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of the international society of soil science

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de l'association internationale de la science du sol

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FIRST ANNOUNCEMENT OF THE 14TH INTERNATIONAL CONGRESS OF SOIL SCIENCE

August 12-18, 1990, Kyoto, Japan

'IMPROVING SOIL MANAGEMENT FOR MAN AND THE ENVIRONMENT'

Optimum Utilization of the World's Soil Resources to Increase Biological Production and to Protect the Environment

1. *Congress sessions:*

The program will include plenary sessions, symposia and poster sessions. No oral presentation sessions will be held; instead about 40 symposia will be organized on selected themes as listed below. These symposia are to be composed of both invited and voluntary papers. Those who intend to submit a voluntary paper should send the PRE-REGISTRATION FORM attached to this Bulletin, so that they will later receive a form for an extended summary. The papers to be included in the symposia will be selected solely based on their fitness to the symposia themes as expressed in the extended summary. Authors of the selected papers will be further requested to contribute a full paper during the latter half of 1989. All the rest of the voluntary papers that are not included in the symposia will be presented at the poster sessions and their extended summaries will be published in the congress proceedings.

1.1 Plenary sessions (invited speakers):

Topics and speakers are being considered by the organizing committee in consultation with all the Commissions.

1.2 Symposia themes:

(Roman numerals in parentheses show the Commission that is responsible for the respective symposia).

(1) Areal estimation of soil hydrological processes and their application in: a) watershed hydrology; b) efficient use of irrigation and drainage structures; c) land evaluation; d) environmental protection (I)
(2) Recent degradation processes in soil physical properties and the reclamation of anthropogenetically degraded soils (I)
(3) Problems and opportunities in soil physical management in rice-based cropping systems (I)
(4) Kinetics of ion sorption processes in soils (II)
(5) Surface chemistry under varying redox conditions (II)
(6) Heavy metal accumulation in soils (II)
(7) Chemical processes at the soil colloid-root interface (II)
(8) Dynamics of P and N in soils with variable charge colloids (II)
(9) Soil emissions affecting the environment (II)
(10) Associative and parasitic microorganisms in soil biotechnology (III)
(11) Microbial activity in the rhizoshpere (III)
(12) Ecology of soil microorganisms in microhabitat environments (III)
(13) Soil biota in tropical soil ecosystems (III)
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(15) Biodegradation of natural and synthetic compounds in soils (III)
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(21) Rational use of sewage sludge and city waste materials in agriculture (IV)
(22) Fertilizer technology and its efficient use for crop production (IV)
(23) Nutrient linkage in soil-plant-animal systems under grassland conditions (IV)
(24) Fate of nitrogen in paddy fields (IV)
(25) Active role of plant roots in controlling the rhizosphere (IV)
(26) Recent development in soil classification (V)
(27) New methods of soil inventory and cartography for ecosystem development (V)
(28) Soil geography in eastern Asia (V)
(29) Methodology to evaluate vulnerability to soil degradation (V)
(30) Historical, philosophical and sociological aspects of development in soil science (V)
(31) Characterization and role of organic matter in different soils (V)
(32) A 1:1 million world soils and terrain digital database: its structure, development and use (V)
(33) Global soil changes and their dynamics in a changing environment (V)
(34) Application of micromorphology to agronomic and environmental sciences (VI)
(35) Conservation-effective management requirements for soils in contrasting agro-ecological zones (VI)
(36) Evaluation of the changes in soil properties as related to various management practices (VI)
(37) Pedotechnical approach to present day soil tillage and field traffic problems (VI)
(38) Movement and accumulation of salts and optimal irrigation scheduling (VI)
(39) Salt-affected soils and effective methods of their utilization under different ecological/environmental conditions (VI)
(40) Irrigation, drainage and management of heavy clay soils (VI)
(41) Occurrence, structure and properties of soil minerals (VII)
(42) Soil mineralogy, soil management and soil classification (VII)
(43) Physical, chemical and mineralogical characteristics of ando soils (VII)

Note: A few changes might be made to the Symposia themes with further discussion by the Program Committee.

2. *Field Study Tours:*

A number of pre- and post-Congress field study tours will be organized in cooperation with colleagues from the Japanese Society of Soil Science and Plant Nutrition, the Chinese Society of Soil Science, and the All-Union Society of Soil Science of the USSR. Details of the tour programs and costs will be communicated later.

2.1 Pre-Congress Field Study Tours:
Japan Inland Tours:
Tour A: Hokkaido (6 days, August 6-11). Sapporo-Obihiro-Kyoto.
Landscapes, soils, land use and sightseeing in Hokkaido: Peat and paddy soils in Bibai; rice farming in cool temperature region; heavy clay soils and their improvement in Takikawa; forestry and upland farming in Abashiri; Akan National Park, vitric volcanic ash soils and dairy farming in Konsen; volcanic ash soils and upland farming in Tokachi.
Tour B: Tohoku (6 days, August 6-11). Tokyo-Sendai-Kyoto.
Landscape, soils and land use in Tohoku: Tsukuba science city, Andosols and intensive agriculture in the suburban area; Andosols, Nikko-shrines, and National Grassland

Research Institute in Tochigi; paddy and orchard soils in Fukushimal, Bandai-Asahi National Park, and Fruit Tree Experiment Station; Experimental Farm of Tohoku University, paddy soils, and boat cruising in Matsushima Bay; sightseeing in Sendai.
Tour C: Kanto and Tokaido (6 days, August 6-11). Tokyo-Ise-Kyoto.
Intensive horticulture, upland farming, pearl farm and sightseeing in Kanto and Tokaido; greenhouse horticulture in Hiratsuka and forest site in Hakone; sightseeing around Mt. Fuji and Nihondaira; tea plants in Makinohara and Hamanako-lake; water culture in Yatomi and plant biotechnology at National Research Institute of Vegetables, Ornamental Plants and Tea; Ise-shrine and pearl farm.
Tour D: Seto Inland Sea and San-in (5 days, August 7-11), Osaka-Matsue-Kyoto.
Soils, lake eutrophication and sightseeing in Seto Inland Sea Area and San-in: Seto Inland Sea National Park and Hiroshima; lakes Shinji-ko and Naka-umi in Shimane, polder and paddy soils; Mt. Daisen National Park, volcanic ash soils, pear orchards and sand-dune agriculture in Tottori.
Tour E: Kyushu (5 days, August 7-11). Fukuoka-Kumamoto-Kyoto.
Soils, land use and sightseeing in Kyushu: Upland farming, soils derived from basalt etc., china making, paddy cultivation in Saga; orchard, red-yellow soils, upland farming, 'Imogo' and volcanic ash soils, natural forest preservation and sightseeing in Kumamoto; paddy and orchard soils on Chikugo river alluvium and terraces.

'Trans-Siberia' Tour:
The schedule is as follows:

