries.

For many years Prof. Dr. I. P. Gerasimov was President of the All-Union Society of Soil Scientists, Vice-President of the International Geographic Society and honorary member of numerous foreign academies and scientific societies. He took part in many international congresses of the ISSS, was its Vice-President during the period 1968–1974, and was always very active in solving the most important problems of present-day soil science.

The Soviet soil scientists suffer grief at the loss of this exceptionally active and outstanding man in many respects. His works and monographs, which are numbered more than 1000, and his scientific contribution to soil science and geography will be in memory within all the living men and his bright image will remain forever in the hearts of all who knew him.

All-Union Society of Soil Scientists, Moscow, USSR.

Prof. Dr. Ir. Jakob Bennema (1920–1985)

To our deep regret, Professor Dr. Ir. J. Bennema died suddenly on the third of January, 1985, at the age of sixty-four. On the 17th January he was to have delivered his Valedictory Lecture at Wageningen University entitled, 'The Earth and Mankind; the Vision of a Tropical Soil Scientist'. Sadly, Bennema did not live to experience the pleasure and recognition associated with such an official farewell.

Bennema completed his studies at the Agricultural University in Wageningen, The Netherlands in 1946, and his field of study was 'Tropical Forestry'. Bennema's whole life, even from boyhood, was dominated by his intense interest in nature. He managed to develop his youth hobby, which was nature study, into a voca-

tion. Besides in pedology, he was also interested in plant sociology and ecology.

During his scientific career we can define three periods:

Firstly a Dutch Period (1946–1956). Employed by the Netherlands Soil Science Institute, he studied the Holocene soil genesis in the western part of the Netherlands; most of his results still prove to be of extreme importance. This period also resulted in 1954 in an excellent Thesis under the guidance of Professor Dr. C. H. Edelman, entitled 'Soil and Sea-level Movements along the Netherlands Coast'. This was followed by a study of the peat found in the central part of the Netherlands and of sea-clay soils.

Secondly, an international period (1956–1966). As FAO advisor to the Brazilian Soil Survey Division, Bennema contributed to the national soil classification system and the small-scale soil mapping of large parts of Brazil. Together with his Brazilian colleagues, he acquired international recognition in the area of tropical soil science. His insight and judgment were of great importance for the development of the Legend of the FAO-UNESCO Soil Map of the World, as well as for the classification of Oxisols, Ultisols and Alfisols in the USDA Soil Taxonomy.

To the very end of his career, Bennema remained an active participant in international congresses and as a member of scientific committees. He was a member of the Scientific Board of the ITC, the Dutch Advisory Committee of ISRIC, the International Committees on Classification of Alfisols and Ultisols with Low Activity Clays and on the Classification of Oxisols.

In 1973, Bennema was presented with an Honorary Distinction by the Brazilian Society of Soil Science for his contribution towards the furtherance of the knowledge of Brazilian Soils. His jovial manner and amicable way with his colleagues enabled him to make many friends and to gain much respect in Latin America.

His third period (1966–1984) was dedicated to the transfer of knowledge as a professor. This period began at the International Institute for Aerial Survey and Earth Sciences (ITC) where he was responsible from 1966 to 1971 for soil mapping and



the use of aerial photos in agriculture. This combination illustrates Bennema's ecological approach to soil science. During this period, he was also closely involved in the development and application of the FAO Framework for Land Evaluation.

In 1971 Bennema became Professor in tropical soil science at the Agricultural University of Wageningen. Until 1984, the year of his retirement, he supervised six doctor degrees. The subjects, ranging from numerical soil classification to the application to land evaluation in nature reserves in East Africa and the role of termites in soil formation, show the extent of Bennema's field of research.

His involvement in the students' field work in Kisii and Kilifi, densely populated agricultural areas in Kenya, accentuated Bennema's interest in detailed research and the relationship between the soil and mankind. The responsibility of man, and of soil scientists in particular, to provide a careful use and management of the land evolved from a professionally ethical question for Bennema into the vital question of life's meaning and destination.

Our deepest sympathies go to his wife who was always such a great support to him, and to their children for whom he was a considerate father. The life of a highly intelligent and eminent soil scientist has come to an end. Bennema's great wisdom, interest and helpfulness will remain in the memories of his colleagues and students, both within the Netherlands and abroad, who had the privilege of knowing him and the honour of working with him.

K. J. Beek, Enschede, Holland.

Dr. John R. H. Coutts (1901-1984)

'Jack' Coutts as he was affectionately known to close relatives and professional colleagues was born in Birmingham, England 8.6.1901 and died in hospital at Aberdeen on 18.9.1984.

His first post was as assistant to Dr. later Sir Bernard Keen, Head of the Physics Department at Rothamsted Experimental Station, where he soon established a high reputation as a skilled, hard working experimenter: the first 11 of his 41 scientific publications are the fruits of just three years at Rothamsted before he moved to South Africa in 1926 on appointment to a lectureship in Physics at the University College of Natal in Pietermaritzburg. He remained in the post for 25 years, being promoted to Senior Lecturer in 1934 and professor in 1948. He resigned in 1951 to accept the appointment to a lectureship at Aberdeen, Scotland in the newly established Department of Soil Science and was actively involved in the planning of the new accommodation for Soil Science, opened in 1952.

Dr. Coutts retired in 1971, during his 20-years in the Department he pioneered at teaching and research programme in soil physics, and was promoted to Senior Lecturer in 1965.

Throughout his academic life he was well liked by colleagues and students alike, and graduates of Aberdeen speak most fondly of him. He will be sadly missed.

(adapted from: Newsletter no. 6, British Society of Soil Science)

Prof. H. S. Gibbs (1914–1984)

One of the pioneer workers in soil science in New Zealand, Professor H. S. (Harry) Gibbs died recently in Hamilton at the age of 70.

Harry was born in Petone and educated at St Patricks College, Wellington and at Victoria University where he completed a Master of Science degree in chemistry.

On graduation in 1936, Harry joined the Department of Agriculture laboratories in Kelburn working as a soil chemist. In 1937 he joined the then Soil Survey Division of D.S.I.R. as a pedologist.

In the early 1940's he was transferred to Wellington as District Pedologist where he was responsible for the Wellington-Wairarapa part of the reconnaissance soil survey of the North Island and played a large part in ensuring its publication as Soil Bureau Bulletin 5.

In 1957 Harry was appointed as Chief Pedologist of the Soil Bureau and was responsible for the planning and supervision of soil surveys throughout New Zealand and in the Pacific Islands.

Harry made a valuable contribution to the New Zealand Society of Soil Science as a Council member from 1956–66 and as President in 1963–64. In recognition of this he was elected to life-membership in 1983. His long association with the Institute of Agricultural Science on Council led to his election to Fellowship of the Institute in 1970.

In 1970 he was appointed Reader in Earth Sciences at Waikato University. To this position, he brought his wealth of experience on the soils of New Zealand and overseas and imbued his students with a feeling and understanding of soils and the environment, which served them in good stead in the many fields they took up.

During his career, Harry brought an almost missionary zeal to his work. He regarded a knowledge and understanding of the soils as a necessary and vitally important component of any land utilisation issue and stressed that, to be successful and lasting, land use had to be matched to the characteristics and potentials of the soils.

(adapted from: New Zealand Soil News 32)

Dr. Howard L. Penman

Dr. Howard Penman died on October 13th 1984 after a short illness. Dr. Penman was an active member of the British Society and a one time Council member. He will be long remembered for his work to define the rates of evaporation from soil and crops and, in consequence, providing the theoretical basis for hydrological water balances and irrigation schemes.

Dr. W. Peters (1922–1984)

It is with great regret that we record the passing of Bill Peters on 31 August 1984 in Denver, Colorado, USA.

He was born in 1922 and graduated in 1947. He worked as a soil scientist for the US Bureau of Reclamation till 1977 and for the World Bank till April 1984.

Dr. Peters was known for his publications on soil investigations for irrigations. He has had a long association with FAO and has participated in several of its experts consultations and the preparation of various technical publications. He was always interested and helpful in assisting the developing countries to make better use of their land and water resources. He will be missed by the many friends around the world.

(adapted from FAO's Land & Water, Dec. 1984)

INTERNATIONAL TRAINING COURSES/COURS INTERNATIONAUX DE FORMATION/INTERNATIONALE FORTBILDUNGSKURSE

LONG COURSES (more than three months duration):

Post-graduate Courses in the Application of Aerospace Photography and other Remote Sensing Techniques in Natural Resource Survey, ITC, Enschede, The Netherlands

One-year courses, starting in September/October in several fields of earth sciences and land resources, e.g. soil survey (with specialisation possibilities in soil erosion and conservation; land evaluation, and remote sensing); geological survey with emphasis on either hydrogeology or engineering geology; applied geomorphological survey; forest survey; rural and land ecology survey; survey integration for resources development; information systems (new).

Possibility of follow-up to 1-1½ year M.Sc. course and further Ph.D. studies. The ITC also offers, among others, courses in Cartography at technician, technologist and post-graduate level.

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

Information: ITC Student Registration Officer, P.O. Box 6, 7500 AA Enschede, The Netherlands.

MSc-Course in Soil Science and Water Management, Wageningen, The Netherlands

This 2-year course, leading to an MSc-degree, provides an academic training directed towards subjects with are of direct importance for agricultural development. One of the following three programmes may be chosen: Land Evaluation and Agropedology; Soil Fertility and Soil/Plant Analysis; Water Management (Irrigation, Drainage, Agrohydrology).

Admission requirements: BSc-degree in Agronomy or related disciplines, fair knowledge of the English language. An entrance examination forms part of the selection procedure.

Total costs, including board, lodging, insurance, books, fees and excursions about Dfl 55,000.- per two years. A restricted number of fellowships is available for applicants from developing countries through the Netherlands Embassies.

The next course will start in August 1987. Applications (with copies of BSc-degree, Academic Transcript etc.) not later than January 1st, 1987.

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

Postgraduate Courses in Soil Science, Univ. of Reading, Dept. of Soil Science, U.K.

1) MSc Course in Soil Science

Programme: A one- or two-year course with options in:

- a) Pedology and Soil Survey based on the principles of pedology with emphasis on soil genesis, the conduct of soil surveys, and case studies from a wide range of countries and environments;
- b) Soil Chemistry and Fertility based on the mineralogy and chemistry of soils, management of soil fertility and fertilizer use, and special problems of acid, alkaline, saline, waterlogged soils, soils of variable charge; emphasis on practical work;
- c) Soil Water Management based on physical principles of soil/plant water relations and agricultural meteorology; emphasis on field problems in rainfed environments and field measurements of water supply.

2) MPhil and PhD programmes are available.

Courses start about 1 October.

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

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

This 2-year course, open for candidates mainly from developing countries, with a B.Sc., B.A. degree or a comparable education in one of the earth sciences, consists of an introductory part in the first year, and specialization in the second year with the following orientations: (1) soil genesis and classification, (2) soil physics and chemistry. This course leads to a M.Sc. degree in soil science. A 1-year course, consisting partly of introductory and partly of advanced courses, leads to a diploma of advanced studies in soil science. Languages of the course are English and French.

Information: The International Training Course for Post-graduate Soil Scientists, Krijgslaan 281, B-9000 Gent, Belgium

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

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

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

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

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

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

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

The annual international course on Land Drainage (1985–24th course), given from August to December, has the objective to provide the physical and agricultural backgrounds of drainage and to present the main aspects of design, construction and maintenance of field drainage systems. The course is offered jointly by the International Agricultural Centre and the International Institute for Land Reclamation and Improvement (ILRI).

Other annual courses at IAC are: International Course on Dairy Cattle Husbandry (March-June), International Course on Applied Plant Breeding (March-June), International Potato Course (April-July), International Course on Rural Extension (June-July), International Course on Plant Protection (July-November), International Course on Vegetable Growing (August-November). Occasionally ad-hoc courses are organized in different subjects. IAC acts as a host to the International Course for development oriented Research in Agriculture (ICRA: January-August).

Information: The Director, IAC, P.O. Box 88, 6700 AB Wageningen, The Netherlands.

International Course in Hydraulic Engineering, Sanitary Engineering, in Hydrology and in Environment Science and Technology, Delft, The Netherlands

These courses are intended to promote the transfer of experience and know-how in the field of science and technology related to water and the environment to professionals, especially from developing countries. The 11-month study programme offers lectures, laboratory work, workshops, project work and field studies. The courses are conducted in the International Institute for Hydraulic and Environmental Engineering. IHE in Delft.

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

M.Sc. Courses in Soil Science and Water Management, Silsoe College, England

The course in Soil and Water Engineering is designed for graduates (or equivalent) in engineering, agriculture and other subjects who are interested in agricultural development and are keen to learn how engineering skills can be applied to agricultural problems at field or farm level, in the UK and overseas.

Within the MSc programme there are opportunities to take as alternatives to the general course, specialist options in: drainage and reclamation; irrigation engineering; and soil conservation.

Duration: 1 year (2 year programme available for those not qualified for direct entry to the MSc)

The course in Irrigation Water Management is designed to provide the technical, economic and management skills required by those involved in the operation and management of irrigation schemes.

Duration: 1 year (2 year programme available for those not qualified for direct entry to the MSc).

The course in Land Resource Management and Planning is designed to meet the needs of those working or intending to work in land resource survey and evaluation or rural and agricultural planning, as planners or land use officers or in project teams.

Duration: 1 year.

The course Applied Remote Sensing is a new course which is being offered in response to the increased need for trained specialists in interpretation and analysis of sensor information to achieve improved management of the earth's resources.

The programme is designed for graduates (or the equivalent) working or intending to work in the UK or overseas in natural resource development or in other fields where the application of remote sensing can effect improvements in the management of resource development.

Duration: 1 year.

All courses start in October each year and lead to a M.Sc. degree or post-graduate diploma. Also specialist short courses are available.

Information: The Student Recruitment Executive, Silsoe College, Silsoe, Bedford, MK45 4DT, England.

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

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

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

Cours de 3e cycle en Protection de l'Environnement, EPFL, Lausanne, Suisse

L'Ecole polytechnique fédérale de Lausanne (EPFL) organisera à partir de janvier 1986 un nouveau cours de 3e cycle en protection de l'environnement. Le cours a une durée de 15 mois et est subdivisé en deux parties indépendantes: une formation générale de 6 mois (étude théorique) et un travail de recherche individuel (étude pratique) d'une durée de 9 mois dans l'une des 4 orientations suivantes: protection des sols; écologie des polluants, génie biologique; génie sanitaire.

Le programme est offert aux titulaires d'une grade universitaire scientifique ou technique d'établissement supérieurs suisses ou étrangers de niveau comparable au diplôme de EPFL.

Information: Prof. L. Y. Maystre, Inst. du génie de l'environnement, EPFL-Ecublens, CH-1015 Lausanne, Suisse.

Cours de D.E.A. Fédéral de Pédologie, Paris, France

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

Information: I.N.A.-P.G., 16, rue Claude Bernard, 75231 Paris Cedex 05, France.

Cours post-universitaire sur l'Aménagement intégré des Territoires, Paris/Montpellier/Toulouse, France

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

Information: Commission française pour l'Unesco, 42 Avenue R. Poincaré, 75116 Paris, France.

International Course on Land Water Development, Cairo, Egypt

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

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

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

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

During the course the following subjects are given: the fertility of soils; the nutrition of plants; the soil-plant relation; cultivation techniques; production and use of fertilizers; special crops. Language of the course is Spanish and its duration five months.

Information: Secretaria del Curso Internacional de Fertilidad de Suelos y Nutrición Vegetal, Serrano, 115 bis, 28006 Madrid, Spain.

International Course in Irrigation Engineering, K.U. Leuven, Leuven, Belgium

The program is a joint initiative of the Faculties of Agricultural Sciences and Civil Engineering of the Catholic University at Leuven. The purpose of the program is to train agricultural and civil engineers in advanced irrigation and management of irrigated land. Special emphasis is put on quantitative approaches, for which computer facilities are available. All courses are given in the English language. The course includes lectures, exercises and project design, and a study tour to Southern Europe.

Two types of programs, a 1- and a 2-year cycle, are available. Applicants for the 2-year MSc-program must possess BSc-degree in agriculture or in civil engineering. During the 2nd year of their study the graduate students are requested to do an individual research project (thesis). Qualified participants will be awarded a degree of Master in Irrigation Engineering. Applicants for the 1-year postgraduate program must possess a MSc-degree in agriculture or in civil engineering or an equivalent degree. The diploma of Engineer in Irrigation will be awarded to those candidates that complete the examination tests successfully.

Both programs start on the first monday of October.

Information: Course Coordinator, Irrigation Engineering, Kardinaal Mercierlaan 92, B-3030 Leuven (Heverlee), Belgium.

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

The objective of the course, leading to a M.Sc. degree, is to train the participants in developing the land and water resources within the social economical and cultural conditions of Latin-America and the Carribbean. The following courses are given: 'Riego y Drenaje de Suelos Agrícolas', 'Planificación y Desarrollo de los Recursos Hidráulicos', 'Obras Hidráulicas'. The duration of the courses is six trimesters and the language Spanish.

Information: CIDIAT, Apartado 219, Merida, Venezuela.

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

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

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

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

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

Information: Dr. Idris R. Traylor, International Center for Arid and Semi-Arid Land Studies, Texas Tech. University, Lubbock, Texas 7940—9, U.S.A.

Postgraduate Training Course in Irrigation and Soil Conservation, Nairobi, Kenya

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

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

International Irrigation Course, Bari, Italy

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

Information: The Director, International Centre for Advanced Mediterranean Agronomic Studies (ICAMAS), Instit. di Bari, Via Geglie, 23—70010 Valenzano (Ba), Italy.

Post-graduate Course in Soil Science, Maracay, Venezuela

This course is aimed to prepare students and professionals at the levels of M.Sc. and Ph.D., with capabilities for creating, planning and executing work on basic and applied research in Soil Science, and to relate research with management, conservation and use of soils in tropical environments.

These objectives are obtainable through a set of basic and optative courses, and the completion of individual research work.

The official language is Spanish, but a broad instrumental knowledge of English is required.

Information: Universidad Central de Venezuela, Facultad de Agronomía, Comision de Estudios para Graduados, Curso de Postgrado en Ciencia del Suelo, Avda. Principal el Limon, Apartado Postal 4579, Maracay, Estado Aragua, Venezuela.

M.Sc. Course in Soil Conservation, Institute of Irrigation Studies, University of Southampton, U.K.

A 12-month course covering the disciplines involved in soil erosion and land reclamation. The course is designed to give students a sound knowledge of the physical, agricultural and socio-economic aspects of soil conservation.

Information: The Academic Registrar, The University, Southampton SO9 5NH, U.K.

Post-graduate Training Course in Soil Science, Agricultural University, Aas, Norway

This 10½ months course, starting in August each year and open for candidates with B.Sc. Åg. or B.Sc. degree from developing countries, is aimed to provide theoretical and practical training in the field of soil science and is sponsored by the Norwegian Agency for International Development (NORAD) which provides fellowships to the students.

The course leads to a post-graduate diploma. NORAD, however, provides fellowships to students from East Africa for completion of M.Sc. degree at any recognised university in East Africa provided they have successfully completed the diploma course at Aas.

The course program covers a number of subjects, such as soil physics and management, soil fertility and plant nutrition, soil chemistry, soil survey, soil classification and soil resources, soil analysis, general and soil microbiology, soil and water engineering, radio-isotopes techniques in soil and plant research, and statistics. The language of the course is English.

Information: Dr. B. R. Singh, Coordinator International Post-graduate Program in Soil Science, Box 28, 1432 Aas-NLH, Norway.

Formation Spécialisée en Agrometeorologie, Arlon, Belgique

Les cours sont dispensés à Arlon, à la F.U.L., à partir du 15 septembre de chaque année académique. Ils s'étendent sur une période de 12 mois pour l'orientation longue préparatoire à la Maîtrise en Science de l'Environnement et sur une période de 6 mois, à partir du 10 janvier pour l'orientation courte préparatoire au Certificat en Agrométéorologie.

Information: Fondation Universitaire Luxembourgeoise, Arlon, Belgique.

Training course in Soil and Plant Analysis, at the Royal Tropical Institute, Amsterdam, The Netherlands

A 6 month course designed for non-graduate laboratory assistants with an emphasis on practical work. It aims to give participants the necessary skills needed for the most frequently required soil and plant material analyses and for the technical management of small and medium size laboratories engaged in such activities.

The course is based on a number of internationally recognized analytical methods and procedures used for soil mapping, soil fertility assessments, etc. together with recommendations for the proper use of fertilizers. It includes practical training, theoretical background studies and special subjects.

Information: The Course Coordinator, Soil and Plant Analysis, Royal Tropical Institute (KIT), 63 Mauritskade, 1092 AD Amsterdam, The Netherlands.

International Course on Range Management and Extension, Logan, U.S.A.

The International Range Management and Extension Shortcourse is a six month nondegree training course to provide knowledge and experience in the fields of range management and extension.

The shortcourse is taught annually. Participants should plan to arrive in Logan in the last week of March. The course will conclude the last week of September.

Information: Suzanne Blakely, Conference and Institute Division (UMC 50 A), Eccles Conference Center, Utah State University, Logan, Utah 84322, U.S.A.

Interuniversity Post-graduate Programme in Hydrology, Free University of Brussels, Belgium

First year: leading to a Diploma in Hydrology or a Certificate.

Second year: leading to a Master's degree in Hydrology.

The programme is located at the Faculty of Applied Sciences, Free University Brussels (VUB) in Brussels and is supported by the Universities of Antwerp, Ghent and Leuven.

Courses start on September 1st of each year. English is the medium of instruction. Students who obtained a Bachelor's degree (BSc. or Eng.) or its equivalent (Licence) will be considered for admission.

Information: Prof. Dr. Ir. A. van der Beken, Director of the Hydrology Programme, Laboratory of Hydrology, Vrije Universiteit Brussel, Pleinlaan 2, B-1050 Brussels, Belgium.

SHORT COURSES (duration three months or less):

Courses in Soil and Plant Analysis, University of Reading, England.

One or more six-week courses in Soil and Plant Analysis are held annually in Reading, England during the summer (April-September). The courses are offered jointly by the Department of Soil Science, University of Reading (Professor Alan Wild) and the Tropical Soils Analysis Unit of the Land Resources Development Centre, ODA (Mr. Richard Baker).

The courses are aimed at giving experienced, practising analysts in soil science and plant nutrition greater understanding of the management of a modern agricultural analytical laboratory, including building design, sampling procedures, general and specific analytical techniques, simple instrument maintenance and interpretation of data. At least fifty per cent of the course is spent on practical work and visits to agricultural laboratories of major commercial companies and research institutions are included. The fee will cover accommodation which will be in Halls of Residence at the University.

Information: Dr. A. A. Jones, Department of Soil Science, University of Reading, London Road, Reading, RG1 5AG, England.

International Course on Soil Reference Collections, ISRIC, Wageningen, the Netherlands

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

The course is held in April-May each year.

Information: the Director, ISRIC, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

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

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

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

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

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

Information: ISTOM, CHCI Quai George V, 76600 Le Havre, France.

Courses in Project Planning, Bradford, England.

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

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

College of Soil Physics, International Centre for Theoretical Physics, Trieste, Italy.

The course, held April–May each year, is intended for students and professionals in the engineering, agricultural and environmental sciences. Some fellowships are available.

Information: Dr. D. Gabriëls, Dept. of Soil Physics, State University of Ghent, Coupure links 635, B-9000 Ghent, Belgium; Dr. E. Skidmore, Wind Erosion Research Unit, Kansas State University, Manhattan, Kansas 66506, U.S.A.

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

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

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

Short Course on Climate and Desertification, International School of Climatology, Erice, Sicily, Italy.

This international Course, devoted to 'The Climatological Aspects of Desertification: Facts, Theories and Methods' will be held at the Ellore Majorana Centre for Scientific Culture, Erice-Trapani, Sicily, Italy in October annually. This interdisciplinary course is open for graduate and post-graduate students in environmental sciences. Some fellowships are available.

Information: Dr. R. Fontechi, Course Director, Commission of the European Communities, Environment Research Programmes (DG12), Rue de la Loi, 200 B, B-1049 Brussels, Belgium.

Short Courses on Irrigation and Drainage, Utah, USA.

A number of short courses (3–6 weeks) in English and Spanish are organized each year by the International Irrigation Center. The courses include a large number of subjects in the field of irrigation and drainage, and also soil and water conservation.

Information: International Irrigation Center, UMC 83-B, Utah State University, Logan, Utah 84322, USA.

Curso Internacional de Riego Localizado, Tenerife, Spain

El curso se celebrara en el Centro Regional de Investigacion y Desarrollo Agrario del Instituto Canario de Investigaciones Agrarias, sito en Valle de Guerra, en el Norte de la Isla de Tenerife.

Programme del Curso: (Septiembre – Noviembre)

I. Relaciones Agua-Suelo-Planta-Atmosfera; II. Caracteristicas mecanicas e hidraulicas de los componentes de una instalacion; III. Calculos hidraulicos; IV. Manejo y evaluacion de instalaciones; V. Diseno de Instalaciones; VI. Ejemplos.

Information: I.N.I.A. Direccion técnica de Relaciones Cientificas, Cursos Internacionales, José Abascal, 56, 28003 Madrid, Espana.

Short Course in Modelling of Agricultural Production: Weather, Soils and Crops, Caracas, Venezuela.

This two-weeks post-graduate Course, taking place on November 21 to December 3, 1985, is organized jointly by the Foundation for Post-Graduate Courses of the Agricultural University of Wageningen and the World Meteorological Organization of Geneva, with co-sponsoring by FAO.

The course is intended for persons from developing countries, preferably from the humid tropics, who in their professional careers can apply the acquired skills in the field of agricultural planning, research and extensions. The modelling approach developed by the Centre for World Food Studies will be taken as guideline.

Other short post-graduate courses are: 'Simulation and systems management in crop protection' in Wageningen, the Netherlands, in the period October 14–26, 1986, and 'Simulation of plant growth and crop production' in Sofia, Bulgaria in the period June 24 – July 6, 1985.

Information: Dr. Ir. H. van Keulen, CABO, P.O. Box 154, 6700 AA Wageningen, the Netherlands.

Course in Soil and Plant Analysis, Ibadan, Nigeria.

The objective of the 5-week course is to train senior laboratory technicians and technologists in the management, methodology, instrumentation and techniques for soils and plant analysis with special emphasis on soils and crops of the tropical regions.

Also short courses on Soil Conservation and Alley-Cropping are available.

Information: Director IITA, Oyo Road, PMB 5320, Ibadan, Nigeria.

Curso de Ordenacion del Territorio, Lérida, Spain

1. Restauracion de suelos en areas mineras. 2. Ordenacion de zonas de montana. Lérida, Spain, Mayo cada anno.

Information: Dr. J. Porta, Department of soil science. E.T.S.I. Agronomos. Ctra. de Huesca, km. 3, Lérida, Spain.

Course on Data Collection, Analysis, and Projections in Fertilizer Sector Studies, Muscle Shoals, Alabama, U.S.A.

The program aims at: 1. Data collection, including sources and sampling methods. 2. Data analysis techniques including use of computer and analytical methods. 3. Making fertilizer demands projections.

The training program will be held in April annually. Also other training courses are available.

Information: International Fertilizer Development Center, P.O. Box 2040, Muscle Shoals, Alabama 35662 – 1040, U.S.A.

**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

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9th World Forestry Congress, Mexico City, Mexico, July 1-12, 1985.

Information: 9th Congresso Forestal Mundial, Comité Organizador, Progreso 5, Edificio 2, Mexico, D.f. 04110, Mexico.

***International Symposium on 'Soil Fertility, Soil Tilth and Post-clearing Land Degradation in the Humid Tropics**, Ibadan, Nigeria, July 21-26, 1985 (ISSS Commissions IV and VI, Soil Science Society of Nigeria). Earlier announced as 'International Conference on Land Clearing and Post-clearing Management for Soils of the Humid Tropics'.
Information: Dr. E. J. Udo, Dept. of Agronomy, Univ. of Ibadan, Ibadan, Nigeria.

***Intercongress Excursion on Soil Mineralogy and Genesis in SE and SW USA: Pre-AIPEA Trip**, July 21-27, 1985 (ISSS Commission VIII).

Information: Dr. J. B. Dixon, Dept. of Soil Science and Crop Sciences, Texas A & M University, College Station, Texas 77843-2474, USA.

8th International Clay Conference, Denver, USA, July 28-August 2, 1985 (AIPEA).

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

11th International Conference of Soil Mechanics and Foundation Engineering, San Francisco, U.S.A., August 1985.

Information: Dr. R. H. G. Parry, Secretary-general ISSMFE, University Engineering Department, Trumpington Street, Cambridge CB2 1PZ, England.

International Workshop on Hydrologic Applications of Space Technology: Input to Hydrologic Models and Geographic Information Systems, Florida, August 1985 (IAHS and WMO).

Information: A. J. Johnson, ICRSDT, 7474 Upham Court, Arvada, CO 80003, U.S.A.

FEMS Symposium on Microbial Communities in Soil, Copenhagen, Denmark, August 4-8, 1985.

Information: Dr. Anne Helweg, National Research Center for Plant Protection, Flakkebjerg, DK 4200 Slagelse, Denmark.

International Conference on Science and Technology Education and Future Human Needs, Bangalore, India, August 8-15, 1985 (ICSU-CTS).

Information: J. L. Lewis, Malvern College, Malvern, Worcestershire, England.

***9th International Colloquium on Soil Zoology**, Moscow, USSR, August 12-21, 1985 (ISSS Working Group ZO and IUBS)

Information: Acad. Prof. M. S. Ghilarov, Institute of Evolutionary Animal Morphology and Ecology, Leninskij Prospekt 33, Moscow 117071, USSR.

13th International Congress of Biochemistry (IUB), Amsterdam, the Netherlands, August 25-30, 1985.

Information: R. L. Hill, Biochemistry Department, Duke University Medical Center, Durham, NC 27710, U.S.A.

IX Congreso Latinoamericano y III Congreso Colombiano de la Ciencia del Suelo: 'Conservación de Suelos de América Latina', Palmira, Colombia, Agosto 26 al 30 de 1985. (see Announcement in this Bulletin, page 2).

Information: Dr. Francisco Silva M., Secretario Ejecutivo, A.A. 51791 Bogotá, Colombia.

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

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

International Symposium on Problems of the Stratigraphy and Paleogeography of Loesses, Lublin, Poland, September 1985.

Information: Prof. H. Maruszczak, Dept. of Physical Geography, Univ. Marie Curie-Skłodowska, Adademiczna 19, 20'-033 Lublin, Poland.

Seminar on Advances in Agroforestry, Turrialba, Costa Rica, 1–11 September 1985.

Information: Dr. J. Heuvelodp, CATIE, Turrialba, Costa Rica.

22nd IUBS General Assembly & Scientific Symposia, Budapest, Hungary, September 1–7, 1985.

Information: IUBS Secretariat, 51, Bd. de Montmorency, 75016 Paris, France.

6th National Conference on Soil Science, Nitra – Czechoslovakia, September 2–6, 1985.

Information: Dr. B. Jurani, Organizing Committee of the National Conference on Soil Science, Research Institute of Soil Science and Agrochemistry, Rožňavská, 23, 823 69 Bratislava, Czechoslovakia.

6th Meeting of the East African Sub-Committee for Soil Correlation and Land Evaluation (FAO), Maseru, Lesotho, October 9–17, 1985.

Information: Mr. R. Sant-Anna, FAO Regional Soil Resources Office for Africa, P.O. Box 1628, Accra, Ghana.

7th International Symposium on Environmental Biogeochemistry, Rome-Viterbo, Italy, Sept. 8–13, 1985.

Information: Prof. G. Giovannozzi Sermanni, Istituto Chimica Agraria Università, 01100 Viterbo, Italy.

Annual Meeting of the British Society of Soil Science, Cambridge, September 9–12, 1985. Theme: Soils and Environmental Problems.

Information: Dr. B. W. Bache, Department of Applied Biology, University of Cambridge, Cambridge, England.

International Conference on Advanced Technology for Monitoring and Processing Global Environmental Information, London, UK, September 9–13, 1985.

Information: Center for Earth Resource Management Applications, P.O. Box 2787, Springfield, VA 22152, USA.

30th International Congress of Pure and Applied Chemistry (IUPAC), Manchester, U.K., September 9–13, 1985.

Information: T. S. West, Macaulay Institute for Soil Research, Craigiebuckler, Aberdeen, AB9 2QJ, U.K.

International Conference on Acidic Precipitation, Muskoka, Canada, September 15–20, 1985.

Information: Secretariat Muskoka Conference '85, 112 St. Clair Avenue West, suite 303, Toronto, Ontario M4V-243, Canada.

1st International Conference on Geomorphology: Geomorphology, Resources, Environment and the Developing World, Manchester, UK, September 15–21, 1985.

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

International Symposium on the Scientific Basis for Water Resources Management (IAHS/IUGG), Jerusalem, Israel, September 19–23, 1985.

Information: Kenes, SBWAM, P.O. Box 50006, Tel Aviv 61500, Israel.

***International Symposium on the Assessment of Soil Surface Sealing and Crusting**, Ghent, Belgium, September 23–27, 1985.

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

European Symposium on Integrated Rural Development, Wageningen, the Netherlands, September 24–25, 1985.

Information: Prof. Dr. L. van der Plas, Dept. of Soil Science and Geology, P.O. Box 37, 6700 AA Wageningen, the Netherlands.

Symposium on Water and Nutrient Movement in Forest Soils, Hampton Beach, U.S.A., September 29 – October 3, 1985.

Information: Robert S. Pierce, USDA Forest Service, P.O. Box 640, Durham, NH 03824, U.S.A. or Dr. Hans Keller, Swiss Federal Institute for Forestry Research, CH-8903 Birmensdorf, Switzerland.

International Symposium on Bauxite Prospecting and Mining, organized by the International Committee for the Study of Bauxite, Alumina and Aluminium (ICSOBA), Tapolca, Hungary, October 2–5, 1985.

Information: J. Gebhardt Mining, P.O. Box 30, H-1287 Budapest, Hungary.

1st National Congress of Soil Science of Pakistan on 'Managing Soil Resources to Meet National Challenges', Faisalabad, Pakistan, October 6–8, 1985.

Information: Mr. Nisar Ahmad, National Fertilizer Development Centre, House No. 37, Street No. 11, F-6/3, Islamabad, Pakistan.

Symposium on the 'Coupling of Carbon, Water and Nutrient Interactions in Woody Plant-Soil Systems', Knoxville, Tenn., U.S.A., October 6–11, 1985.

Information: R. J. Luxmoore, Environmental Science Division, Oak Ridge, TN 37831, U.S.A.

3rd IGCP International Seminar on Laterite, Tokyo, Japan, October 14–17, 1985.

Information: Dr. Y. Ogura, c/o the Mining and Metallurgical Institute of Japan, 5–4 Ginza, 8-chome, Chuo-ku, Tokyo 104, Japan.

International Conference on Arid Lands: Today and Tomorrow, Tucson, Arizona, October 21–25, 1985.

Information: Dr. G. P. Nabhan, Office of Arid Land Studies, University of Arizona, Tucson, Arizona 85721, USA.

International Symposium on Ecology of the Development of Tropical & Subtropical Mountain Areas, Chengdu, China, October 21–25, 1985.

Information: Jiang Youxu, c/o Zhu Jing, Ecological Society of China, 7 Zhongguancun Rd., Beijing, 100080, China.

19th International Symposium on Remote Sensing of Environment, Ann Arbor, Michigan, U.S.A., October 21–25, 1985.

Information: ERIM/Remote Sensing Center, P.O. box 8618, 3300 Plymouth Road, Ann Arbor, Michigan 48107, U.S.A.

***4th International Conference on Soil Conservation: Soil and Water Conservation to prevent Food Shortage**, Maracay, Venezuela, November 3–9, 1985 (co-sponsoring by ISSS Subcommittee C).

Information: Prof. Dr. S. Pla Sentis, Soc. Venezolana de la Ciencia del Suelo, Apartado 1208, Santa Rosa, Maracay, Venezuela.

7th Meeting of the West African Sub-Committee for Soil Correlation and Land Evaluation (FAO), Ouagadougou, Burkina Faso, November 8–16, 1985.

Information: Mr. R. Sant-Anna, FAO Regional Soil Resources Office for Africa, P.O. Box 1628, Accra, Ghana.

International Workshop on Sand Transport and Desertification in Arid Lands, Khartoum, Sudan, November 18–29, 1985 (earlier announced as 'International Symposium on Desertification').

Information: International Centre for Theoretical Physics, Workshop on Sand Transport and Desertification, P.O. Box 586, I-34100 Trieste, Italy, or Dr. M. H. El-Hassan, Dept of Mathematics, Unit of Khartoum. Shambat-Khartoum, Sudan.

Soil Compaction Symposium (at ASA, CSSA, SSSA annual meetings), Chicago, U.S.A., December 1–6, 1985.

Information: Ward Voorhees, Chair, Division S-6, USDA-ARS, North Central Soil Conservation Research Laboratory, Morris, MN 56267, USA.

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

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

International Symposium on Erosion and Sedimentation in Arab Countries, Baghdad, Iraq, February 15–19, 1986.

Information: Dr. D. E. Walling, President ICCE, Department of Geography, University of Exeter, Exeter, Devon, EX4, 4RJ, UK.

***Regional Symposium on Properties and Management of the Red Soils of East and Southern Africa**, Harare-Zimbabwe, February 24–27, 1986 (see this Bulletin, page 3).

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

***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; earlier announced for 1985; see p. 15, Bull. 65).

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

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 Rodriguez Clemente, National Museum of Natural History, CSIC c/José Gutiérrez Abascal, 2, 28006 Madrid, Spain.

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, SO9 5NH, U.K.

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.

***International Workshop on Quantified Land Evaluation Procedures**, Washington-USA, April 28–May 2, 1986 (see this Bulletin, page 4).

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

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.

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.

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.

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 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 Conference on the Management and Fertilization of Upland Soils, Nanjing, China, September 7–11, 1986.

Information: Prof. Xie Jian-chang, Institute of Soil Science, Academia Sinica, P.O. Box 821, Nanjing, People's Republic of China.

14th International Congress of Microbiology, Manchester, U.K., September 7–13, 1986.

Information: Prof. S. Glover, Dept. of Genetics, Univ. of Newcastle, Ridley Bldg., Newcastle Upon Tyne, NE1, 7RU, U.K.

18th World Congress 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, Czechoslovakia, September 8–15, 1986.

Information: Stavebni Geologie, Praha, Gorkého namesti 7, 11309 Praha 1, Czechoslovakia.

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 Wilmet Court, Bethesda, MD 20817, U.S.A.

14th International Botanical Congress, West Berlin, FRG, July 24 – August 1, 1987.

Information: Dr. W. Greuter, Königin-Luise-Strasse 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.

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.

NEW PUBLICATIONS NOUVELLES PUBLICATIONS NEUE VERÖFFENTLICHUNGEN

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

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

Die Titel neuer Veröffentlichungen sind hier zu Information angeführt. Bitte richten Sie Ihre Bestellungen nicht an das IBG Sekretariat sondern an den Buchhandel oder direkt an die Verlage. Fast alle Veröffentlichungen sind jedoch zu besichtigen an der Stelle der IBG, p/A Internationales Bodenreferenz und Informations Zentrum (ISRIC) im Wageningen, Holland.

Advances in Soil Science, volume 1. B. A. Stewart, editor. Springer-Verlag, New York, Berlin, Heidelberg, Tokyo, 1985, 300 p. ISSN 0176-9340. ISBN 0-387-96027-9 (USA), 3-540-96027-9 (FRG).

This volume is the first of a new series. The diversity of soil makes it necessary for research to be conducted in many locations. There are basic principles, however, that are universal. This new series will present clear and concise reviews in all areas of soil science for everyone interested in the basic resource and man's influence on it.

The purpose of the series is to provide a forum for leading scientists to analyze and summarize the available scientific information on a subject, assessing its importance and identifying additional research needs. But most importantly, the contributors will develop principles that have practical applications to both developing and developed agricultures. It is not the purpose of the series to report new research findings because there are many scientific journals for that need. Communications in scientific journals, however, are generally restricted to short and technical presentations. Therefore, this series fills a gap between the scientific journals and the comprehensive reference books in which scientists can delve in depth on a particular subject relating to soil science.

The ultimate aim of the series is to stimulate action – action to determine where there are arable soils, action to develop technology for more efficient crop production on these soils, action to reduce the risk of degrading these soil resources, and action to determine on which soils our research efforts should be concentrated. Without such action, the task of producing adequate food in the future may simply be too great. By the time the world gets reasonably close to population stability, demands for food and other agricultural products could be three times present levels.

There are many audiences to reach. While intended primarily for scientists and students of soil science, this series will also provide technical information for anyone interested in our natural resources and man's influence on these resources. The review will be written by leading scientists from many countries, and will therefore provide the reader with information from a wide array of conditions. Such information will be particularly useful to professionals working in areas with developing agricultures because the reviews will summarize and assess the significance of the technical literature.

Price: US\$ 40.00.

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

Water and Salt Regimes of Soils: Modelling and Management. E. A. Sokolenko, editor-in-chief. Translated from Russian by R. K. Mishra, revised and enlarged edition. A. A. Balkema, Rotterdam, 1984, 246 p. ISBN 90-6191-425-6.

Mathematical models describing the migration of moisture and salts in the soil layers are given in the present publication. The region between the exposed surface and the water-confining stratum, the aeration and total saturation zones have been examined, and the influence of pressure heads is studied. A mathematical description of the processes of heat and mass transfer helps in resolving certain problems related to water-salt regime management in amelioration and exploitation of irrigation projects.

Specialists working in the areas of soil physics and ameliorative hydrogeology would find the present volume of great interest.

The author has specially prepared a revised and enlarged version of the original Russian text for the English translation.

Price: Rs. 125 or Dfl. 60.00, hardbound.

Orders to: In India: Oxford and IBH Publ. Comp., 66 Janpath, New Delhi 110001, India. In U.S.A. and Canada: A. A. Balkema Publishers, P.O. Box 230, Accord, MA 02018, U.S.A. Elsewhere: A. A. Balkema, P.O. Box 1675, 3000 BR Rotterdam, The Netherlands.

Booker Tropical Soil Manual. J. R. Landon, editor. Longman, London and New York, 1984, 450 p. ISBN 0-582-46049-2 (cased).

Soil and land evaluation surveys have long been recognised as prerequisites for effective development of agricultural resources in the tropics and subtropics, but their usefulness has often been lessened by faulty design and poor presentation. During the last eight years the staff at Booker Agriculture International have developed and continuously revised a manual on tropical soil surveying which bridges this gap, and whose latest version is now available. The manual is a comprehensive and practical handbook providing clear guidelines for interpretation of soil and land evaluation data used in project planning, costing and management. The editor and team of authors concentrate on those aspects of development studies handled by soil scientists as members of multiple sectorial projects. This is an authoritative compilation of methods relevant to the soil scientist in the field, for whom it is primarily intended as a practical source book, with a quantitative orientation. It will also be welcomed as a valuable reference work on soil and related studies for members of other disciplines including geography, agriculture, planning and development studies. It will be especially useful to those requiring information for purposes such as proposal compilation, project planning, survey implementation and practical interpretation of soil and land suitability reports.

Price: £ 25.00 + £ 1.15 for postage.

Orders to: Margaret Waite, Longman, Pinnacles, Harlow, Essex, England CM19 5AA. In the U.S.A.: Longman, 19 West 44th Street, New York, NY 10036, U.S.A.

Agroclimatological Data – Données Agroclimatologiques. Africa – Afrique. Directed by M. Frère. FAO, Rome, 1984. Volume 1. Countries north of the equator. ISBN 92-5-001412-0. Volume 2. Countries south of the equator. ISBN 92-5-001413-9.

Over the past ten years a considerable amount of agroclimatological information has been collected by FAO. This information, which now covers well over 3000 stations in the developing countries, has served as a base for many recent FAO documents, in particular the agroclimatology surveys, the report on the agro-ecological zones and the activities derived from this project. This data base is also used in the framework of agrometeorological crop monitoring and forecasting activities at FAO Headquarters and by member countries. Last but not least, an increasing demand for agrometeorological information by many specialists and institutions has made the publication of this information necessary. In a first stage, two volumes are presented dealing with the data for Africa; these will be followed by volumes dealing with Latin America and Asia.

The present publication for Africa presents in the forms of monthly and yearly tables the average values of the main agroclimatological parameters which have been used in recent FAO studies on land-use development. These data pertain to the main observing stations and are grouped by country. The total number of the stations taken into consideration is about one thousand.

In addition to these average values, rainfall has been given particular attention and synthetic monthly rainfall probability tables are presented in the second part of the study for some 110 stations, giving a fairly uniform coverage of the main agroecological zones.

The countries cited in each of the two volumes (Vol. I: northern part, Vol. II: southern part) are delineated by a line formed by the northern boundary of the following countries: Gabon, the Republic of Cameroon, Zaïre, Uganda and Kenya.

Price: US\$ 40.00 for both volumes.

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

Experience with three tillage systems on a marine soil. II: 1976–1979. Westmaas Research Group on New Tillage Systems. Agricultural Research Reports 925. Pudoc, Wageningen, 1984, xi + 263 p., 126 tables, 102 fig. ISBN 90-220-0855-X.

During 1976–1979 the concluding part of a field experiment was conducted which has been started in the autumn of 1971 on a marine loam soil (22% clay) at Westmaas Experimental Husbandry Farm. Three tillage systems were compared in a four-year crop rotation: potatoes – winter wheat + undersown grass – sugar beet – spring barley + undersown grass. In loose-soil husbandry, primary tillage was 25 cm ploughing for all crops and secondary tillage and sowing or planting were combined into one pass to reduce traffic intensity and therefore compaction. In no-tillage, primary tillage was omitted and either only a seedbed was prepared or, in an alternative crop rotation with seed grass – winter wheat + undersown grass – field beans – spring barley + undersown grass, direct drilling was performed. In rational tillage, primary tillage was ploughing to 25 cm depth (for sugar beet) or to 15 cm depth (for potatoes), or fixed-tine cultivation to 15 cm depth (for cereals). In late winter, the effect of tillage-induced changes in soil mineral nitrogen content was assessed by sampling the soil profile to 1 m depth. Crop response to fertilizer nitrogen was studied by means of five annual nitrogen levels and three perennial nitrogen levels.

Price: Dfl. 73.50.

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

Soil Groups of New Zealand. Parts 6 and 7. New Zealand Society of Soil Science.

The main function of the NZSSS 'soil group' issues is to present the current 'state-of-play' in relation to the soil groups under discussion. They attempt to present what is known at the date of issue about classification, definition, distribution, properties and use. The first five parts are concerned with: 1. Yellow-Brown Pumice Soils; 2. Yellow-Brown Sands; 3. Gley Soils; 4. Organic Soils; and 5. Podzols and Gley Podzols (see Bulletin 63, p. 72). New parts are: 6. Yellow-Brown Loams, 1982, 114 p., price NZ\$ 12.00 and 7. Yellow-Grey Earths, 1984, 123 p., price NZ\$ 12.00. Prices include surface mail charges, prepayment required. These 'soil group' publications are printed for limited distribution and only a few copies are left.

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

Bibliography of the Soils of the Tropics. Vol. V. Tropics in General and Tropical Mainland Asia, Pakistan, Nepal and Bhutan. A. C. Orvedal, U.S.D.A. and A.I.D., Washington, 1983, 316 p.

Items in this bibliography were extracted from the bibliographic cards in a file maintained by the soils staff of the Soil Conservation Service supplemented by searching at the National Agricultural Library, both of the U.S. Department of Agriculture.

The purpose of this bibliography is to make relevant contents of this file readily available to university researchers and others who may find the information useful.

Collection of citations are mainly about soils outside the United States, and collectively, they contribute to knowledge about the geography of soils. Not only citations to soil maps are included in the collection but also thousands of references, which, even though without maps, contribute to an understanding of soils – their distribution, characteristics, classification, environment, and use. Because of the interest in soil environment and use, the collection includes some citations to references on geology, geomorphology, landforms, vegetation, climate, and land use that contribute to the knowledge about soils of an area and aid in the prediction of kinds of soils, or at least some of their characteristics, where soil maps based on field work are lacking.

The collection is short on references that do not contribute, either directly or by inference, to geographic information about soils. Hence, citations about fertilizer technology, soil chemistry, soil physics, soil microbiology, etc., generally are not included unless they also have some relevance to soil geography.

Price: Free of charge.

Requests to: U.S. Agency of International Development, Office of Agriculture, Washington, DC 20523, U.S.A.

Field Guide to Soils and the Environment. Applications of soil surveys. G. W. Olson. Chapman and Hall, New York, London, 1984. ISBN 0-412-25960-5 (cased); 0-412-25970-2 (paperback).

Soils are fragile resources, yet they often suffer poor management in many farming enterprises, urban development projects, and deforestation schemes. However, there is a growing recognition of the importance of soils, and soil survey data are playing a significant role in providing information to those involved in environmental management. This book presents a comprehensive field guide to soil survey interpretations. It has been designed to accompany the author's textbook *Soils and the Environment* (1981, same publisher, see Bulletin 61, p. 61) and will lead the reader into field studies, laboratory work, and cartographic manipulations. The book is divided into three parts. The first provides an introduction to the language of soil survey interpretations and the criteria by which soils are rated for different purposes. Part II deals with the applications of soil surveys in systems of wide usage. The final part describes principles governing the applications of soil survey interpretations in the future.

The book addresses itself to all those involved in teaching, or learning about, soil surveys. Thus it will be used by university students, professors, and employees of government and private agencies interested in land resources. The material is presented as a series of exercises that range across the broad spectrum of techniques useful in soil survey applications.

Price: US\$ 33.00 (cased); \$ 18.95 (pbk)

Orders to: Chapman and Hall, 733 Third Avenue, New York, NY 10017, U.S.A.; or: 11 New Fetter Lane, London, England EC4P 4EE.

Erosion and Productivity of Soils Containing Rock Fragments. SSSA Special Publication Number 13. J. D. Nichols, P. L. Brown and W. J. Grant, editorial committee. Soil Science Society of America, Madison, 1984, 103 p. ISBN 0-89118-773-1.

For many years agricultural producers have had the opportunity to be highly selective when choosing land for production. Today's producers are not as fortunate. New roads, homes, shopping centers, and office complexes are taking prime agricultural land out of production. As a result, producers must look to less suited land that contains rock fragments. It is these soils, fragmented with rocks, which represent a significant portion of our land resources to be increasingly used for food and fiber production. This new publication presents current information on classification of soils containing rock fragments; their extent and distribution in the United States; effect of rock fragments on soil productivity, water movement, and available water; and effect on erodibility.

Price: US\$ 12.00, plus \$ 0.75 per book for all orders outside the U.S.A. Prepayment required.

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

Soils of the World. Vol. I. Soil Families and Soil Types. M. A. Glazovskaya. (Translated from the 1972 Russian edition by C. M. Rao.) Amerind Publ. Comp., New Delhi, 1983, 214 p.

The last decade has witnessed the publication of a wealth of information on the genesis, properties and geography of soils of territories whose soil cover was until recently very little known.

Examination of the new material from the standpoint of Dokuchaevian concepts of soil science has led the author to many generalizations. The first two chapters of this book are devoted to the theory of the soil formation processes and general principles of soil classification. These chapters include a general scheme of soil formation and major trends in the soil formation process with which the formation of soil families and soil types is associated. Subsequent chapters contain a systematic description of the widely distributed principal soil families and the soil types. The author examines the conditions of formation and genetic peculiarities, describes the macro- and micromorphology of the soil profile, lists the principal physico-chemical and chemical properties of soils and gives an overall evaluation of their fertility. The system of land use has been discussed. The global distribution of individual soil families is illustrated by a series of very schematic maps.

Price: US\$ 19.00 or Dfl. 48.00.

Orders to: see below.

Soils of the World. Vol. II. Soil Geography. M. A. Glazovskaya. (Translated from the 1973 Russian edition by C. M. Rao.) Amerind Publ. Comp., New Delhi, 1984, 401 p.

This is a continuation of the author's book *Soils of the World - Soil Families and Soil Types*. This independent textbook discusses many general concepts. The author has formulated patterns that sum up our present knowledge of soil geography. Such are the concepts of mega- and microstructures of the soil cover of the earth, landscape-geochemical areas, types of soil-geochemical associations, and types of pedo-genetic regions. Laws have been formulated for the geographical variability of soil families and the multiplicity of zonal soil types.

Price: US\$ 23.00 or Dfl. 65.00.

Orders to: In India: Amerind Publ. Comp., 66 Janpath, New Delhi 110 001, India. In U.S.A. and Canada: A. A. Balkema Publishers, P.O. Box 230, Accord, MA 02018, U.S.A.. Elsewhere: A. A. Balkema Publishers, P.O. Box 1675, 3000 BR Rotterdam, The Netherlands.

Fundamentals of Soil Dynamics. B. M. Das. Elsevier, New York, Amsterdam, 1983, 399 p. ISBN 0-444-00705-9.

During the past two decades, considerable progress in the area of soil dynamics has been made. Soil dynamics courses have been added or expanded for graduate-level study in most universities. The knowledge gained from the intensive research conducted all over the world has gradually filtered into actual planning, design, and construction process of foundations of structures.

This text on soil dynamics has been developed partly out of the author's notes prepared for teaching an introductory course for graduate students. In developing this text, simplicity of presentation for clear understanding of beginners has been the main consideration. For that reason, a major portion of the text has been assigned to the treatment of fundamental concepts of the subjects under consideration. Also, more recently developed materials have been drawn out of published literature and incorporated in the text. A number of worked-out problems and a list of references have also been included.

Price: US\$ 39.65 or Dfl. 110.00.

Orders to: Elsevier Science Publishing Comp., 52 Vanderbilt Avenue, New York, NY 10017, U.S.A.. Outside North America: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

The Agricultural Engineering Index 1971-1980. American Society of Agricultural Engineers, St. Joseph, 204 p.

This index lists over 10,000 books, articles, and technical papers published by selected agricultural engineering technical societies. Indexed by subject. Also available: Index 1907-1960 and Index 1961-1970.

Price: US\$ 19.50, 3 volume set with index 1907-1960 and index 1961-1970: US\$ 29.50. Add 10% for orders outside North America.

Orders to: American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085-9659, U.S.A.

Advances in Infiltration. Proceedings of the National Conference on Advances in Infiltration, Chicago, December 1983. American Society of Agricultural Engineers, 1983, 385 p. ASAE Publication 11-83. ISBN 0-916150-58-5.

The latest information on the art and science of measuring and modeling the movement of water into the soil is now available in a one-volume proceedings. The thirty-six papers and twenty-three poster session abstracts, make-up this publication and cover subjects such as: physics of infiltration, measurement of infiltration, applications in watershed hydrology, and special infiltration problems. This valuable proceedings will be useful to anyone involved in the field of infiltration.

Price: US\$ 27.50 plus 10% for orders outside North America.

Orders to: American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085-9659, U.S.A.

Pollutants in Porous Media. Ecological Studies 47. B. Yaron, G. Dagan and J. Goldshmid, editors. Springer-Verlag, Berlin, Heidelberg, New York, 1984, p. ISBN 3-540-13179-5 (Germany); 0-387-13179-5 (U.S.A.).

The unsaturated zone is the medium through which pollutants move from the soil surface to groundwater. Polluting substances are subjected to complex physical, chemical and biological transformation while moving through the unsaturated zone and their displacement depends on the transport properties of the water-air-porous medium system. Pollution caused by human activities, agriculture, and industry, has brought about a growing interest in the role of the unsaturated zone in groundwater pollution. Due to the complexity and the multidisciplinary nature of the subject, it is being investigated by specialists from various scientific disciplines, such as soil physicists, chemists, biologists, and environmental engineers. This state of affairs has motivated the initiative taken by the Water Quality Commissions of IUPAC (the International Union of Pure and Applied Chemistry) and IAHS (the International Association of Hydrological Sciences) to convene an international workshop, which was held in Bet-Dagan, Israel in March 1983.

Each chapter of the book relates to a different aspect of the unsaturated zone. Due to the limitations of time and extent of the workshop, these chapters are by no means comprehensive discussions of the various topics. They merely bring into focus a few recent developments which necessarily reflect the interest and preferences of the participants at the workshop. The main purpose of the workshop, however, was to bring together a group of specialists from different and separate disciplines and to further the exchange of views which is indispensable to a thorough understanding of the pollution process. The book is of interest to a wide group of readers; it gives an up-to-date picture of recent developments in the many areas of research involved in the study of the behaviour of pollutants in the unsaturated zone. With its inclusion of newly developed models and case studies, it will prove an important reference work for all those involved in soil studies and groundwater quality control.

Price: DM. 139.00.

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

Soils – Facts and Concepts. D. Schroeder. Translated from German by P. A. Gething. International Potash Institute, Bern, 1984, 140 p. ISBN 3-906535-01-0.

It has been a very good idea to translate this practical pocket-size notebook on soil science into English. It treats in a concise form the components, structure, physical and chemical properties, and the development and types of soil. It has many illustrative graphs and some colour pictures.

Price: Sw. Frs. 18.00 or US\$ 9.00 plus mailing charges.

Orders to: International Potash Institute, P.O. Box 121, CH-3048 Worblaufen-Bern, Switzerland.

Aid for the Development of Irrigation. I. D. Carruthers, editor. Report on the Development Assistance Committee Workshop on 'Irrigation Assistance', Paris, September 1982. OECD, Paris, 1983, 166 p. ISBN 92-64-12539-6.

As part of its broader concern with improving aid effectiveness in the priority sector of agriculture, the Development Assistance Committee of OECD held an informal workshop on 29–30 September 1982, on the lessons of aid-financed agricultural water projects.

The purpose of the workshop was to exchange views on experience, identify major issues and recommend concrete measures for future action. It was attended by experts from DAC aid agencies, international organisations and developing countries.

The workshop recommended that some of the papers presented at the meeting, together with additional chapters drawing on the discussion, be made available publicly. This publication has three parts: (1) results of DAC workshop, (2) important issues in aid to irrigation, and (3) experience of individual agencies in aid of irrigation.

Aussi publié en français sous le titre: l'aide au développement de l'irrigation.

Price: FF 55.00.

Orders to: OECD Sales Agents or: OECD Publications, 2 rue André-Pascal, F-75775 Paris Cedex 16, France.

A Description of Devices Used in the Study of Wind Erosion of Soils. A. P. Bocharov. Translated from Russian by S. C. Dhamija. A. A. Balkema, Rotterdam, 1984, 90 p. ISBN 90-6191-426-4.

The steppes of Kazakhstan and Siberia (the major spring wheat crop producing areas in the USSR) are known for their inclement weather and arid climate as well as for the high velocity winds which cause considerable soil erosion. Wind erosion often cause irretrievable damage of agriculture since the soil affected by wind erosion becomes completely infertile.

This book describes a fairly exhaustive list of the instruments used in the study of wind erosion of soil as well as the methods of handling these instruments. Certain procedures for studying soil erosion by employing wind tunnels and aerodynamic field installations are also discussed.

Intended for agricultural specialists and for scientists working on the problems of protecting topsoil from wind erosion, this book is also meant for teachers and students in agricultural institutes.

Price: US\$ 15.00, including postage if prepaid.

Orders to: In U.S.A. and Canada: A. A. Balkema Publishers, P.O. Box 230, Accord, MA 02018, U.S.A.. Elsewhere: A. A. Balkema Publishers, P.O. Box 1675, 3000 BR Rotterdam, The Netherlands.

Sols. Département des Sols, Institut National Agronomique Paris-Grignon Publication non-périodique.

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 déjà parus:

1. Séminaire de Pédologie – Science du Sol. I.N.A. Paris-Grignon-I.N.R.A.
2. V. Hallaire: La valeur des terres Agricoles
- 4, 5, 6. Actes de Colloque A.I.S.S., Informatique et Pédologie
7. Bibliographies et Télédétection
8. J. Boulaine: Typologie des Sols (tome I)
9. J. Boulaine: Typologie des Sols (tome II)
10. Utilisation en plein champ de l'isotope ^{15}N sur betteraves sucrières (Beauce, 1980)
11. Séminaire 'Biomasse' du groupe Matière organique du Sol
12. M.-C. Girard: Recherche d'une modélisation en vue d'une représentation spatiale de la couverture pédologique. Application à une région des plateaux jurassiques de Bourgogne
13. J. Boulaine: Matériaux pour une Histoire de la Pédologie. Tome I
14. I. Nahal: Facteurs édaphiques, lutte contre l'érosion, et désertification, en région méditerranéenne.

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.

Fonctionnement Hydrique et Comportement des Sols. Association Française pour l'Etude du Sol, Plaisir, 1984, 382 p.

At the occasion of the 50th anniversary of the Soil Science Society of France, a colloquium was held in Dijon, May 1984 entitled 'Water Regime and Behaviour of Soils'. The present publication contains the texts of the 22 papers delivered, mostly in French, some in English. Much attention has been given to heavy clay soils.

Price: FF 110, including postage.

Orders to: A.F.E.S., 4 rue Redon, 78370 Plaisir, France.

Inventaire des Thèses de Science du Sol soutenues en France. P. Falipou, travaux informatiques et J. P. Legros, coordination. Association Française pour l'Etude du Sol, 1984.

This inventory of 737 theses in soil science sensu largo, of French universities, has an entry on author. It has also a listing of subjects, without reference to the author entry.

Requests to: Association Française pour l'Etude du Sol, 4 rue Redon, 78370 Plaisir, France.

Soil Spatial Variability. Proceedings of a Workshop of the ISSS and the SSSA, Las Vegas, U.S.A., 30 November – 1 December 1984. D. R. Nielsen and J. Bouma, editors. Pudoc, Wageningen, 1985, 243 p. ISBN 90-220-0891-6.

These proceedings refer to the first meeting of the Working Group on Spatial and Temporal Variability on Field Soils on behalf of Commissions I and V of the ISSS. The objectives of the Workshop were to explore and discuss alternative statistical concepts and procedures of (1) enhancing the understanding and development of pedology, and (2) improving technology of soil survey, soil science and hydrology applied to present-day management of field soils. During the past decade, several national and international symposia have focused on the collection and analysis of soil and related environmental data as regards their spatial and temporal variations. This Workshop attempted to relate current efforts on statistical and mathematical interpretation of variability to contemporary soil classification programs with a viewpoint to future research.

The Workshop consisted of invited papers and extended discussions in four general areas. The resulting one-half day sessions focused on general statistical concepts of quantifying variability and upon applications to hydrology, soil survey, and miscible displacement and leaching. In each session two or three invited speakers presented lectures designed as reviews of conceptual models, statistical approaches and experimental methods useful in studies of spatial variation. Each speaker's presentation was followed by an open discussion during which participants presented comments based upon their own experiences or questions directed towards the speaker or the audience. The contents of this book are the unabridged presentations of Workshop participants. Each gave a full measure of his knowledge and experience to contribute towards the objectives of the Workshop.

Price: Dfl. 45.00.

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

Applied Soil Biology and Ecology. G. K. Veeresh and D. Rajagopal, editors. Sharada Publishers, Bangalore, 1983, 407 p.

This is a comprehensive reference book for Indian students and researchers on soil biology and ecology with special reference to invertebrates. Emphasis is given to cover Indian work.

Since soil inhabiting insects like ants, termites, white grubs constitute major soil fauna of economic importance under tropical and subtropical condition, they have been dealt with in greater detail.

Price: US\$ 10.00

Orders to: Sharada Publishers, Srinidhi No. 239, IV Main, Gangenahalli, Bangalore, 560 006, India.

Fluvial Hydrology. S. L. Dingman, W. H. Freeman and Co., New York, 1984, 383 p. ISBN 0-7167-1452-3 (hardback), 0-7167-1453-1 (paperback).

Until the 1960s hydrology was generally considered to be a minor specialty within the field of civil engineering – a prerequisite for the design of structures that transmit and control water. Since then the central integrating role of the hydrologic cycle in the earth's physical, chemical, biological, and cultural environment has become widely recognized.

The term fluvial hydrology was coined in order to emphasize the book's concern with the physics of flow in the land phase of the hydrologic cycle as well as its close relation to fluvial geomorphology. After a discussion of dimensions, units, significant figures and types of equations, the structure and properties of water are treated. The following chapters are concerned with the classification of flows and forces and mechanical energy in open-channel flows, flow resistance, erosion and sediment transport, and principles of flow through porous media.

A course in fluvial hydrology is greatly enhanced by (1) working out solutions to problems; (2) discussion of papers from the literature, showing how principles are applied in attacking real problems; and (3) laboratory and/or field experience. In the present text, exercises have been provided at the end of each chapter, answers to most of these exercises are given at the back of the book.

Price: £ 35.95. (hardback).

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

The Cropland Crisis. Myth or Reality? P. R. Crosson, editor. Published for Resources for the Future by The John Hopkins University Press, Baltimore and London, 1982, 250 p. ISBN 0-8018-2817-1 (pbk); 0-8018-2816-3 (hardbound).

Issues surrounding the adequacy of agricultural land in the U.S.A. were discussed at a conference held under the title 'The adequacy of Agricultural Land – Future Problems and Policy Alternatives' in Washington in June 1980.

It was centered on six papers which examined the growth in demand for crop and animal production, technological change as it bears on the demand for agricultural land, the potential supply of cropland, the role of irrigation and its implications for the supply of and demand for agricultural land, the implications that prospective supply and demand conditions will have for the long-run economic and environmental costs of farming, and policy issues and alternatives. These papers and the comments of discussants comprise the contents of this book.

The papers indicate that meeting demands for food and fiber over the next several decades will put sufficient pressure on the nation's land and other agricultural resources to increase the economic and environmental costs of agricultural production. Rising costs of land and mounting erosion will contribute to the increase in production costs. The prospective increase in land and production costs is cause for concern, but it does not now appear to pose a major threat to the national welfare or to those abroad who count on the United States to supply a significant amount of their food and fiber.

Price: US\$ 12.60.

Orders to: Resources for the Future, 1755 Massachusetts Ave., N.W., Washington, DC 20036, U.S.A.

Productivity Effects of Cropland Erosion in the United States. P. R. Crosson and A.T. Stout. Resources for the Future, Washington, 1983, 103 p. ISBN 0-8018-3207-1.

There is much controversy about the effects of erosion on the productivity of American cropland. Some argue that present rates of erosion pose a major threat to the nation's capacity to meet long-term demands for food and fiber at reasonable cost. Others argue that the threat is minor and that farmers can be counted on to protect society's interest in the productivity of the land. This study is the first systematic appraisal of the effects of erosion in the United States on productivity of the soil and on the costs of producing crops.

The main conclusion is that these effects have been small and will continue to be small. The authors argue that the present standard for soil conservation policy – to reduce erosion on all soils to not more than 5 tons per acre per year – is defective in two respects: (1) it takes no account of the economic value of the soil in crop production; (2) it ignores the vital issue of the proper timing of erosion control. Because of these defects, the present standard is an inadequate guide to soil conservation policy, both for individual farmers and for the nation as a whole. The authors propose an alternative standard based on the proposition that soil and other agricultural resources should be managed so that future generations will not have to pay more to produce food and fiber than we do now.

Price: US\$ 13.20.

Orders to: Resources for the Future, 1755 Massachusetts Ave., N.W., Washington, DC 20036, U.S.A.

Australian Soil and Land Survey. Field Handbook. R. C. McDonald, R. F. Isbell, J. G. Speight, J. Walker and M. S. Hopkins. Inkata Press, Melbourne, 1984, 160 p. ISBN 0-909605-32-7.

The use of a standard terminology for the characterisation of site attributes, such as landform and vegetation, and for the description of soils has obvious benefits for the various organisations in Australia concerned with soil and land survey investigations. Some uniformity in the description of soils has been achieved over the years with the publication of 'Soil Survey Manual' (Soil Survey Staff 1951), 'Guidelines for Soil Description' (FAO 1968) and, in Australia, 'A Factual Key for the Recognition of Australian Soils' (Northcote 1971).

The present publication is intended to contribute to the systematic recording of field observations in Australian soil and land surveys. It attempts: (1) to list attributes thought necessary to describe adequately site and soil conditions; (2) to define these attributes wherever possible in a manner consistent with their use elsewhere in the world but giving particular emphasis to Australian conditions; (3) to define terms and categories for landform, vegetation, land surface, soil and substrate material that are based explicitly on the specified attributes; and (4) to suggest codings for the various attributes, terms and categories so that concise recording systems may be developed for field use.

A further purpose of the Handbook is to provide a factual data base from which interpretations can be made. Field observations provide the basis for predicting the consequences of land use. These may be supplemented by data from air photos, maps, records, laboratory analyses, experiments, local information, and so on.

While it is essential reading for all Australian professionals involved in land resource surveys, this book will also be of value to students and educators in soil science, geography, ecology, agriculture, forestry, resource management, planning, landscape architecture and engineering. It may also serve as an example for other national soil survey organizations to develop a standard terminology for the field description of sites.

Price: Aust. \$21.95.

Orders to: Inkata Press, 4 Longbourne Avenue, North Clayton, Vic, 3168, Australia.

The Climate of the Earth. P. E. Lydolph. Rowman & Allanheld, Totowa, 1985, 386 p. ISBN 0-86598-119-1.

Climatology is the study of the exchanges of energy and mass at the interface between the atmosphere and the surface of the earth. The temperature, moisture, and motion characteristics of the atmosphere are generally the initiating factors at this interface for much of the activity in other natural phenomena, such as plant and animal growth, soil development, weathering and erosion processes, and the evolution of the landscapes.

The present book is limited primarily to a discussion of physical, synoptic and regional climatology. Its two objectives are: (a) to describe the climate of the earth, and (b) to develop principles that will make the distribution of climate meaningful.

This book consists of essentially three interwoven parts: (a) presentation of the basic principles governing atmospheric processes, (b) world distributions of statistical means and variations of individual elements and climatic types, and (c) analyses of weather complexes from which these statistics have been derived. To accomplish this the book is organized into three parts. Chapters 2 through 11 deal with the processes taking place in the atmosphere and between the atmosphere and the earth's surface. Chapters 12 through 14 describe the resultant spatial and temporal distributions of the three primary resultant climatic elements: condensation forms and precipitation, temperature, and wind. Chapters 15 through 21 describe and explain the climates of the earth on a regional basis.

Since the largest group of users are students from North America, the regional discussion starts with that continent. Within this chapter certain principles of regional discussion can be established which can then be used in discussion of the other continents. The book is fully illustrated with well-chosen figures and photographs, and will interest many soil scientists and university students.

Price: US\$ 33.95.

Orders to: Rowman & Allanheld, 81 Adams Drive, Totowa, NJ 07512, U.S.A.

Cafeto-Cultivo y Fertilización. Segunda ed.. J. F. Carvajal. Instit. Internac. de la Potasa, Bern, 1984, 254 p.

Diez años después de la publicación de la primera edición, el imperativo de la época señala la necesidad de contar con una segunda edición actualizada, que comprende las contribuciones de la década que recién concluyó y que señale el énfasis y los derroteros de la investigación que se deben impulsar en la que se inicia, en función a las metas de cultivo a nivel mundial.

En la presente edición, se destaca, por relevante, la importancia del cultivo intensivo del café para contrarrestar el alto costo de los insumos, de la mano de obra cada vez más escasa y a mayor costo y la fluctuación del precio de venta del café, el cual presenta periodos cíclicos que permiten el cultivo eficiente, y la explotación de la tierra con criterio de verdadera empresa, mientras que, en otros, el mismo se torna en negocio marginal o deficitario.

Al igual que la primera edición, se espera que la presente sirva de punto de partida para los investigadores que se inician, al tiempo que dé incentivo para los caficultores, al poner en sus manos un compendio de la contribución de centares de investigadores en una obra sinóptica.

Precio: US\$ 18.00 + gastos de envío.

Pedidos: Instituto Internacional de la Potasa (IPI), Apartado 121, CH-3048 Worblaufen-Bern, Suiza.

Das Buch vom Boden. H. Rid. Verlag Eugen Ulmer, Stuttgart, 1984, 341 S. mit 17 Farb- und 47 Schwarzweissfotos. ISBN 3-8001-4052-7.

Vor Jahrzehnten, ja vor einem Jahrhundert schon, gab es auf dem Sektor Boden und Bodenproduktion Verfahren, die auch heute immer wieder aufgegriffen werden. Das Studium alter Literatur mahnt zur Bescheidenheit, weil es zeigt, daß die Masse der heute angegangenen Fragen auch vorher schon bearbeitet worden war. Da und dort wird ein geschichtliches Vorgehen nicht mehr für erforderlich gehalten, mit dem Effekt, daß der Überblick und die Verbindung zum Boden verlorengeht. Der Bodenwirt wird damit ungewollt zum Verbraucher von Theorien und Hypothesen. Es war deshalb an der Zeit, das zusammenzutragen, was sich neuerdings bewährt und was bereits von längerer Zeit Beständigkeit bewiesen hat. 'Das Buch vom Boden' bringt das, was bleibt. Er erschließt dem, der Getreide, Wein, Obst oder Gemüse produziert, eine Folge von Maßnahmen, deren zielstrebige Anwendung eine rationelle und gesunde Bodenproduktion sichert. Eine umfassende mehrjährige Auslandstätigkeit des Autors schuf den Rahmen für die Beurteilung mancher bestehenden Meinungen und Hypothesen. Dem großen Kreis von Landwirten, Gärtnern, Winzern, von Institutionen und Behörden, die für die Verbesserung von Boden, Landschaft, Landwirtschaft und der Natur überhaupt arbeiten, wird manche Entscheidungshilfe vermittelt. Für den im Ausland Tätigen finden sich die Grundlagen der Bewirtschaftung tropischer und subtropischer Böden. Das Aufzeigen großer Zusammenhänge vom Boden bis zur Ernährung aber wird jeden an der Natur Interessierten ansprechen.

Preis: DM 78.00.

Bestellungen an: Verlag Eugen Ulmer, Postfach 700561, D-7000 Stuttgart 70, Bundesrepublik Deutschland.

The ecology of tropical food crops. M. J. T. Norman, C. J. Pearson and P. G. E. Searle. Cambridge University Press, Cambridge, 1984, 369 p. ISBN 0-541-28428-7 (pbk); 0-541-24082-4 (hard covers).

No-one in the 1980s needs to be reminded of the necessity of increase food production in tropical countries. The massive effort since the Second World War to increase tropical food supply – through development assistance programs, establishment of a network of international agricultural research centres, re-organisation and strengthening of national research and extension systems, etc. – has barely enabled food production in tropical countries to keep pace with population increase.

The expanded effort to increase tropical food production has a large educational component: the improvement of national programs of agricultural training at all levels in tropical countries and an expansion in the developed world of tertiary education in tropical agriculture. One result has been an increase in the number of books on food crop production in the tropics. However, in the range of available literature, crop ecology has been to some degree neglected. The present book is concerned with the environmental relations of tropical food crops. The environment includes three components: the atmosphere, the soil and the cropping systems of which the individual crops form a part. The authors have concentrated on research findings from tropical environments, though where this is deficient they have included studies from temperate regions. Emphasis has been placed on research results obtained in the field rather than in controlled environments.

The book is in four parts. The first is a general account of the three environmental components: farming systems, climate and soil. This is followed by parts devoted to cereals, legumes and non-cereal food energy crops. Each of these begins with a brief general chapter on the crop group as a whole and is followed by chapters concerned with the four most important crops within the group. These chapters include a brief account of the taxonomy, origin, evolution and dispersal of the crop, followed by sections on crop development pattern, crop/climate relations, crop/soil relations and place in cropping systems.

Advanced undergraduate and graduate students in tropical agriculture will find this a valuable text and it should also prove useful to research and extension workers in tropical crop production.

Price: £ 12.95, net in U.K. (pbk).

Orders to: Cambridge University Press, The Edinburgh Bldg., Shaftesbury Road, Cambridge, England CB2 2RU; or: 32 East 57th Street, New York, NY 10022, U.S.A.

The sulphate-reducing bacteria. Second edition. J. R. Postgate, Cambridge University Press, 1984, 208 p. ISBN 0-521-25791-3.

This monograph, wholly revised and enlarged, surveys knowledge about an unusual and little-studied group of microbes, bringing together information that has hitherto been widely scattered throughout the scientific literature. The sulphate-reducing bacteria cannot grow in air; they respire sulphates instead of oxygen and are difficult to isolate and study. Nevertheless, much progress has been made in recent years and has revealed novelties of biochemistry and physiology. Sulphate-reducing bacteria affect man in a variety of subtle and occasionally blatant ways although, unlike many bacteria, they cause no disease. Among harmful attributes are being agents of pollution, corrosion and spoilage of food and materials. Their beneficial attributes include the generation of most of the world's sulphur supplies and several other mineral resources, as well as contributing to the oil reserves of this planet. They grow in oil wells, sulphur springs, natural gas stores, sewage sludge and comparable habitats. They are not only of great academic interest but also of increasing practical importance in oil, gas, mineral and corrosion technology.

Price: £ 20.00, hardbound.

Orders to: Cambridge University Press, The Edinburgh Bldg., Shaftesbury Road, Cambridge, England CB2 2RU; or: Cambridge University Press, 32 East 57th Street, New York, NY 10022, U.S.A.

The Handbook of Environmental Chemistry. O. Hutzinger, editor. Springer-Verlag, Berlin, Heidelberg, New York.

Environmental Chemistry is a relatively young science. There appear to be increasing interest in seeing environmental topics which are based on chemistry embodied in this subject. One of the first objectives of Environmental Chemistry must be the study of the environment and of natural chemical processes which occur in the environment. A major purpose of this series, therefore, is to present a reasonably uniform view of various aspects of the chemistry of the environment and chemical reactions occurring in it.

The present Handbook is the first advanced level compendium of environmental chemistry to appear to date. It covers the chemistry and physical behavior of compounds in the environment. Under the editorship of Prof. O. Hutzinger, many international specialists are contributing to this handbook. The first three volumes with two parts each were announced in Bulletin 63, p. 69.

The Handbook of Environmental Chemistry is a critical and complete outline of our present knowledge in this field and will prove invaluable to a wide range of chemists and scientists in related disciplines, geologists, meteorologists, etc.. Most chapters are written to a fairly advanced level and should be of interest to the graduate student and practising scientists. The ISBN entries below are of the German and U.S.A. editions respectively.

Volume I, Part C. The Natural Environment and the Biogeochemical Cycles, 1984, xiii + 220 p., 55 fig. ISBN 3-540-13226-0/0-387-13226-0. Price: DM 124.00.

This part has chapters on: structural aspects and photophysical, photochemical and free radical characteristics of humic substances; organic material in sea water; marine gelbstoff; the surface of the ocean; atmosphere nitrogen; and a biogeochemical portrait of carbon dioxide.

Volume I, Part D. The Natural Environment and the Biogeochemical Cycles, 1985, xi + 246 p., 58 fig. ISBN 3-540-15000-5/0-387-15000-5. Price: DM 168.00.

This part has chapters on: the cycles of copper, silver and gold; modelling of the global carbon cycle; chemical limnology; and environmental microbiology.

Volume 2, Part C. Reactions and Processes, 1985, xiii + 145 p. ISBN 3-540-13819-6/0-387-13819-6. Price: DM 98.00.

This part has chapters on: the OECD fate and mobility test methods; biodegradation and transformation of recalcitrant compounds; biodegradation of water-soluble compounds; and the fugacity concept in environmental modelling.

Volume 3, Part C. Anthropogenic Compounds, 1984, xiv + 220 p., 31 fig. ISBN 3-540-13013-5/0-387-13013-5. Price: DM. 138.00.

This part has chapters on: aromatic amines; phosphate esters; phthalic acid esters; and thallium. 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.

Soil Landscape Analysis. F. D. Hole and J. B. Campbell. Routledge & Kegan Paul, London, Melbourne and Henley, 1985, 196 p. ISBN 0-7102-0492-2.

Characterization of soil cover patterns by soil landscapes analysis is a developing science that has roots in the work of Dokuchaev, Sibirtsev, Hilgard, and other early pedologists. Impressive contributions have been made recently by V. M. Fridland and his co-workers to this important subdiscipline of soil science. At the same time that study of the soil profile pedons has been emphasized, to the benefit of modern soil taxonomy, delineation of soil landscapes patterns has been extended over a greater area each year.

Foresters and botanists have long studied distribution of plant communities. The study of soil communities has received far less attention. Although they are intimately related to patterns of plant and animal communities and indeed to human activity on the land, soil patterns have their own nature, which they maintain in the fabric of the environment.

Numerical analysis may be used to characterize domains of the soil continuum at various scales. Re-examination of the soil landscapes in the field gives us an opportunity to add ecological and statistical observations of the soil cover.

The subject of this book is the study of the soil landscape from a geographic perspective. Any subject can be examined from many disciplinary perspectives, and within disciplines, from varied national traditions and personal viewpoints. The authors have attempted to cross as many of these disciplinary, personal, and national boundaries as they could.

Careful development of the principal concepts and methods of soil geography brings the subject within reach of students; at the same time, specialists will profit the authors vast research and their integration of a large amount of information.

The book is dedicated to V. M. Fridland, who died in 1983.

Price: £ 20.00, cloth.

Orders to: Routledge & Kegan Paul, 14 Leicester Square, London, England WC2H 7PH.

Potassium Workshop, Ibadan, organized by IITA and IPI. International Potash Institute, Worblaufen-bern 200 p.

These are the proceedings of a workshop on Potassium in tropical crops and soils, held at IITA, Ibadan, Nigeria, in October 1980. In 14 papers many aspects of potassium, e.g. status, availability, interactions with other elements and crop responses are discussed. Considering the data presented two major conclusions may be drawn for further research: (1) Fertilizer experiments on potassium must be long-term trials in order to give correct fertilizer recommendations to the farmer and (2) The many interactions between nutrients as well as the influence of tillage and husbandry methods on fertilizer efficiency must be further investigated.

In this regard more experiments have to be done, but the experience of top-farmers should also be considered, because it is him, who integrates also the economical aspects into the general picture of fertilizer use.

Requests to: International Potash Institute, P.O. Box 121, CH-3048 Worblaufen-Bern, Switzerland.

Progress in Pesticide Biochemistry and Toxicology. Volume 4. D. H. Hutson and T. R. Roberts, editors. John Wiley & Sons, Chichester, New York, 1985, 368 p. ISBN 0-471-90460-0.

Information on the biochemistry of pesticides is distributed widely throughout the literature and ranges from insect, plant and soil biochemistry through the mammalian toxicology. This series is one in which selected aspects are reviewed and, where possible, interrelated by experts in the various fields. In selecting areas for review, account will be taken of new or changing aspects of the science, including techniques, and of changes in the importance of use patterns of the chemical classes of pesticides.

Volume 4 commences with a short chapter on methods used for the identification of genotoxicity using a variety of biological end-points. Methods for the study of the fate of pesticides in plants are discussed in details in Chapter 2 and the problems associated with non-extractable pesticide residues in plants, and approaches to the study of such materials, are outlined in Chapter 3. Recent studies on the biotransformation of pesticides in plants and soils are reviewed in Chapter 4 and some novel reactions have been highlighted. This chapter will also provide an access to the earlier literature on the various pesticides shown in its list of contents. Two chapters in Volume 3 on the mode of action and metabolism of fungicides in plants are followed in the present volume by a consideration of the development of resistance to fungicides (Chapter 5). An essential element in the safety evaluation of pesticides is the study of residues in farm animals. The capacities of these animals for the metabolism of insecticides is described in Chapter 6. The last chapter deals with the synthesis of radiolabelled pesticides.

Price: £ 42.00.

Orders to: John Wiley & Sons Ltd., Baffins Lane, Chichester, West Sussex, England P019 1UD.

Advancing Agricultural Production in Africa. Proceedings of CAB's First Scientific Conference, Arusha, February 1984. D. L. Hawkworth, editor. Commonwealth Agricultural Bureaux, Farnham Royal, 1984, 454 p. ISBN 0-85198-537-8.

This conference confronted what is certainly one of the most pressing problems of this decade, that of Advancing Agricultural Production in Africa. It was therefore a most appropriate topic for CAB's first international scientific conference, held in Arusha, Tanzania, February 1984, by 360 delegates.

The substance of the conference was addressed to administrators, directors and senior professional scientists in African countries responsible for research and related services for development in agriculture. The aim was to support and strengthen efforts to align such work to the needs, resources and constraints of development in these nations. Thus, specialists with African experience were invited for discussion of the requirements of particular products, constraints to their production, and recent advances which might be more widely applied to better the situation.

The overall result of the conference was a comprehensive survey of the current status and constraints to Advancing Agricultural Production in Africa.

This handsome volume of 472 pages contains 85 chapters, comprehensively covering crop production, protection and utilization; animal productivity and health; intergration with marketing and consumer preference; natural resource management; cultural and social aspects; together with sections relating to identification, biocontrol and information services. President Nyerere provides an important opening address outlining the position as seen for Tanzania, and the conclusions are ably summarized by Professor A. H. Bunting in a significant statement of the current constraints to progress. This publication is an invaluable guide and reference work for all involved in the development of tropical agricultural economies in Africa, with relevance and substance for all other climatically similar regions. The volume will also prove of value in college and university courses concerned with aspects of tropical agriculture and development.

Price: £ 60.00 or US\$ 120.00, including postage and packing.

Orders to: CAB, Farnham House, Farnham Royal, Slough SL2 3BN, England.

Soils and Quaternary Landscapes Evolution. J. Boardman, editor. John Wiley, Chichester and New York, 1985, 391 p. ISBN 0-471-90528-3.

This book examines a period of spectacular environmental change, the Quaternary, with respect to soil-landscape relationships in Western Europe, the British Isles and North America. The possibilities for using soils as climatic indicators in the same way as fossils are discussed. The major themes emerging from the book are: the importance of soil stratigraphy in understanding Quaternary sedimentary sequences; the problems of soil-dating and the significance of soil colour; and the growing realization of the importance of cold-climate processes in soil formation in Western Europe.

The book is based on papers presented at the Annual Discussion Meeting of the Quaternary Research Association held at Brighton Polytechnic, January, 1984. Three papers have been added in order to broaden the scope of the book.

The papers have been organized into three sections. In the first section, major soil-forming processes and techniques of examination are discussed. This section is by no means comprehensive and emphasis is given to those processes (e.g. illuviation) and those techniques (e.g. micromorphology) which have proved of special value in studies of soil development through time. Section 2 and 3 include studies at various geographical scales of the relationship of soils and landscape evolution during the Quaternary.

The book will be of value of a wide range of researchers, including geographers, geomorphologists, geologists, soil scientists and archaeologists.

Price: £ 33.00.

Orders to: John Wiley & Sons Ltd., Baffins Lane, Chichester, West Sussex, England P019 1UD.

Soils and Geomorphology. 2nd edition. P. Birkeland. Oxford University Press, New York, Oxford, 1984, 372 p. ISBN 0-19-503435-X.

Although there are many textbooks on soils, there are few that also serve the need of geomorphologists, sedimentary petrologists, and archaeologists working in Quaternary research. This book is an attempt to fill that gap. The emphasis is on the study of soil in their natural setting – the field – since field studies are most significant to Quaternary studies. Much of the research that geomorphologists undertake involves the use of soils to date deposits on the basis of soil development and to reconstruct the environment during soil formation. This book focuses on the problems, but other related problems are also discussed. The author feels that one cannot adequately use soils for any purpose without understanding the processes and factors that control their formation. Hence, the overall organization of the book is, first, a discussion of soil morphology, weathering, and soil-forming processes and, then, variation in soils with variation in the soil-forming factors. The discussion of soil classification is brief and generalized. Only Soil Taxonomy is used. The book ends with a short discussion of applications of soils in Quaternary studies.

This book is a fully revised edition of Pedology, weathering and geomorphological research by the same author, published in 1974.

Price: £ 14.95

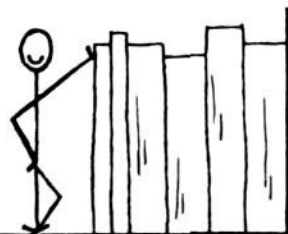
Orders to: Oxford University Press, Walton Street, Oxford, England OX2 6DP.

Rainfed Agriculture in a Semi-arid Tropical Climate. Aspects of land and water management for red soils in India. F. P. Huibers, doctoral thesis, Agricultural University Wageningen, 1985, 193 p.

Red soils in semi-arid tropical climate pose specific problems for the production of rainfed crops. The instability of their topsoil and their generally low water retention capacity induce rainfall-runoff and a too low level of available water to bridge droughty periods within the growing season, even in areas where mean annual rainfall seems to be sufficient to grow (adapted) crops. Common agricultural practices in red soil areas of India are characterised by a low level of inputs and low yields, typical for subsistence farming.

In the present thesis techniques of land- and water management that would improve the ability to control runoff and erosion are discussed. Collection of runoff water for subsequent use as supplementary irrigation is thought to be a prerequisite for distinct increases in crop production and reduction of risk for the farmers, for all but the deepest soil profiles. Approaches to improve the productivity should include those of resource protection and should fit the farmer's level of technology. Individual land units of small size seem most appropriate and efficient for reaching these goals.

Requests to: Dept. of Irrigation and Civil Engineering, Agricultural University, Nieuwe Kanaal 11, 6709 PA Wageningen, The Netherlands.



Channel Processes: Water, Sediment, Catchment Controls. Catena Supplement 5. A. P. Schick, editor. Catena Verlag, Cremlingen, 1984, 162 p. ISBN 3-923381-04-2. Series: ISSN 0722-0723.

Two decades ago, the publication of 'Fluvial Processes in Geomorphology' brought to maturity a new field in the earth sciences. This field – deeply rooted in geography and geology and incorporating many aspects of hydrology, climatology, and pedology – is well served by the forum provided by Catena. Much progress has been accomplished in fluvial geomorphology during those twenty years, but the highly complex and delicate relationships between channel processes and catchment controls still raise intriguing problems. Concepts dealing with thresholds and systems, and modern tools such as remote sensing and sophistical tracing, have not decisively resolved the simple but elusive dual problem: how does the catchment shape the stream channel and valley to its form, and why? And: how does the channel transmit its influence upstream in order to make the catchment what it is?

Partial solutions, in a regional or thematic sense, are common and important. In addition to contributing a building block to the study of fluvial geomorphology, they also produce a number of new questions. The consequent proliferation of research topics characterises this collection of papers. The basic tool of geomorphological interpretation – the magnitude, frequency, and mechanism of sediment and water conveyance – is a prime focus of interest. Increasingly important in this context in recent years is the role of human interference in natural fluvial geomorphic process systems. Effects of drainage ditching, transport of pesticides absorbed in fluvial sediment, and the flushing of nutrients are some of the Man-conditioned aspects mentioned in this volume. Other contributions deal with the intricate balance, especially in extreme climatic zones, between physical process generalities and macroregional morphoclimatic influences.

Price: DM 110.00 or US\$ 60.00.

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

Progress in Land Evaluation. J. C. F. M. Haans, G. G. L. Steur and G. Heide, editors, A. A. Balkema, Rotterdam, Boston, 1984, 309 p. ISBN 90-6191-545-7.

This volume is the report of a Seminar on Soil Survey and Land Evaluation held in Wageningen, the Netherlands, under the auspices of the Land Use and Rural Resources Programme Committee, an advisory body to the Commission of the European Communities.

The proceedings deal with the following topics: Results from completed land evaluation projects in Ireland, UK, France and Italy; results from ongoing land evaluation projects in Denmark, Belgium, and Ireland; results of the Dutch-German project on soil survey methods, soil survey interpretation and soil physical research, carried out in a joint venture soil mapping on a scale 1:50000 in the German-Dutch border area; an outline of the conclusions and the recommendations of the Seminar.

Two soil maps, one of the German and one of the Dutch series, pertaining to the German-Dutch joint venture survey, accompany this publication.

The volume presents an overall view of the current situation of land evaluation and its application in the European Community and illustrates the progress which has been made since the EC Land Resource Evaluation Symposium of Wexford in 1978.

Price: Dfl. 75.00 or US\$ 28.00.

Orders to: In U.S.A. and Canada: A. A. Balkema Publishers, P.O. Box 230, Accord, MA 02018, U.S.A.. Elsewhere: A. A. Balkema, P.O. Box 1675, 3000 BR Rotterdam, the Netherlands.

Soil Reclamation Processes. Microbiological Analyses and Applications. R. L. Tate III and D. A. Klein, editors. Marcel Dekker, New York, 368 p. ISBN 0-8247-7286-5.

Growing out of our current concern with the ecosystem, especially in its effect on human activities, interest has increasingly focused on the microbial facet of soil reclamation. Over the past 25 years, soil scientists have come to recognize the unique role microorganisms play, both in the inhibition of pollution and the reclamation of already polluted soil.

Particularly in the reclamation of the more unique wastes common today – such as sulfur-containing materials, oil shales, tar sands, phosphate clays, and radionuclide wastes – microorganisms can make this process more manageable and cost effective.

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 acidic mine waste drainage reclamation, outlines the economic advantages of site modification prior to reclamation, and much more.

This book is timely reading for soil scientists, soil microbiologists, environmental scientists and engineers, agronomists, ecologists, geologists, biochemists, civil engineers, and project personnel. Additionally, the book is a reference for advanced undergraduate- and graduate-level courses in reclamation, general soils, environmental science, and environmental microbiology.

Price: US\$ 59.50 in the U.S.A. and Canada, \$ 72.25 elsewhere.

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

Soil Productivity and Crop Potentials. A Case Study (District Alwar-Rajasthan) P. Mishra. Concept Publishing Comp., New Delhi, 1982, 274 p.

Agriculture being the mainstay of the Indian economy, it is important to make regional evaluation of agriculture productivity. It is no doubt true that the latter is a multifunctional phenomenon, but it is also agreed that soils play a decisive role in the determination of per hectare output. A comprehensive understanding of soil characteristics may, therefore, be considered to be prerequisite for actuals as well as potentials of agricultural productivity. The present work is a meaningful contribution towards such an understanding with a view to optimally utilising natural resources and developing proper techniques of environmental management.

The work provides a detailed account of the regional distribution of different soil types, with their physical and chemical properties.

Local problems flowing from as well as limitations regarding agricultural practices were also taken into account. With a view to correlate soil indices with yield, the following factors were taken into consideration – erosion hazards, input of organic manure and chemical fertilizer, irrigation including quality of underground water, use of high-yielding variety of seeds and the first ranking crops – both under irrigated and unirrigated conditions.

Price: US\$ 25.00.

Orders to: Concept Publishing Comp., Post Box 6274, New Delhi 110 015, India.

The Effects of SO₂ on a Grassland. Ecological Studies 45. W. K. Lauenroth and E. M. Preston, editors. Springer-Verlag, New York, Berlin, Heidelberg, 1984, xvi + 207 p. ISBN 3-540-90943-5 (Germany); 0-387-90943-5 (U.S.A.).

Semiarid grasslands in general and those of the Great Plains of North America in particular have been subjected to a wide variety of uses ranging from moderate domestic herbivore grazing to strip mining or plowing for crop production. The demands for food and fuel in the next several decades will place increasing pressure on the Great Plains grasslands.

This new volume in The Ecological Study series is an unique study of the effects of air pollution on grasslands. It presents a review and analysis of a long-term experiment designed to determine the effects of sulfur dioxide, emanating from coal-fired power plants, on a grassland in the Northern Great Plains (North America). The authors conducted wide-ranging experiments, from the level of the biochemistry of plants to the responses of the total ecosystem. Their findings are summarized and interpreted, and the relevance of these findings to other sites and to grasslands in general is discussed. Readers seeking an understanding of the effects of pollutants on ecosystems will find this book to be an important contribution to the literature and will appreciate the thoroughness and coherence of the presentation.

Price: DM 88.00 or approx. US\$ 33.00.

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

Windbreaks for Conservation: An Annotated Bibliography. K. L. Alcorn and M. W. Dodd. California Dept. of Conservation, 1984, 145 p.

Soil erosion, dust storms and crop damage are some of the destructive effects of high winds. They can reduce soil fertility and cause economic hardships on farmers.

The dust-bowl of the 1930's that affected most of the Great Plains in the U.S.A., brought the first widespread use of trees and shrubs for soil conservation. Since then, many of the early windbreaks have been cut down because of old age, disease and new techniques in farming practices.

A severe California windstorm in December 1977, on top of historic concern over wind erosion in the State, prompted establishment of the Windbreaks Demonstration Program.

One of its objectives was to assemble an annotated bibliography of informational sources related to windbreaks. This publication will provide the reader, researcher and general public with sources of information for solving a variety of problems related to the effects of adverse winds. It contains over 450 annotated references in 10 major subject categories. Efforts were focused on studies related to the use and economics of windbreaks in California and semi-arid regions.

Price: US\$ 4.00, including postage. Prepayment required.

Orders to: California Dept. of Conservation, Division of Land Resource Protection, 1516 9th Street, Rm. 400, Sacramento, CA 95814, U.S.A.

The Planning and Management of Agricultural Research. D. Elz, editor. The World Bank, Washington, 1984, 143 p. ISBN 0-8213-0430-5.

Food output in the developing countries has to increase between 3.5 and 4.0 percent a year during the next two decades to improve the standard of living of people in the agricultural sector as well as the quality of the diet of the entire population in these countries. In the past few years, however, output has increased by only about 2.9 percent a year. Since the possibilities of increasing agricultural production by expanding the areas under cultivation are nearly exhausted, growth must come from innovations in chemical, biological, and mechanical technologies. This demands a heavy emphasis on agricultural research and on communication between farmer and researcher to determine researchable problems and to disseminate results. Re-

search facilities and programs in developing countries are, however, insufficient. Deficiencies include excessive fragmentation of research activities among governmental agencies, the low priority assigned to research by governments, and inadequate institutional structures for research and extension. Research staffs are often small, do not have a balance of disciplines, and usually lack adequate budgets. In many cases there is no planning or management to direct scarce resources toward the most appropriate research priorities.

This volume reports the proceedings of a symposium on planning and managing agricultural research. The seminar was organized around four main topics; setting priorities for research, research structure and organization, programming and budgeting, and managing human resources. The papers and commentaries emphasize the problems and concerns of the countries and international organizations represented.

Price: US\$ 12.50.

Orders to: World Bank Publications, P.O. Box 37525, Washington, DC 20013, U.S.A.

Le Travail du Sol de la Zone Tropical Semi-aride. Rapport final d'un projet de recherche. E. Rawitz, W. B. Hoogmoed et Y. Morin, Juin 1981. Traduit du texte anglais par P. Avissar. Université agronomique à Wageningen, 1984, 312 p.

Le but premier de ce projet fut d'examiner le rôle des méthodes traditionnelles et nouvelles de préparation du sol, sous des conditions arides et semi-arides, en rapport avec les besoins actuels du monde. Ceux-ci comprennent tout d'abord le fait qu'une grande partie de la population des pays en voie de développement vit dans la partie la plus sèche du globe, et c'est là que la poussée démographique ainsi que des quantités de pluie insuffisantes et imprévisibles donnent une importance particulière à l'amélioration des méthodes de production alimentaire. Sous de telles conditions climatiques, la question-clé est d'augmenter l'efficacité de l'utilisation de l'eau par sa conservation, ou par tout autre moyen capable d'augmenter la production par unité d'eau disponible.

Le second objectif se rapporte aux besoins en énergie des travaux de préparation du sol en relation avec leur profit supposé. Ce problème est commun aux pays en voie de développement ainsi qu'aux pays développés, bien que différents aspects soient considérés dans les deux cas.

Ce projet fut donc destiné à étudier les conditions de sol non adaptées à l'exploitation, à rechercher des méthodes d'aménagement qui pourraient permettre d'éviter de telles conditions, et à développer les méthodes de labour permettant une meilleure utilisation de l'eau, particulièrement par l'usage de matériel simple, adapté à l'échelle agricole des pays en voie de développement.

Commandes à: Laboratoire du travail du sol, Université agronomique, Diedenweg 20, 6703 GW Wageningen, Pays Bas.

Proceedings of the First International Seminar on Methodology in Landscape Ecological Research and Planning. J. Brandt and P. Agger, editors. Universitetsforlag GeoRuc, 1984, 5 volumes, about 830 p. ISBN 87-88183-14-9.

These are the proceedings of a seminar on methodology in landscape ecological research and planning arranged by the International Association for Landscape Ecology (IALE), held at Roskilde University Centre, Denmark, October 1984.

The seminar and the proceedings are structured under the following themes/volumes: I. landscape ecological concepts, II. methodology and techniques of inventory and survey, III. methodology of data analysis, IV. methodology of evaluation/synthesis of data in landscape ecology, and V. supplementary volume.

Within each theme there are a number of lectures with views about unifying principles and practical synthesis. Abstracts of a number of posters that offer a variety of new results and ideas are included as well.

Price: separate volume Danish Kr. 40.00 each; volumes I-V Danish Kr. 140.00, including postage.

Orders to: GeoRuc, Roskilde Universitetscenter, Postbox 260, DK-4000 Roskilde, Denmark.

Studies on Loess. M. Pécsi, editor. Adakadémiai Kiadó, Budapest, 1980, 555 p.

Loess and loess-like deposits cover more than 10 percent of the land surface of the Earth. In today's temperate zones and in the marginal semi-arid zones of the deserts fertile soils formed on loess exert conducive effect on agriculture and consequently have always had a concentrating influence on the population. The present importance of loess in building construction, soil-conservation and improvement and soil engineering is enhanced by erodibility, peculiar strength and chemical properties. Apart from the above-mentioned important environmental and practical purposes of the loess research substantial tasks in the field of fundamental research have also come to the forefront.

Regarding the latest results of the international loess research in the fields of fundamental scientific and practical engineering geological investigations, it has become necessary to make research results available for a public with interdisciplinary interest. Therefore, in co-operation with the INQUA Loess Commission and the UNESCO-IGCP Magnetostratigraphic Project 128, the papers of the international conference organized in Hungary in 1979 were published for experts of engineering geology, earth science and environmental science.

Price: US\$ 40.00.

Orders to: Kultura, Hungarian Foreign Trading Comp., P.O. Box 149, H-1389 Budapest, Hungary.

Sulphur Research and Agricultural Production in India. H. L. S. Tandon. Fertilizer Development and Consultation Organisation, New Delhi, 1984, 70 p.

Identification of key sectors in agricultural development which deserve priority attention is a major area to which The Fertiliser Development and Consultation Organisation addresses itself. It intends to bring subjects of vital practical importance into focus, stimulate exchange of ideas and contribute towards the application of concepts and modern agricultural technologies at the farm level.

Preparation of state-of-the-art reports such as this one serve to consolidate available information on a subject, bring out the results of practical utility to the surface, catalyse agricultural development and help in setting out priorities for future research and development.

This status report on Sulphur in India has been prepared because available data indicate that the deficiencies of S in Indian soils are serious enough to act as a constraint in agricultural production and could hold back the otherwise well-planned efforts in agricultural development. India is the fourth largest user of chemical fertilisers in the world with a current annual consumption of about 8 million tons nutrients, a figure which is expected to at least double by the turn of this century. All those interested in agriculture would certainly be interested in seeing that this fertiliser input is used most efficiently and in a balanced manner.

Based on a study of over 200 papers, this report consolidates available information on the probable areas of S-deficiency and summarises the yield responses to S application for 30 crops. This study will be of use to research workers, agricultural administrators, extension officers and the fertiliser industry.

Price: Rs 60 in India, US\$ 12.00 elsewhere, prepayment required.

Orders to: Fertilizer Development and Consultation Organisation, C110 Greater Kailash-I, New Delhi 110 048, India.

Cropping Systems in Asia. On-Farm Research and Management. M. Z. Hoque. International Rice Research Institute, Los Banos, 1984, 196 p. ISBN 971-104-106-5.

This publication presents the highlights of on-farm cropping systems research and development by the member country programs in the Asian Cropping System Network (ACSN) coordinated by IRRI. Included are detailed data-based presentation and discussion of farmers' existing cropping systems and testing of improved cropping patterns and component technologies in eight well-defined agroecological environments. Also briefly described are the concepts, approaches, and methodologies developed and used by the ACSN scientists. The use of site-specific on-farm research findings in target area development is discussed with specific ACSN examples.

This monograph highlights the impact of cropping systems research and development on agricultural research and production on small Asian farms and illustrates how ACSN scientists have used cropping systems research and development methods to improve existing cropping systems.

Price: US\$ 7.50 plus \$ 4.00 airmail or \$ 0.50 surface mail postage.

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

Energy and Agriculture. Advanced Series in Agricultural Sciences volume 4. G. Stanhill, editor. Springer-Verlag, Berlin, Heidelberg, New York, 1984, xiii + 192 p. ISBN 3-540-13476-X (Germany), 0-387-13476-X (U.S.A.).

Energy and agriculture are both extremely broad subjects and their interactions cover almost the full spectrum of the agricultural sciences. Yet the subject is a relatively new one whose importance first received widespread recognition barely a decade ago, following the dramatic increase in oil prices.

The impact of this increase was such as to promote a world-wide debate on the future direction that agriculture should take. This debate was, and is, of particular concern in countries where agriculture plays a leading role in economic and social development.

The subject of this book is the flow of energy through agricultural systems. It presents a multidisciplinary, many-faceted approach which is, perhaps, the most important and novel feature of the work. The first part of the book contains three analyses of the role of energy in agriculture. The various sources of energy, including human labor, that are used in both developing and industrialized agricultures are examined in depth in the second part. Potential sources of different types of energy are evaluated as in the possibility of producing fuel from agriculture. Three case studies of the energy balance in agriculture make up the third part of this volume.

Price: DM 89.00 or approx. US\$ 35.00.

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

Manual for Judging Oregon Soils. J. H. Huddleston and G. F. Kling. Oregon State University Extension Service, 1984, 81 p.

Soil judging is part of the vocational agriculture curriculum in many highschools in the U.S.A. The present manual for judging soils in the state of Oregon is a very good example of how to show important aspects of soil horizons, whole soil, site, and the interpretations for management.

This publication is very attractively illustrated with colour photographs of soil profiles.

Price: US\$ 7.50.

Orders to: Oregon State University Extension Service, Corvallis, Oregon, U.S.A.

Soil Acidity and Liming, second edition. Agronomy Series 12.

F. Adams, editor. American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, Madison, 1984, 380 p. ISBN 0-89118-080-X.

This book, first published in 1967, was developed and written in response to the need for a reference text on this important, worldwide agricultural topic. This revised edition maintains the concept of a text for those involved in research and as a supplement for graduate students. It covers topics such as chemistry of soil acidity, liming materials and practices, and crop responses to liming across the United States.

Since knowledge about soil acidity and its effects on plant growth and crop production has continued to increase, this edition has been expanded to include a chapter on tropical acid soils – a new area of concern and interest. A key feature of the text is an effort to explain soil chemical properties and physiological responses of plants. This monograph is not intended to be a mere catalog of data. Instead, the authors have tried to offer interpretations wherever possible.

Price: US\$ 25.00, plus \$ 0.75 per book for all orders outside the U.S.A. Prepayment required.

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

Microbial-Plant Interactions. ASA Special Publication 47. R. L. Todd and J. E. Giddens, editorial committee. Soil Science of America, American Society of Agronomy, and Crop Science Society of America, Madison, 1984, 68 p. ISBN 0-89118-078-8.

The rhizosphere – the zone of microbial stimulation under the influence of plant roots – is a challenge to soil and crop scientists as well as microbiologists. Although the definition is clear, a quantitative assessment of the spatial domain of the rhizosphere and its associated physico-chemical reactions has yet to be achieved. This new paperback presents discussions focusing on bacterial colonization of plant root systems, interactions between microflora and soil fauna, impact of the soil-root interaction on plant nutrition and an overview of the importance of microorganisms in the root zone. The authors provide a clear description of many processes apparent within the rhizosphere and a state-of-the-art assessment of their importance in agronomy.

Price: US\$ 11.00, plus \$ 0.75 on all orders outside the U.S.A.

Orders to: see below.

Crops as Sources of Nutrients for Humans. ASA Special Publication 48. R. M. Welch and W. H. Gabelman, editorial committee. Soil Science Society of America, Crop Science Society of America, and American Society of Agronomy, Madison, 1984, 89 p. ISBN 0-89118-079-6.

Plant foods are an important source of nutrients for humans. Such foods contain essential fatty acids, amino acids, carbohydrates, vitamins and minerals. However, the nutrient composition of various food crops is not always capable of meeting the nutritional requirement of humans.

The present publication treats the role of plants as nutrient sources and presents an indepth view of how plant genotype, production practices, soil fertility and product processing affect the composition in nutritive value of plant products. The material presented will be of value to researchers, educators, students and administrators in charting future actions and activities for improving plant products as nutrient sources for humans.

Price: US\$ 12.00, plus \$ 0.75 on all orders outside the U.S.A.

Orders to: see below.

Roots, Nutrient and Water Influx, and Plant Growth, ASA Special Publication 49. S.A. Barber and D. R. Bouldin, editorial committee. Soil Science Society of America, Crop Science Society of America, and American Society of Agronomy, 1984, 136 p. ISBN 0-89118-082-6.

Plant growth depends on an intricate interaction of soil factors, atmospheric factors and plant genotype. In the past, it is the above ground portion of the plant that has received much attention from researchers whilst the root system has gone virtually unnoticed.

An understanding of the entire soil-plant atmosphere complex is required if yields of field, horticulture and forest plants are to be increased. In this study some recent studies on plant roots are treated. The publication covers basic mechanisms to an overview of the role of roots in determining crop yields.

Price: US\$ 16.00, plus \$ 0.75 on all orders outside the U.S.A.

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

Land Resources for the World's Food Production. Rheinisch-Westfälische Akademie der Wissenschaften – R. Dudal. Vorträge N334. Westdeutscher Verlag, Wiesbaden, 1984, ISBN 3-531-08334-1.

This report gives in twenty pages the lecture Professor Dudal gave at a meeting of the Academy of Science, and discussion. The author concludes that the world, as a whole, has enough land to produce food for present and future populations. When planning for a higher degree of self-sufficiency within countries and regions, it is essential that differences in land resources endowment and its crop production potentials, be fully appreciated. The booklet also contains the text of a lecture on world coal reserves, trade, energy.

Price: DM 22.00.

Orders to: Westdeutscher Verlag, Postfach 5829, D-6200 Wiesbaden 1, Fed. Rep. of Germany.

Publications on International Agricultural Research and Development. Consultative Group on International Agricultural Research, International Rice Research Institute and German Agency for Technical Cooperation, 1984, 560 p. ISBN 971-104-122-7.

The International Agricultural Research Centers (IARCs) focus modern agricultural research on the crops and livestock that provide 75% of the food for developing nations. The Centers are major publishers of books, periodicals, slide sets, films, and other educational materials on agricultural science and technology for developing nations.

The second exhibition of Publication on international agricultural research and development was held at the 1984 Frankfurt Book Fair, featuring about 1,000 titles published by 12 Centers supported by the Consultative Group in International Agricultural Research (CGIAR), 7 other IARCs, the Board on Science and Technology for International Development (BOSTID) of the U.S. National Academy of Sciences, and the German Agency for Technical Cooperation (GTZ).

The catalog is the only compilation of the major publications of all centers, GTZ, and BOSTID. Included is a description of each publication, prices, and ordering instructions.

An in-depth index helps the reader locate all publications in certain fields (e.g. cytogenetics, insect resistance).

This catalog is a must for libraries and organizations with an interest in global agricultural improvement.

Price: US\$ 10.20, including airmail charges.

Orders to: Communication and Publications Department, IRRIP, O. Box 933, Manila, Philippines.

Agricultural Productivity and Regional Imbalances. M. Shafi. Concept Publishing Comp., New Delhi, 1984, 345 p.

This book attempts to examine the concept of agricultural productivity and takes stock of various approaches towards the measurement of agricultural productivity. The different approaches for the measurement of agricultural productivity are tested with reference to Uttar Pradesh – a state of the Republic of India having an area of 294,363 sq km and a population of 110 million.

As agriculture accounts for a major proportion of the state's economic activity, the regional patterns and disparities reveal the level of development in the different parts of the state. The analysis of the performance of productivity has been made on the basis of food crops and the determinants of agricultural productivity identify the causes of regional imbalances in agricultural productivity.

This is one of the few studies which examines the various facets of agricultural productivity and regional imbalances spatially and hints at solutions for increasing the productivity and eliminating or minimizing the imbalances.

Price: US\$ 30.00.

Orders to: Concept Publ. Comp., Post Box 6274, New Delhi 110 015, India.

Erosion and Soil Productivity. Proceedings of the National Symposium on Erosion and Soil Productivity, New Orleans, December 1984. American Society of Agricultural Engineers, St. Joseph, 1985, 289 p. ASAE Publ. 8-85. ISBN 0-9161 50-69-0.

The detrimental effects of soil erosion on soil productivity are well recognized by soil erosion researchers, soil conservationists and farmers. With improved technology the deleterious effects of erosion may not be evident and even rapidly eroding areas may show yield increases.

The present proceedings is based on very recent data gathered in the U.S. and focuses on the effects of erosion on crop yields, soil properties, management, and economics.

Topics include quantitative assessments, experimental evaluations, and resource allocations. These 26 papers report the results of current research on erosion and soil productivity relationships.

Price: US\$ 26.00, plus 10% for orders outside North America.

Orders to: American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085-9659, U.S.A.

English-Russian Dictionary of Agriculture. I. Vaskhnii, V. G. Kozlovsky and N. G. Rakipov. Pergamon Press, Oxford, New York, 1985, 876 p. ISBN 0-08-030784-1.

Since the last edition of the English-Russian Agricultural Dictionary, technical progress and the development of scientific research in agricultural science and agricultural production has produced new concepts, and a reevaluation and broadening of the meanings of traditional agricultural terminology. The rapid growth of information sources and the great volume of literature being translated have created the need for a new English-Russian Agricultural Dictionary, fully and systematically reflecting the modern state of English-American and Russian terminology in the field of agriculture.

The dictionary contains terminology on all aspects of agricultural science and agricultural production – agronomy, livestock rearing, the economics and organization of agricultural production, veterinary science, and the mechanisation and electrification of agriculture. For the first time an attempt has been made to present as fully as possible the terminology on specializations such as agrophysics, agricultural radio-biology, breeding, seed production and the study of seeds, the study of marshes, land management, vegetable growing under glass, flower growing, fruit farming, veterinary science and tropical agriculture.

Price: £ 25.00 or US\$ 40.00, hardcover.

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

The Nature and Properties of Soils, Ninth edition. N. C. Brady. Macmillan Publ. Comp., 1984, xvii + 750 p. ISBN 0-02-946031-1.

Unprecedented population increases, mostly in countries with low agricultural productivity and low per capita incomes, coupled with rising energy costs and worldwide inflation has taxed the ability of farmers to meet human food requirements.

Soils play a critical role in meeting human food needs. Their conservation and wise use are essential today and will be even more critical in the future as population pressures increase. These pressures are already forcing the use of lands for food production that good judgment says should be kept in forests and rangelands. This change in land use encourages accelerated erosion and runoff losses that reduce soil productivity and simultaneously force sediment-burdened floodwaters on downstream populations.

Effective conservation and management of soils require an understanding of these natural bodies and of the processing going on within them. These processes, which are vital to the production of plants, also influence the many other uses made of soils.

The primary purpose of this text is to help the reader to gain a better understanding of the nature and properties of soils and to learn ways of making soils more useful to humankind. This ninth edition recognizes the role soils must play in enabling the world to feed itself. But most of the changes from the eighth edition are dictated by the numerous recent advances in soil science. For example, specific emphasis is placed on new and innovative 'conservation tillage' systems, which have expanded so rapidly in the United States.

New knowledge is presented of nitrogen transformation both in well-drained upland soils and in soils of wetland paddy fields where much of the food for developing countries is produced. Our improved understanding of the nature of soil colloids, including the soil clays in tropical areas, is reflected in several chapters. Likewise, recently acquired knowledge of the charge properties of different soils and of the nature of soil acidity is included.

The text has been rather extensively reorganized. Chapters 2-8 cover the basic physical, chemical, and biological properties of soils. There follow three chapters (9-11) dealing with the essential plant nutrients and three (12-14) concerned with soil formation, classification, and use. Chapter 13 on soil classification has been revised to conform with recent changes in Soil Taxonomy.

Chapters 14-19 deal with the practical management of soils. New to this edition is the Students Study Guide and Workbook, which includes self-test review questions, with complete answers.

Price: £ 13.95.

Orders to: Collier Macmillan, Stockley Close, Stockley Road, West Drayton, Middlesex, England UB7 9BE; or: Collier Macmillan, 866 Third Avenue, New York, NY 10022, U.S.A.

Workshop on Research Priorities in Tidal Swamp Rice. W. H. Smith, editor. International Rice Research Institute, Los Banos, 1984, 220 p. ISBN 971-104-102-2.

Rice farmers in the tidal swamps of Bangladesh, India, Indonesia, Sri Lanka, Thailand, and Vietnam face problems different from those of farmers in more favored environments. Problems specific to tidal swamp lands include uncontrolled water regimes, soil acidity, and mineral deficiency.

The Workshop on Research Priorities in Tidal Swamp Rice, held in Banjarmasin, Indonesia, June 1981, marked a departure from the international rice research community's usual approach to tidal swamp rice culture. In previous conferences on submergence-prone rice, sessions on tidal swamp rice were ancillary to the broader approach to deepwater rice. But scientists have increasingly begun to recognize the tidal swamps as a unique environment, and to consider the rice culture practices in those areas important enough to merit a workshop exclusively on tidal swamp rice. Only one out of four rice farmers are fortunate enough to work in areas in which water can be efficiently and economically controlled. The other 75% must make do in a diversity of adverse environments. Workshop participants identified problems unique to tidal swamp areas, and attempted to identify new technologies that, by a concerted research effort, could be generated for the fragile environment of tidal swamps. The present publication is the proceedings of that workshop.

Price: US\$ 7.50, plus \$ 4.25 airmail or \$ 0.75 surface mail postage. Prepayment required.

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

Environments Monitoring for the Arab World. Y. Elmehrik, F. A. Daghestani, H. Croze and W. Al-Hashimi, editors. The Royal Scientific Society, Amman, 1981, xxxii + 598 p.

The current rapid rate of development in Arab countries has potentially far-reaching environmental consequences which can affect the well-being of the Arab people. Consequent to this development is a need for Arab countries to develop the ability to monitor, assess and manage environmental factors related to agricultural production on the one hand, and the impact of environmental pollution on the other.

In order to help meet this need, a number of concerned organizations decided to bring together for the first time in an Arab Seminar a group of international experts to review the best existing methodologies for various types of environmental monitoring.

A Seminar was held under the auspices of the Royal Scientific Society of Jordan in October 1980 at Yarmouk University to discuss these issues. The present publication contains the texts of the 19 papers presented, the discussions, the opening statements, and the text of a panel discussion, and general statements, mostly on activities in the Arab countries.

Price: US \$ 34.00, including postage.

Orders to: The Royal Scientific Society, P.O. Box 6945, Amman, Jordan.

Abrégé de Pédologie. Ph. Duchaufour. Masson, Paris, New York, 1984, 220 p. ISBN 2-225-80323-4.

Il existe plusieurs ouvrages de langue française traitant de la pédologie: l'ouvrage en deux tomes de Ph. Duchaufour et B. Souchier (Pédologie, Masson, tome I, 2^e édition 1983, tome II 1979), aborde l'étude approfondie des données scientifiques les plus récentes en cette matière, et s'adresse donc surtout aux spécialistes; un certain nombre d'ouvrages de dimension plus restreinte, s'adresse à un public plus large, mais aucun d'eux n'embrasse la Science du Sol dans son ensemble.

Il a donc paru opportun de présenter sous une forme condensée une synthèse aussi complète que possible de la science du sol sous ses aspects théoriques et pratiques; l'étude des constituants du sol, et de ses propriétés 'globales' ne peuvent s'interpréter efficacement qu'à la lumière de l'étude dynamique de la formation du sol qui fait intervenir le facteur 'Temps'; le sol apparaît alors comme le point de rencontre du monde vivant et du monde minéral, reflétant intégralement l'environnement.

C'est le but de cet ouvrage de présenter les conceptions les plus modernes de la pédologie, d'une manière simple et concise, excluant aussi bien la langage ésotérique que les formules mathématiques complexes tout en sauvegardant la rigueur du raisonnement scientifique.

Prix: US\$ 13.70.

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

Mountain Ecosystems. Stability and Instability. B. Messerli and J. D. Ives, editors. The United Nations University and the International Mountain Society, 1984, 207 p.

This book is the collected papers of a special workshop on mountain ecosystem stability and instability held in Berne and at Riederalp, Switzerland, 14-19 September 1981. The individual papers were originally published in the journal *Mountain Research and Development*. It seemed appropriate to make them available under a single title on the occasion of the 25th International Geographical Congress, Paris-Alp, 1984.

It is noteworthy that the primary field of interest - mountains and their inhabitants - has moved, over the past three decades, from one of academic and intellectual pursuit to one of grave concern for the well-being of mountain peoples, the integrity of mountain environments, and the sustainable use of mountain resources. This change toward applied research is no way implies a diminished need for basic understanding of mountain processes, physical and human, and their interrelationships. Nor is the applied research of value only for the management of discrete mountain areas. Because of the potential for dramatic downstream effects resulting from mountain resource mismanagement, more effective mountain development is crucial.

Orders to: Prof. B. Messerli, Institute of Geography, Hallerstraße 12, CH-3012 Bern, Switzerland.

Transforming Natural Resources for Human Development: A Resource Systems Framework for Development Policy. K. Ruddle and D. A. Rondinelli. The United Nations University, Tokyo, 1983, 87 p. ISBN 92-808-0469-3.

This monograph - the first in a series of studies on natural resource systems theory and methodology - seeks to provide an overview of issues, problems and opportunities for planning and implementing development policies in ways that transform natural resources more effectively. It is addressed primarily to planners, administrators and policy-makers who analyze, formulate and carry out programmes and projects in developing countries that affect the transformation and utilization of natural resources and the environment. It seeks to explain the importance of natural resources in national, regional and community development and the importance of transforming them in such a way that they not only benefit people living in areas that are crucially dependent on them but those living wherever the quality of life is linked to them. Indeed, the authors argue that careful management of natural resources is an inextricable component of wise and effective development planning. To overlook or ignore the natural and environmental implications of development policies is likely to make them inappropriate or perverse.

It is attempted to combine a review of the rapidly-changing state of knowledge about resource issues with normative guidelines for planning and analysis, while at the same time identifying problems about which much more research needs to be done.

Price: US\$ 15.00.

Orders to: Publications Section, U. N. University, Toho Seimei Bldg., Shibuya 2-15-1, Tokyo 150, Japan.

Proceedings of the 5th ASEAN Soil Conference. S. Panichapong, C. Niamskul, A. Promprasit and M. Newport, editor. Department of Land Development, Bangkok, 1984, 2 volumes.

The Fifth ASEAN Soil Conference with the theme 'Soil Science as a Tool for Rural Development' was held in Bangkok, June 1984. This publication contains the text of the 75 papers presented in the following sessions: soil science education (1 paper), soil genesis and classification (3 papers), soil survey methodology and interpretation (5 papers), properties of Asean soils (4 papers), soil conservation (6 papers), skeletal soils (2 papers), agrotechnology transfer (1 paper), soil fertility and fertilizer use (11 papers), cropping system (4 papers), regional and international activities (3 papers), and two poster presentations.

The keynote address was given by Dr. R. W. Arnold, chairman of ISSS Commission V.

Price: US\$ 40.00.

Orders to: Department of Land Development, Bangkok, Bangkok 10900, Thailand.

Soil Management and Crop Water Supply. 4th edition. R. Heinonen, Swedish University of Agricultural Sciences, Uppsala, 1985, 105 p. ISBN 91-576-0052-X.

The theoretical aspects of soil water retention and movement are well covered by modern textbooks of soil physics, while the more practical aspects of soil-water management are usually treated more sparingly. This review aims at filling a part of the needs in this area and it is thought to be used mainly as a supplement to commonly available textbooks on soil science and soil physics.

The first section reviews the retention and the movement of soil water, with a discussion of relevant management problems. Root growth and the functional accessibility of the 'available soil water' to crops is discussed in the second section. The final section is devoted to evaporation, in many respects the most important stage in the story of water in cultivated soils. Erosion control, salinity problems, irrigation and drainage are not discussed in any great detail. The review has thus come to emphasize soil water accessibility, tillage and evaporation control aspects.

Price: Sw.kr. 50.00 or US\$ 6.00 plus Sw. kr. 23.00 or \$ 2.50 airmail charges.

Orders to: Dept. of Soil Sciences, Swedish University of Agricultural Sciences, S-75007 Uppsala, Sweden.

An evaluation of the agricultural potential of the Highveld Region in terms of dryland cropping and livestock production. Technical Communication 185, J. J. Scheepers, J. A. Smit and B. P. Ludick, Dept. of Agriculture, Rep. of South Africa, 1984, 268 p. and map.

Optimum land use has been the accepted policy of the South African Department of Agriculture since 1970. The concepts 'optimum land use' includes, i.a. six steps, namely: (1) the demarcation of reasonably homogeneous areas in respect of agricultural resources; (2) the establishment of yield norms and production techniques; (3) the establishment of adapted branches of farming; (4) the development of persuasion programs to implement adapted branches of farming in practice; (5) evaluation to measure progress in the application of optimum land use; and (6) purposeful research to exploit the agricultural potential of areas.

This study deals mainly with the first three steps of optimum land use. The point of departure is that the natural environmental factors form the basis of optimum land use. It therefore follows that farming enterprise planning for the short, medium and long term depends on an environmental approach.

In the study on the agricultural potential of the Highveld Regions, an attempt was made to systematise resource information on an area basis and to describe it in terms of locality, size, broad macroclimate and important soil features as reflected by series and depth phases. Yield potential for the major crops grown in the area is given for identified resource units. Although attention is mainly given to dryland cropping, grazing capacities were allocated to areas not suitable for crop production. The animal potential is given as the number of large stock units that can be carried per area.

The Region comprises 129 land types which are grouped into 57 reasonably homogeneous farming areas. A large number of ecotopes are defined using land type data. The potential yields of maize, grain sorghum, sunflowers, dry beans, potatoes, wheat and groundnuts for these resource units, are calculated using yield models. Grazing capacities are allocated to reasonably homogeneous farming areas and animal production potential is given in terms of the number of large stock units.

Orders to: The Director, Division of Agricultural Information, Private Bag X144, Pretoria 0001, Rep. of South Africa.

Ecotoxicology. Ecological Bulletins 36. L. Rasmussen, editor. Proceedings 3rd Oikos Conference. Publishing House of the Swedish Research Councils, 1984, 170 p. ISBN 91-86344-18-8; Series: ISSN 0346-6868.

One of the main differences between classical toxicology and ecotoxicology is that the latter is a four-part subject. Any assessment of the ultimate effect of an environmental pollutant must take into account, in a quantitative way, each of the distinct processes involved. First, a substance is released into the environment; the amounts, forms and sites of such releases must be known if the subsequent behaviour of the substances is to be understood. Second, the substance is transported geographically and into different biotas, and perhaps chemically transformed, giving rise to compounds which have quite different environmental behaviour patterns and toxic properties. The nature of such processes is unknown for the majority of environmental contaminants, and the danger arising from our ignorance of the ultimate fate of certain chemicals have been well documented in recent years. The third part of the process is the exposure of one or more target organisms. For this to be assessed, we must first identify the nature of the target (man himself, livestock, population, ecosystem, etc.) and the type of exposure that is to be examined. Fourth, we have to assess the response(s) of the individual organism, population, community or ecosystem to the specified (perhaps transformed) pollutant over the appropriate time scale.

In order for a proper ecotoxicological assessment to be made, this combination of steps must be examined in a quantitative and integrated way. These items were discussed at a meeting in Copenhagen in 1982.

The main sessions of the conference were: environmental behaviour of pollutants (3 papers), ecotoxicological effects on animals (6 papers), ecotoxicological effects on plants and plankton (8 papers), ecotoxicological effects on microorganisms, and indirect biological effects (3 papers), and ecotoxicological effects on ecosystems (4 papers).

In total 56 papers were presented at the conference, of which about half were selected to cover the subject of the present volume.

Price: Sw.kr. 260.00 or US\$ 38.00.

Orders to: Publishing House of the Swedish Research Councils, Box 6710, S-11385 Stockholm, Sweden.

Groundwater in Hard Rocks. Studies and reports in hydrology 33. I. Larsson, Chairman Project Panel. Unesco, Paris, 1984, 228 p. ISBN 92-3-101980-5.

Although the total amount of water on earth is generally assumed to have remained virtually constant, the rapid growth of population, together with the extension of irrigated agriculture and industrial development, are stressing the quantity and quality aspects of the natural system. Because of the increasing problems, man has begun to realize that he can no longer follow a 'use and discard' philosophy – either with water resources or any other natural resources. As a result, the need for a consistent policy of rational management of water resources has become evident.

The purpose of the continuing series 'Studies and reports in hydrology' to which this volume belongs, is to present data collected and the main results of hydrological studies, as well as to provide information on hydrological research techniques.

This volume has been prepared within the framework of IHP Project 8.6, 'Study of crystalline rock aquifers', one of the major projects of the International Hydrological Programme of Unesco, (IHP).

It is intended primarily to fill a gap in the knowledge of groundwater hydrology. Current manuals and technical books used by geologists, hydrologists and engineers contain relatively little specific information on the subject of the occurrence, exploration and development of groundwater in hard rock areas, that is, mainly igneous and metamorphic rocks of the Precambrian shield areas. On the other hand, a vast amount of research, exploration and development have taken place at random all around the world, in the course of the last 10 or 15 years, with variable results.

The purpose of this volume is also to inform water-resources specialists, physical planners, and water-policy decision makers, especially in developing countries, of the possibilities, both real and limited, of finding and developing groundwater resources in what has been previously considered one of the least promising hydrological environments, and to draw their attention to the complexity, sophistication and costs of the technologies involved. Therefore, while most of the material deals with the scientific and technological aspects of the occurrence of groundwater in hard rock areas and related exploration and development activities, some planning and economic aspects are also considered.

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

Guide to the Hydrology of Carbonate Rocks. Studies and Reports in Hydrology 41. P. E. LaMoreaux, B. M. Wilson and B. A. Memon, editors. Unesco, 1984, 345 p. ISBN 92-3-102206-7.

The purpose of this Guide is to assist hydrogeologists and others working toward the solution of practical water problems in carbonate terrains. It presents principles, practices and experiences in the fields of geology, chemistry, hydrology and engineering which are used in the study of water in and on carbonate rocks. Carbonate rocks, primarily limestones and dolomites, comprise roughly 15 percent of all sedimentary rocks and underlie 75 percent of the earth's surface.

The main difference between carbonate and most other rocks is their comparatively high degree of solubility, which results in the development of the surface and subsurface characteristics called karst. More specifically, the outstanding features of karst are the enlarged fissures and voids which permit fast infiltration rates and large preferential permeabilities and which channel the water into a complex distribution pattern. These characteristics are so distinctive that the hydrology of carbonate rocks forms a special facet of hydrology and hydrogeology that requires unusual attention to the chemistry of both the water and the rock and special concepts and techniques which must be modified or adjusted when applied to fractured and channelled rocks of carbonate terrains.

This Guide does not presume to present all basic hydrological theory and technique; rather it concentrates on their use in the study of carbonate rocks under practical field and office conditions.

The Guide is divided into two parts – principles and practices. The part on principles has five chapters, dealing successively with the nature and situation of carbonate rocks, and physical and chemical characteristics of the water with which the rock interacts, the consequent porosity and permeability, and their dynamic interrelationships of hydrology and their geomorphology. The second part, practices, deals with techniques and applications. These are divided into two broad categories – those that are involved in actual field work, and those involved in the decision-making process, such as planning, programming, and financing.

Price: FF 120.00.

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

Proceedings of the International Workshop on Soils. Research to Resolve Selected Problems of Soils in the Tropics. E. T. Craswell and R. F. Isbell, scientific editors; J. V. Mertin, publication editor. Australian Centre for International Agricultural Research, Canberra, 1984, 189 p. ISBN 0-949511-02-1.

The Soils Workshop, held in Townsville, Australia, September 1983, was sponsored by the Australian Centre for International Agricultural Research (ACIAR) and the Interim Committee of the International Board for Soil Research and Management (IBSRAM; see Bulletin 64, page 28).

The items related to IBSRAM business are summarized in the Appendix of the present proceedings. The main part consists of presentation of papers on seven research topics on tropical soils and the discussion

Sessions were: soil constraints to food production, taxonomy of tropical soils, nutrient availability in acid soils of the humid tropics, soil/environment interactions in the semi-arid tropics, physical problems of Vertisols, tropical high mountain soils, and mechanical and engineering problems of soils.

Price: Aust. \$ 11.00.

Orders to: ACIAR, P.O. Box 1571, Canberra City, A.C.T. 2601, Australia.

Proceedings of the International Symposium on Minimum Data Sets for Agrotechnology Transfer, March 1983, ICRISAT Center, India. ICRISAT, Patancheru, 1984, 212 p.

Successful transfer of agrotechnology from research station to farmers' fields or from one country to another depends on matching the requirements of a crop to the characteristics of its environment and the resources of the farmer. The International Benchmark Sites Network for Agrotechnology Transfer (IBSNAT) was established to increase both the speed and the success rate of technology transfer, using systems analysis and computer simulation models to eliminate the guesswork of trial-and-error transfer methods.

The minimum data set needed to simulate crop requirements in relation to soil, climate, and management, so as to predict crop performance, was discussed at an international symposium in March 1983. Fifty-six scientists from regional, national, and international research centers chose ten crops for study across a worldwide network of experimental sites. As a result of the symposium a minimum data set applicable to several crops has been circulated to IBSNAT cooperators. Agronomists and crop modelers are jointly designing field experiments to test the adequacy of this data set and to determine more precisely the additional data needed for each crop and for its adaptation to different environments.

The present proceedings of the international symposium, held at ICRISAT Center, Patancheru, India, make available much current information about crop models and simulation models of climate, crops, and soils and should be of interest to many agricultural and biological scientists.

Orders to: ICRISAT, Patancheru, P.O., A. P. 502 324, India.

Soil Formation by Termites, a study in the Kisii area, Kenya. W. G. Wielemaker, Doctoral thesis, Agricultural University Wageningen, 1984, 132 p.

This report describes the effects of termite activity on soils, in a humid tropical area in southwestern Kenya. Despite Darwin's (1881) early work on the effects of earthworms on soils and landscapes, soil fauna received only scanty attention of soil scientists, especially so in tropical regions. After a description of the past and present environmental conditions and the soils studied, the results are divided in two parts. The first deals with mineralogical and chemical methods used in estimating the degree of admixture of various soil materials. The second part discusses the role played by termites in the formation of soils. The data are synthesized in the last chapter, where an attempt is made to construct a model explaining the role of termites in natural and agro-ecosystems and the factors that control their functioning and effectivity in those systems.

Price: Dfl. 16.00 including postage.

Orders to: Dept. of Soil Science and Geology, P.O. Box 37, 6700 AA Wageningen, the Netherlands.

Proceedings of the ISSS Symposium on Water and Solute Movement in Heavy Clay Soils, Wageningen, August 1984, J. Bouma and P. A. C. Raats, Editors. International Institute for Land Reclamation and Improvement (ILRI), Wageningen, 1985, 363 p. ISBN 90-70760-97-2.

Heavy clay soils occupy large areas of the world. Their complex and variable structure leads to intricate patterns of water and solute movement. This book shows that soil surveyors, experimentalists, theorists, and scientists who are building (computer) models are facing up to the challenges.

The main text is divided into four themes:

- (1) development of structural patterns in swelling and shrinking clays. Description of structural patterns as a function of different environmental conditions and soil mechanical processes.
- (2) transport phenomena: water movement. Water movement in swelling clays at varying moisture contents as a function of water application regimes (rainfall patterns, irrigation methods).
- (3) transport phenomena: solute transport. Solute transport, exchange phenomena, and leaching efficiency associated with water movement in swelling clays at varying moisture contents. Also included are effects on soil formation and soil morphology.
- (4) Measurement and simulation techniques. Development and use of field and laboratory methods as well as simulation models which allow independent predictions of water and solute regimes in swelling clay soils, including experimental validation.

Price: Dfl. 85.00 or US \$ 34.00

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

Proceedings of the Fourth International Forum on Soil Taxonomy and Agrotechnology Transfer, Bangkok, Thailand. S. Panichapong, L. Moncharoun and P. Vijarnsorn, editors.

The Forum on Soil Taxonomy and Agrotechnology Transfer is the fourth in the series of training activities organized by the Soil Management Support Services of the Soil Conservation Service, USDA. The first three were held in Fiji, Morocco and Cameroon. The purpose of the Forum is to train soil scientists in

this system of soil classification and enable them to use the system for making and interpreting soil surveys. Although the focus is on Soil Taxonomy, each Forum is unique in a sense as each in addition, attempts to address concerns specific for the country or region.

Main parts of this report deal with the environment and soil in Thailand and Malaysia, and especially with soil-crop relations. The part on the field tour includes the descriptions of 20 selected pedons.

Price: US\$ 20.00 plus \$ 3.00 for postage.

Orders to: Dr. S. Panichapong, Department of Land Development, Bangkok 10900, Thailand.

Land evaluation for forestry. FAO Forestry Paper 48. FAO, Rome, 1984, 123 p. ISBN 92-5-102123-6.

Decisions about the use of land have always been part of human society. One of the earliest decisions was concerned with the question: which forested land should be cleared and converted to agricultural uses? Such decisions continue today in areas where growing populations require more land for food production, timber and fuelwood. Besides changes between forest and non-forest uses, there is a wide range of decisions involving choice between different types of forestry.

Forestry planning has always taken account of the influence of conditions of the land, whether on inputs, as in the higher maintenance and harvesting costs on steep or rocky slopes, or on potential output, as in climatic and soil effects on the growth rates of trees. The approach and methods of land evaluation were developed in order to provide a systematic framework for assessing the effects of land on potential production and other benefits.

The present guidelines outline procedures for conducting land evaluation with particular reference to forestry. The principles and methods described here will be found applicable to most forest land use planning situations. These could deal with choices among kinds and intensities of land uses; for example, forestry versus agriculture, or timber production versus soil/water conservation, selection versus intensive forest working, or could relate to different levels of planning: for example, national, provincial, district or local. Effort has been made to give a balanced emphasis to different aspects of land evaluation, viz. technical, economic, social and environmental.

These guidelines should not be regarded as a definitive manual on land evaluation for forestry. Rather, they represent a summary of present knowledge and experience. In future, it may be possible to prepare more specific guidelines on land evaluation for different forestry purposes, e.g. afforestation, wildlife management, soil and water conservation, etc.

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.

Glossary of Soil Science Terms. H. J. von M. Harmse, H. v. H. van der Watt, T. H. van Rooyen and R. D. U. T. Burger. The Soil Science Society of South Africa, 1984, 140 p. ISBN 0-86979-568-6.

Unless in geology and geomorphology, no standard reference glossary/vocabulary on soil science terms is available. This publication tries to fill a gap in South Africa. Its purpose is to provide explanations of soil science terms which will be helpful to a wide range of disciplines. It is intended that it will be improved upon in the future and contributions are welcomed.

Price: Rand 13.00 including postage.

Orders to: Soil Science Society of South Africa, P.O. Box 30030, Sunnyside 0132, Pretoria, Rep. of South Africa.

Exchangeable Cations-Cation Exchange Capacity. J.-O. Job and T. Mouheich. ACSAD-ORSTOM, Damascus, 1983.

This bibliography contains 74 abstracts of papers on analytical methods of the determination of exchangeable cations and CEC, mostly in English, some in French. Except the bibliographic references, for each entry is given: a summary of the method and the results, precision, list of tables in the article, and apparatus and chemicals used.

Requests to: Dr. T. Mouheich, ACSAD, P.O. Box 2440, Damascus, Syria.

The Surface Chemistry of Soils. G. Sposito. Clarendon Press, Oxford, 1984, xii + 234 p. ISBN 0-19-503421-X.

The mechanism of surface chemical reactions represents a problem in coordination chemistry, which is the study of complexes, molecular units comprising a central group surrounded by other atoms in close association. This book is principally an introduction to the interpretation of surface phenomena in soils from the point of view of coordination chemistry. Therefore the basic concept to be discussed is the surface functional group, the central moiety in surface complexes, whose formation provides the most important mechanism of adsorption by the solid phases in soils. No detailed consideration of adsorption isotherm equations or the thermo-dynamic theory of ion exchange is presented, except insofar as their tenuous relation with surface coordination chemistry is to be illustrated. The discussion in this book is intended to be self-contained, but a previous exposure to soil physical chemistry, soil mineralogy, and the fundamentals of inorganic chemistry will prove helpful.

The first chapter of this book reviews three basic experimental divisions of the surface chemistry of soils: the nature of adsorbing solid phases, the measurement of specific surface area, and the determination of surface charge density. The second and third chapters provide a general description of the solid-aqueous solution interface in soils which does not rely on any detailed molecular model of the interfacial region, such as diffuse double layer theory. The fourth and fifth chapters deal with the experimental and theoretical aspects of adsorption by soil constituents. In these chapters, mechanisms of adsorption as examples of surface complexation are discussed and molecular models of the interfacial region are described. The sixth chapter presents a brief review of the relationship between surface coordination chemistry and soil colloidal phenomena. This chapter can serve as an introduction to the key concepts of colloid structure and interparticle forces in soil clay suspensions.

Price: £ 35.00 or US\$ 42.50

Orders to: Oxford University Press, Walton Street, Oxford OX2 6DP, England; or: Oxford University Press, 16-00 Pollitt Drive, Fair Lawn, NJ 07410, U.S.A.

Atlas der Schweiz-Böden, Atlas de la Suisse-Sols, Atlanta della Svizzera-Suoli. 1:500,000. E. Frei und K. Peyer.

Die Klassifikation der Böden der Schweiz erfolgt in den Grundzügen nach dem Vorschlag H. Pallmanns (1948), weiterbearbeitet von E. Frei und Mitarbeiter (1976). Dieses Klassifikationssystem beruht auf den folgenden Kriterien: Bodenwasserhaushalt; Art der Festen Bodensubstanz; Kennzeichnende chemische Komponente der Bodenbildung; Filtrationsverlagerung; Makromorphologische Profilentwicklung; und Lokale Standortsfaktoren.

Im Vergleich zu anderen Bodenzonen der Welt gelten die Böden in der Schweiz als jung, da sie von den Gletschern der jüngsten Eiszeit bedeckt oder in anderer Weise beeinflusst waren.

Diese zweite, erneuerte Ausgabe der Bodenkarte 1:500,000 der Schweiz zeigt die geographische Verbreitung der wichtigsten Bodenassoziationen. Die kleinste auf dieser Karte darstellbare Fläche misst ca. 1000 ha. Da die Böden aber stets engmaschig variieren, enthält die Karte je ungrenzte Fläche mehrere Bodentypen in einer bestimmten Vergesellschaftung. Bei kleinen Kartenmasstäben sind die Kartierungseinheiten daher komplex. In der Legende werden 23 Bodenassoziationen unterschieden, wobei der dominante Bodentyp namentlich ist. In der Tabelle sind die weiteren in der Einheit verbreiteten Begleittypen aufgeführt. Nach den Bodenbildungsfaktoren Klimaregion, Ausgangsmaterial und Relief werden die 23 Einheiten in 7 Hauptgruppen gegliedert. Auf die Rückseite der Karte befinden sich 8 Profilaufnahmen mit Beschreibung.

Preis: SFr. 8.50.

Bestellungen an: Bundesamt für Landestopographie, CH-3084 Wabern-Bern, Schweiz.

Pédologie. 1. Pédogenèse et classification, 2e édition. Ph. Duchaufaur. Masson, Paris, 1983, 491 p. ISBN 2-225-79673-4.

Depuis l'année 1976 – date de la rédaction du texte de la première édition de cet ouvrage – les progrès de la recherche pédologique ont été considérables dans différents domaines de la pédogenèse, deux, en particulier, parmi les plus importants: la biologie des sols d'une part, le facteur 'temps' (durée de l'évolution des sols) d'autre part. Or, l'intérêt considérable de ces deux aspects de la formation des sols avait été déjà souligné dans la première édition: en particulier, le rôle de la matière organique dans orientation des évolutions de courte durée ('cycles courts') avait été mis en vedette, alors que son action apparaissait comme négligeable dans les 'cycles longs' de l'évolution des sols. Or, des précisions d'une importance considérable dans ces deux domaines ont été fournies par les résultats de la recherche au cours de ces cinq dernières années. Non seulement certaines notions, qui avaient dû être présentées comme hypothétiques, ont été confirmées, mais certains aspects nouveaux de nos connaissances sont apparus.

Une liste des principales matières, dans lesquelles des progrès spectaculaires ont été enregistrés: (1) Processus d'humidification: influence de la biomasse microbienne; rôle de certains composés aliphatiques, en particulier protéiques, et leur intervention dans l'humification et même la maturation climatique de certains humus; (2) Facteur temps: précisions sur l'opposition existant entre les cycles courts (entièrement postglaciaires, en climat tempéré) et les cycles longs (surtout sous climat chaud): les phénomènes l'alteration, que caractérisent ces deux cycles, s'opposent entièrement, les premiers étant entièrement soumis à l'influence profonde de la matière organique; (3) Mouvements de matière: aspects nouveaux des remontées biologiques d'éléments solubles (silice, calcium) et des phénomènes de 'lessivage' (entraînement d'argile): là encore, l'intervention de la matière organique, dans le domaine du lessivage notamment, a été mise en lumière, même dans des domaines climatiques (tropicaux humides), où son action n'était pas soupçonnée: la 'déstabilisation' des kaolinites et leur entraînement à grande profondeur, dans certaines circonstances particulières, ont été clairement démontrés.

Dans ces conditions, la mise à jour de cette seconde édition nécessitait un important travail de refonte du texte primitif, surtout celui de la première partie, qui concerne l'étude des processus généraux de la pédogenèse: plusieurs chapitres ont été remodelés.

Prix: FF 306.00.

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

Drainage: An Annotated guide to books and journals. ILRI Bibliography 18. G. Naber. ILRI, 1984, 37 p. ISBN 90-70260-93-X.

This bibliography was originally compiled for use in ILRI's International Course on Land Drainage. Revised and expanded over the years, it gives a representative sampling of the ever-increasing amount of literature available on the subject. Because of its consistent popularity among course participants, ILRI has now included the guide in its official series of bibliographies. It is a selective bibliography of writings about drainage, in English, French, and German, issued since 1970. It contains listings of useful directories, abstract journals, scientific journals, and bibliographies in the field. A special section on the reclamation of saline soils using drainage has been annexed.

Scientists, engineers, and students will find this work an important aid in pursuing information on all aspects of drainage.

Price: Dfl. 15.00.

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

Croûtes Calcaires: Types et Genèse. Exemples d'Afrique du Nord et de la France Méditerranéenne. T. Vogt. Université Louis Pasteur, Strasbourg, 1984, 239 p.

La question de la genèse des croûtes calcaires est débattue depuis plus d'un siècle sans avoir reçu de réponse satisfaisante, car les hypothèses émises n'apportent que des solutions partielles et souvent contradictoires. Ces formations, très répandues dans les régions semi-arides, ont été décrites et étudiées par de nombreux auteurs, en particulier au Maghreb, où des faciès-type ont pu être reconnus. Leur présence en France méditerranéenne est beaucoup plus discrète, car on se trouve là dans un domaine marginal de leur extension; elles n'y ont jamais fait l'objet d'études d'ensemble et ne sont évoquées que de manière ponctuelle et épisodique dans des travaux dont le but principal est ailleurs.

L'étude comparative de faciès 'classiques' et de formes marginales permet d'apporter des éléments d'explication aux problèmes de la genèse, de la répartition géographique et de la signification paléoclimatique et géomorphologique des croûtes calcaires.

Prix: FF 140.00.

Commandes à: Institut de Géographie, 3, rue de l'Argonne, F-67083 Strasbourg Cedex, France.

Physical and Geotechnical Properties of Soils, Second edition. J. E. Bowles. McGraw-Hill Book Comp., New York, 1984, 578 p. ISBN 0-07-006772-4 (hardback).

This text is an up-to-date assemblage of material needed for a basic understanding of geotechnical engineering. The in-depth coverage of physical properties of soils, soil origins, and geotechnical properties needed for flow strength and stability analyses has been retained from the first edition. Based on user feedback, the author has expanded the coverage of soil exploration, mechanics – including Mohr's circle, soil stresses, bearing capacity, and settlement analyses. This expanded treatment also makes the text useful as a reference work for the professional practitioner.

The number of worked examples has been increased so that the text can be used either as a traditional textbook or in a self-study environment. To reinforce the self-study aspect and to give authority to the material, the bibliography was greatly expanded.

Price: DM 131.20 (hardback); DM 48.00 (p bk).

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

Etude expérimentale de l'organisation des matériaux argileux. D. Tessier. Thèse de l'Université de Paris VII. Institut National de la Recherche Agronomique, Paris, 1984, 361 p. ISBN 2-85340-608-3.

Le but essentiel de ce travail consistait à analyser et à interpréter le comportement hydrique, ainsi que la genèse et l'évolution de la structure des matériaux argileux dans les sols. A cet effet, la méthode utilisée a reposé sur deux grands types d'investigations: (1) Etude de l'évolution simultanée de caractéristiques globales, telles que la teneur en eau et le volume poral, en fonction de paramètres énergétiques (contraintes); (2) Analyse des systèmes aux différents niveaux d'organisation de la phase solide en relation avec l'évolution des phases fluides (solution et air), c'est-à-dire depuis le niveau d'organisation correspondant à l'unité structurale (feuillet) jusqu'à ceux de l'ordre centimétrique.

Ceci étant, les recherches entreprises ont comporté principalement: d'une part, une étude de matériaux argileux fortement hydratés, donc situés dans le domaine énergétique normal du fonctionnement des sols; d'autre part, une caractérisation de l'évolution simultanée de l'organisation de la phase solide par des méthodes d'observation (M.E.B. et M.E.T.) et de mesure (diffusion des rayons X aux petits angles).

Les résultats obtenus, même s'ils ne concernent que des matériaux argileux purs, permettent d'ores et déjà de fixer le cadre et les modalités de l'évolution de l'organisation des matériaux argileux dans les sols.

Commandes à: I.N.R.A., Service de Publications, Route de St-Cyr, F-78000 Versailles, France.

Irrigation and Drainage in the World: A Global Review. K. K. Framji, B. C. Garg and S. D. L. Luthra. International Commission on Irrigation and Drainage, New Delhi, 1983, pp. 1667 in 3 volumes.

In this third edition, the country reports have been updated to take account of technological innovations and new management practices. Each one now incorporates the following major headings: physiography,

climate and rainfall, population and size of holdings, land resources, water resources, brief history of irrigation and drainage, irrigation and drainage methods used, statistics related to irrigation and drainage, important projects, field-water management, problems in irrigation and drainage, present developments and future plans, and administrative, economic and law issues.

Price: US\$ 129.00 per set, plus postage

Orders to: ICID, 48 Nyaya Marg, Chanakyapuri, New Delhi 110 021, India.

A Multidisciplinary Approach to Agrotechnology Transfer: Proceedings of a Benchmark Soils Project/Hawaii Institute of Tropical Agriculture and Human Resources Workshop. G. Uehara, editor. BSP Technical Report 7. HITAGR, Honolulu, 1984, 164 p. Series: ISSN 0271-9916.

Agrotechnology is the taking of an agricultural innovation from one location to another location where the innovation is likely to succeed. To succeed in a new location, the innovation must be technically sound, economically feasible, socially desirable, and environmentally safe. A multidisciplinary approach is essential and inescapable in agrotechnology transfer.

This workshop was organized to enable scientists from various disciplines to voice their views on the subject of agrotechnology transfer and to assess their readiness to test the ideas that emerged from the workshop papers. The workshop participants were specifically asked to write papers for the benefit of scientists not in the writer's field of specialization. The aim was not to discuss new developments in specialized disciplines, but to enable participants to synthesize their ideas from interactions with and fusions of old and established principles.

The workshop proceedings contains 17 papers. In the final analysis, agrotechnology transfer hinges on matching the requirements of an innovation to the physical characteristics of the land and the cultural traits of the recipients. The matching process clearly calls for a multidisciplinary effort, and it is hoped that these papers will foster more collaborative research so that research findings will be rendered more appropriate and acceptable to clients' needs.

Price: Single copies free of charge. Bulk users pay US\$ 3.25 per copy, plus postage.

Requests and Orders to: Agricultural Publications and Information Office, College of Tropical Agricultural and Human Resources, Univ. of Hawaii, 2500 Dole Street, Krauss Hall 6, Honolulu Hawaii 96822.

Soil Tillage in the Tropics and Subtropics. R. Krause, F. Lorenz, Revised and translated by W. B. Hoogmoed. Schriftenreihe der GTZ No. 150. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, 1984, 320 p. ISBN 3-88085-200-6. Series: ISSN 0723-9637.

More than ever before, an increase in the production of food crops is the main aim of the developing countries, nearly all of which are located in tropical and subtropical zones. The ideas and proposals as to how this increase can be achieved cover a wide range. On the one hand, we find a highly capital-intensive production system aimed at obtaining maximum yields and employing every available means, including intensive soil tillage, similar to the system applied in the industrial countries; on the other hand, we have a suitable crop production system requiring minimum inputs and taking account of the employment and skills of the indigenous population, the availability of energy, the agricultural structure and infrastructure.

In every case soil tillage forms a serious bottleneck in all the plant production operations. As the basis for more intensive cropping, correctly timed tillage can often be achieved only by a higher standard of mechanization in the form of tractors and large implements. The preservation of the productivity of the sensitive tropical and subtropical soils depends principally upon the correct choice and use of tillage equipment and tillage systems.

Part I deals with the fundamentals of soil cultivation in tropical and subtropical climates and Part II discusses soil tillage methods in those climatic zones and the equipment employed for them. The implements discussed are not chosen on the basis of any specific standard of mechanization, nor are they restricted to a specific farm-size or farming structure; instead, this book examines primarily the equipment available in countries with a fairly high standard of mechanization and the essential criteria for assessing its suitability for various locations in developing countries. Hand tools and animal draught implements are not examined. Tools classified as 'intermediate technology' are not examined separately because the principles of soil tillage also apply to them and any special problems concerning their design and manufacture are too site-specific. Special implements and tillage systems for wet (paddy) rice-growing are not considered. Nor does this work deal with systems and implements for land clearance, levelling, subsoiling and drainage since these operations are usually performed by contractors or government authorities and not by the individual farmer.

This book is intended primarily for agricultural specialists and their colleagues, extension workers and farmers and also for teachers and students of agricultural engineering and agronomy in the (sub)tropics.

Price: DM 33.50 plus postage.

Orders to: GTZ Verlagsgesellschaft, Postfach 36, D-6101 Rossdorf 1, Fed. Rep. of Germany.

Solos sob 'cerrado': características, propriedades e manejo. A. S. Lopes. Instituto da Potassa e Fósforo (EUA) y Instituto Internacional da Potassa (Suíça), Piracicaba, 1983, 162 p. (in Portuguese).

The area under 'Cerrado' vegetation in Brazil occupies 1.8 million km² or 20% of the country. A great agricultural development has been observed in this area in the last decade, mainly for food crops, pasture

and coffee production. However, to achieve adequate crop productivity in this distinct agroecological zone, there is a need for integration of agronomic knowledge to overcome soil and climatic constraints. This book provides a comprehensive and up-to-date discussion on chemical, physical and mineralogical properties and characteristics of these highly weathered soils, as well as other constraints for agricultural production. Research data on criteria for evaluation of lime rates, effects of deeper lime incorporation, and beneficial effects of leaching of calcium and magnesium are discussed in detail. In addition, methods, rates, sources and residual effects of 'build-up' phosphate and potash fertilizers are treated. Finally, management approaches for annual, semi-perennial, perennial, pasture and forage crops, mainly in relation to liming and 'build-up' fertilization, are emphasized. This book should be of interest to those working in low fertility status Oxisols/Ferralsols and Ultisols/Acrisols.

Price: US\$ 3.00 plus postage.

Orders to: Mr. T. Yamada, POTAFOS, Caixa Postal 400, 13.400 Piracicaba (SP), Brazil.

Pétrologie des Altérations et des Sols – Petrology of Weathering and Soils. Colloque International du CNRS, Paris, juillet 1983. J. Tardy, rédacteur en chef. Sciences Géologiques, Mémoire 71-73, 1983. Institut de Géologie, Université Louis Pasteur, Strasbourg, 1983, 538 p. ISSN 0303-2684.

Ce colloque s'inscrit dans l'ensemble des manifestations que le CNRS encourage dans les domaines de la Science qui se situent au tout premier plan de la recherche.

En effet, depuis une quinzaine d'années, des progrès considérables ont été réalisés dans la connaissance des altérations et des sols. La Pétrologie qui étudie les relations entre minéraux, texture et structures, les successions et les surimpositions des paragenèses, apparaît comme l'outil de base à la compréhension des mécanismes de genèse géochimique des manteaux d'altération et des sols.

Les thèmes abordés dans le colloque sont: (1) Pétrologie fondamentale: elle est en fait le lien avec le terrain, le modèle naturel, elle rend compte des aménagements naturels; (2) Pétrologie expérimentale qui simule les équilibres et les déséquilibres entre solution et minéral et qui en fait permet de saisir les mécanismes de l'altération; (3) Pétrologie appliquée aux substances utiles, c'est-à-dire les conséquences économiques de l'altération; et (4) Limite de cette altération météorique par rapport aux altérations hydrothermales plus chaudes.

Le nombre des personnes présentes montre l'intérêt qu'a suscité le thème du colloque au sein de notre communauté scientifique: 180 participants, 65 notes présentées, 41 en langue anglaise, 24 en langue française. Volume I: Pétrologie expérimentale. Mémoire 71, 160 p., prix FF 95.00; Volume II: Pétrologie des séquences naturelles. Mémoire 72, 170 p., prix FF 110.00; Volume III: Pédologie. Pétrologie appliquée aux substances utiles. Mémoire 73, 208 p., prix FF 135.00

Prix: FF 340.00

Commandes à: Institut de Géologie, 1 rue Blessig, F-67084 Strasbourg Cedex, France.

Lithology and Stratigraphy of Loesses and Paleosols. M. Pecsí, editor. Hungarian Academy of Sciences, Budapest, 1984, 325 pp. ISBN 963-7322-31-0.

The editor has assembled in this volume 30 papers on loess and paleosols from symposia organized by the INQUA Commissions on Loess and on Paleopedology at the Moscow INQUA Congress in 1982. The papers are grouped into four broad categories: processes, properties, stratigraphy and dating, and applied aspects (engineering and land use). Over half of the papers are from Soviet and East European workers who only rarely publish in English. Six papers (four by Chinese authors) present data on loesses and paleosols of China. Several papers report SEM investigations of microtextures. If we use the Rothamsted Annual Report grouping of publications into general and documented research papers, then most fall into the former category. Many papers mention the significant contribution of paleosols to stratigraphic correlation and environmental interpretation. Some of the papers are essentially extended summaries of work done over many years and frequently assert their point without giving the evidence. The are useful as state-of-art overviews of those who have no regular access to East European publications. Of interest to Quaternarists, pedologists, and loessial soil technologists.

D. H. Yaalon, Israel

Price: US \$ 23.00

Orders to: Kultura, Hungarian Foreign Trading Co., P.O. Box 149, H-1389 Budapest, Hungary.

Flooding and Plant Growth. T. T. Kozłowski, editor. Academic Press, Orlando, London, 1984, 356 p. ISBN 0-12-424120-4.

Growth and distribution of plants are controlled chiefly by too little or too much water. Although many comprehensive volumes have been published on effects of drought on plants, the responses of plants to flooding have received relatively little attention. Yet temporary or continuous flooding with fresh or salt water is very common throughout the world. Soil inundation is variously traceable to overflowing of rivers, storms, overirrigation, inadequate drainage, and impoundment of water by dams. Flooding leads to rapid depletion of soil oxygen and changes in physiological processes of plants that markedly influence their growth and survival. Flooding affects our well-being not only by extensive destruction and impairment of goods and services but also by restricting yields of foods and fibers. With these important considerations in mind, this work was planned to bring together in one volume the current state of knowledge and opinion on the effects of flooding of soil with fresh or salt water on metabolism and growth of herbaceous and woody plants.

The opening chapter discusses the causes and extent of flooding and introduces the reader to the general nature of plant responses to flooding. Subsequent chapters address in depth the various effects of flooding on soil: metabolism and growth of herbaceous plants; growth and composition of communities of woody plants; physiological processes of plants, with particular emphasis on water, carbohydrate, mineral, and hormone relations; and plant diseases. The final two chapters describe various physiological and morphological adaptations of plants to flooding with fresh and salt water.

It will be of interest to teachers and researchers in agriculture, horticulture, forestry, ecology, soil science, plant physiology, hydrology, biochemistry, meteorology, and plant pathology.

Price: US\$ 60.00.

Orders to: Academic Press, 24/28 oval Road, London, England NW1 7DX; or: Academic Press, Orlando, FL 32887, U.S.A.

Microcomputer and Laboratory Instrumentation. D. J. Malcolm-Lawes. Plenum Press, New York, 1984, 246 p. ISBN 0-306-41668-9.

The invention of the microcomputer in the mid-1970s and its subsequent low-cost proliferation has opened up a new world for the laboratory scientist. Tedious data collection can now be automated relatively cheaply and with an enormous increase in reliability. New techniques of measurement are accessible with the 'intelligent' instrumentation made possible by these programmable devices, and the ease of use of even standard measurement techniques may be improved by the data processing capabilities of the humblest micro.

It is clear that all scientists of the future will need some knowledge of computers. However, to be able to exploit this computing power to the full the practising laboratory scientists must gain sufficient understanding to utilise the communication channels between apparatus on the laboratory bench and program within the computer. This book attempts to provide an introduction to those communication channels in a manner which is understandable for scientists who do not specialise in electronics or computers.

The contents are based on courses given to undergraduate and postgraduate science students. The objective of those courses was to provide students with an understanding of how modern microcomputers can communicate with laboratory apparatus for measurement and control purposes.

The courses were closely associated with practical experience gained on microcomputers and a variety of items of standard laboratory instrumentation. Of course that element is not included in the present text, but the fact remains that this book is intended to be assistance to the practical scientists.

Price: US\$ 35.00.

Orders to: Plenum Publishing Corp., 233 Spring Street, New York, NY 10013, U.S.A.

The Chemistry of Weathering. J. I. Drever, editor. NATO ASI series, Series C, Mathematical and Physical Sciences; Vol. 149. D. Reidel Publishing Comp., Dordrecht, Boston, 1985, 324 p. ISBN 90-277-1962-4.

Several important developments in our understanding of the chemistry of weathering have occurred in the last few years: (1) There has been a major breakthrough in our understanding of the mechanisms controlling the kinetics of silicate dissolution, and there have been a growing recognition of the importance of organic solutes in the weathering process, and hence of the inter-relationships between mineral weathering and the terrestrial ecosystem; (3) The impact of acid deposition ('acid rain') has been widely recognized. The processes by which acid deposition is neutralized are closely related to the processes of normal chemical weathering; an understanding of the chemistry of weathering is thus essential for predicting the effects of acid deposition; and (4) More high-quality data have become available on the chemical dynamics of small watersheds and large river systems, which represent the integrated effects of chemical weathering.

The present book contains the results of a NATO Advanced Research Workshop, held at Rodez, France, in July 1984, which brought together experts in these and other aspects of weathering to exchange ideas and to try to integrate the different approaches. The organization of this volume follows the organization of the conference, with natural progression from theoretical models and laboratory experiments to detailed field studies, and finally to large-scale drainage-basin studies. This volume does not, unfortunately, include the extensive discussion that took place at the conference. There was a consensus at the end that thermodynamic and kinetic models could be used quite effectively to predict the chemistry of groundwaters and waters in the unsaturated zone below the soil, but we were still a long way from being able to model or predict the chemistry of weathering in the soil zone, where biological processes tend to dominate inorganic processes. In particular, it was felt that theoretical models could not, at present, predict the effects that acid deposition would have on weathering processes in the soil.

Price: £ 33.25.

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

Principles of Quantitative X-Ray Fluorescence Analysis. R. Tertian and F. Claisse. Heyden, London, Philadelphia, 1982, 385 p. ISBN 0-85501-709-0.

X-ray fluorescence spectrometry is a powerful physical technique for elemental analysis. When it was introduced on a commercial scale about 30 years ago, the main research efforts were devoted to the development of instrumentation and practical applications, with only moderate attention to fundamental condi-

tions. Thus, the difficulties related to the composition of the specimen, i.e. the matrix correction problem, and those related to the physical state of the specimen were generally overcome by compensation procedures. These comparative methods proved very valuable in many applications.

A turning point was reached by the mid 1960s when automation in measurements and analytical calculations, including corrections, became feasible thanks to increased spectrometer capabilities and growing data handling facilities. These conditions favoured the development and re-evaluation of mathematical procedures, namely the fundamental parameter method based on Sherman's equation and the numerical or influence coefficient methods that can be made compatible with the same fundamental basis. Both approaches are still under development.

One object of this book is to discuss the mathematical and comparative methods, to compare them in the light of theory, to emphasize the necessity of coherence between them and to determine their theoretical and practical potential and limitations.

The larger part of this book deals with absorption-enhancement effects and their correction. Three short chapters are allotted to more qualitative subjects such as heterogeneity effects, specimen preparation, and X-ray intensity measurements. These three subjects are important because specimen conditions and experimental techniques strongly influence the quality of any quantitative analysis. Examples of applications are detailed as a necessary complement to theory.

This book should be useful to advanced students to improve their knowledge of the fundamentals of x-ray spectrometry. It is intended to be especially helpful to x-ray spectroscopists and analytical chemists, not only in recognizing pitfalls in analytical procedures but in becoming sensitive to the great potential that exists in the x-ray fluorescence field.

Price: US\$ 75.00.

Orders to: Heyden & Son, Spectrum House, Hillview Gardens, London, England NW4 2JQ; 247 South 41st Street, Philadelphia, PA 19104, U.S.A.; or Devesburgstrasse 6, 4440 Rheine, Fed. Rep. of Germany.

New Journals/Nouveaux Périodiques/Neue Zeitschifte

Applied Clay Science. An International Journal on the Applications and Technology of Clays and Clay Minerals. F. J. Eckardt, J. E. Gillott and R. Kühnel, editors. Elsevier, Amsterdam.

Great advances are continually being made in almost all branches of science and new instruments and computerization have resulted in new efficient and accurate techniques.

While the number of scientists and research institutions increases, so the gap in communications between them tends to widen. This is no less true for the field of clays and clay minerals where important information tends to be scattered among specialized periodicals and the practitioner often has difficulty in locating the information he requires for specific applications.

This new journal is a medium for scientists, engineers and technologists working in the wide field of clays and clay minerals. It will publish research papers, reviews and short communications in the field of applied clay science in a broad sense. The journal will cover items such as the following: clay characterisation; clay product preparation; chemical, mineralogical, geochemical and physical properties and behaviour of clay minerals related to applications in the industrial production of: ceramics, construction materials, refractories, fillers and carries; the role of clays and clay minerals as process aids; influence of clay composition and fabric on permeability and reservoir properties; geotechnical applications of clay and clay minerals; agricultural applications, such as the influence of clays on soil structure, fertility and water requirements.

Subscription price: (1985, vol. 1, 4 issues) US\$ 87.75 or Dfl. 237.00 including postage.

Orders to: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, the Netherlands. In U.S.A. and Canada: Journal Information Center, Elsevier Science Publishers, 52 Vanderbilt Avenue, New York, NY 10017, U.S.A.

Biomass. An International Journal. J. Coombs and D.O. Hall, editors. Elsevier Applied Science Publishers, Barking. ISSN 0144-4565.

The journal covers all aspects of the production, processing and use of plants, microorganisms or enzymes for energy, fuel or chemical production. This includes basic microbiological and enzymatic studies in which anaerobic digestion and fermentation play a role in energy production.

The journal is essentially concerned with the use of biomass as an alternative energy source. Topics include the role of biomass and the energy situation; the resource base and possible significance in developed and developing countries; global recycling and environmental factors; photosynthesis and its efficiency as related to plant (biomass) productivity; source, composition and products of biomass; processes for the conversion of biomass to heat, fuels or chemicals; use of biofuels; production of new chemicals or chemical feedstock from plants, new processes for producing chemicals from plants; energy balances and studies of economics; case studies at village and/or national level; future prospects of improving artificial photosynthesis.

Frequency: four issues per volume, three volumes per year.

Subscription price: (1985) UK: £ 160.00, elsewhere £ 196.00.

Orders to: Elsevier Applied Science Publishers, Crown House, Linton Road, Barking, Essex IG11 8JU, England.

Transport in Porous Media, Quarterly. Jacob Bear, editor. D. Reidel Publishing Company, Dordrecht.

This interdisciplinary journal is devoted to original and innovative research on the physical and chemical aspects of transport in multiphase, possibly deformable, porous medium domains as encountered in a variety of scientific and engineering disciplines. These transport phenomena include fluid mass, mass of components, momentum and energy. A thorough understanding of the processes serves as a basis for the construction of mathematical and numerical models that describe, among others, groundwater flow and pollution in aquifers, movement of water and contaminants in the unsaturated zone, oil and gas movement in reservoirs, solvent drives and enhanced oil recovery, packed bed reactors, filtration processes, transport of fluids and chemicals in lungs and other organs, heat and mass transport in geothermal reservoirs and in building materials, and pollution from radioactive waste repositories.

Emphasis is on innovation in both theory and (non-routine) applications, and on a unified approach to various transport phenomena. Occasionally, invited state-of-the-art reviews will be included, with the objective of providing the background for future research. In short, the Journal aims to provide a bridge of communication between scientists and engineers, researchers and practitioners in all disciplines where such phenomena occur. Additional features include: book reviews; announcements and calendar of events; letters to the editor; research comments; and discussion corner. The first issue will appear in 1986.

For further information: D. Reidel Publishing Company, P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

Soil Use and Management, Quarterly. A. Wild, editor. Published for the British Society of Soil Science by Blackwell Scientific Publications, Oxford. ISSN 0266-0032.

The purpose of the journal is to publish papers, short notes and comments which illustrate the wide range of involvement of soil science with practical questions. The aim is to bridge the gap between the results of fundamental research in soil science and the use of that information in solving particular practical problems. These problems may be in agriculture, forestry or horticulture, in the use of land for amenity or other purposes, or in soils considered as part of the environment. A broad view will be taken on 'use' and 'management' including, for example, soil/plant and soil/crop interactions, land use and restoration. The emphasis will be on applications of soil science in temperate climates, though not exclusively so.

In the first issue the theme is soil acidification, familiar subject for a very long time, which has become one of the foci of attention as a result of the public debate on acid rain. In succeeding issue in 1985 the themes will be: June: Upland soils including forestry and other uses; September: Assessment of nitrogen fertilizer requirements; and December: Problems of management under intensive use, including erosion.

Subscription price: (1985) For institutions: In U.S.A. US\$ 62.50, in U.K. £ 32.50, elsewhere £ 39.00. For individuals: In U.S.A. US\$ 48.00, in U.K. £ 25.00, elsewhere £ 30.00.

Orders to: Blackwell Scientific Publications, P.O. Box 88, Oxford, England.

International Agrophysics, Quarterly. A. Z. Nagy, editor-in-chief. Akademiai Kiado, Budapest and Martinus Nijhoff/Dr. W. Junk Publishers. ISSN 0236-8722.

This is a new quarterly for all aspects of physical properties of soil and agricultural products. The topics covered in the journal include results and methods of research in applied physics from agro-mechanics to nuclear sciences. The problems treated range from the physical properties of soil, plants, food, fibres and biomass of vegetable and animal origin to characterization of mass, heat, energy and information transport, and interaction with all kinds of radiation.

The journal publishes review articles integrating findings in broader areas, original papers, and short communications. Sheet of compiled data are published in the Data Section. In the Abstracts Section a number of leading relevant journals are being monitored. News and reports on conferences and meetings are carried in the Events Section.

Subscription price: (1985) For institutions Dfl. 180.000 or US\$ 72.00 plus Dfl. 25.00/US\$ 10.00 for postage. For individuals Dfl. 100/US\$ 40.00 including postage.

Orders to: Kluwer Academic Publ. Group, Distribution Center, P.O. Box 322, 3300 AH Dordrecht, The Netherlands; or: Martinus Nijhoff Publishers, 190 Old Derby Street, Hingham, MA 02043, U.S.A.

Journal of Rural Studies, Quarterly. P. Cloke, editor. Pergamon Press, Oxford, New York. ISSN 0743-0167.

This new journal will publish research articles relating to such rural issues as society, demography, housing, employment, transport, services, land-use, recreation, agriculture and conservation. It will focus on those areas encompassing extensive land-use, with small-scale and diffuse settlement patterns and communities linked in to the surrounding landscape and milieu. Particular emphasis will be given to aspects of planning, policy and management.

The journal will be international and interdisciplinary in scope and content. It will publish up-to-date research from a wide range of multidisciplinary interests, including geography, economics, sociology, demography, agriculture and planning. This interdisciplinary approach will be complemented by comparative analysis in order to provide cross-national and regional perspectives. From time to time, short communications, book reviews, a calendar of events, and conference reports will also be published.

Subscription price: (1985): US\$ 10:0.00.

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

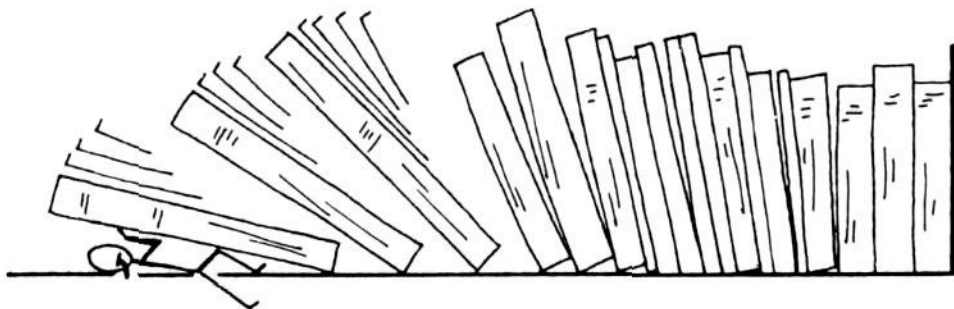
Biology and Fertility of Soils. Journal. J. C. G. Ottow, editor-in-chief. Springer International.

This new journal, appearing in 1985, will report on new developments in fundamental and applied aspects of biology and productivity of soils. Edited by a board of respected scientists with expertise in the quickly growing areas such as studies of organisms and their activities in soils, the journal will rapidly publish original papers, reviews, and short communications. A hall-mark of the journal will be its reports on techniques and methods that evaluate processes, biogeochemical interactions and ecological stresses.

Specific topics of interest include: soil biology, soil fertility, soil hygiene, soil biotechnology. It will also publish special numbers on relevant subjects, calling for comprehensive reviews and reappraisals of concepts. Environmental threats, such as acid rain and heavy metals, underscore the necessity of a forum for research aimed at broadening the understanding of biological functions, processes, and interactions in soils.

Subscription price: (1985) Volume 1, 4 issues, DM 220.00, plus postage. Also available in microform.

Orders to: Springer International, P.O. Box 503, 1970 IJmuiden, The Netherlands.



ISSS RECEIPTS AND PAYMENTS ACCOUNT for the period January-December 1984

(Treasurer and Secretary-General)

Receipts	US dollars (equiv.)	Payments	US dollars (equiv.)
Balance on January 1984		Secretarial assistance	849
– secretary general	8,086	Registration and subscription costs	57
– treasurer	17,247	Travel and Representation	3,761
– deposit with savings account	10,890	Equipment and supplies	438
Interest	1,484	Bank charges	139
Conference fees	995	Postal charges	5,841
Membership fees (incl. life members)	37,892	Printing	11,638
Subscriptions	855	Dollar equivalents (2)	2,849
Travel funds	782		
Sale of books	65		25,572
Subventions	410	Balance carried forward	
Grant (1)	4,286	cash in bank (3)	
		secretary-general	9,716
	82,992	treasurer	11,442
		deposit with savings account	36,262
			82,992

(1) Contribution by Dutch Soil Survey Institute Stiboka

(2) Fictitious loss of 'dollar equivalents' on the foreign currencies of the balance of January 1984

(3) US dollars, Belgian francs, Dutch guilders and other currencies



International Society of Soil Science (ISSS)
Association Internationale de la Science du Sol (AISS)
Internationale Bodenkundliche Gesellschaft (IBG)

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RESSE/ANSCHRIFTENÄNDERUNG
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- ☐ A Salt Affected Soils/Sols salins/Salzböden
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- ☐ C Soil Conservation and Environment/Conservation du sol et environnement/Bodenerhaltung und Umwelt

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- 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)
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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 Rausch-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, Oslhausenstrasse 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 0C6, Canada

AS Acid Sulphate Soils/Sols sulfatés acides/Saure Sulfatböden (Comm. V)

Prof. Dr. L. J. Pons, Dept. of Soil Science and Geology, Agric. University, P.O. Box 37, 6700 AA Wageningen, Netherlands

HP History, Philosophy and Sociology of Soil Science/Histoire, philosophie et sociologie de la science du sol/Geschichte, Philosophie und Soziologie der Bodenkunde (Comm. V)

Prof. Dr. D. H. Yaalon, Department of Geology, Hebrew University, Jerusalem 91000, Israel

MV Moisture Variability of Field Soils/Variabilité en humidité des sols sur le terrain/Veränderlichkeit von Bodenfeuchtegehalt im Gelände (Comm. I)

Dr. D. R. Nielsen, Dept. of Water Science and Engin., Univ. of California, Davis, CA 95616, USA

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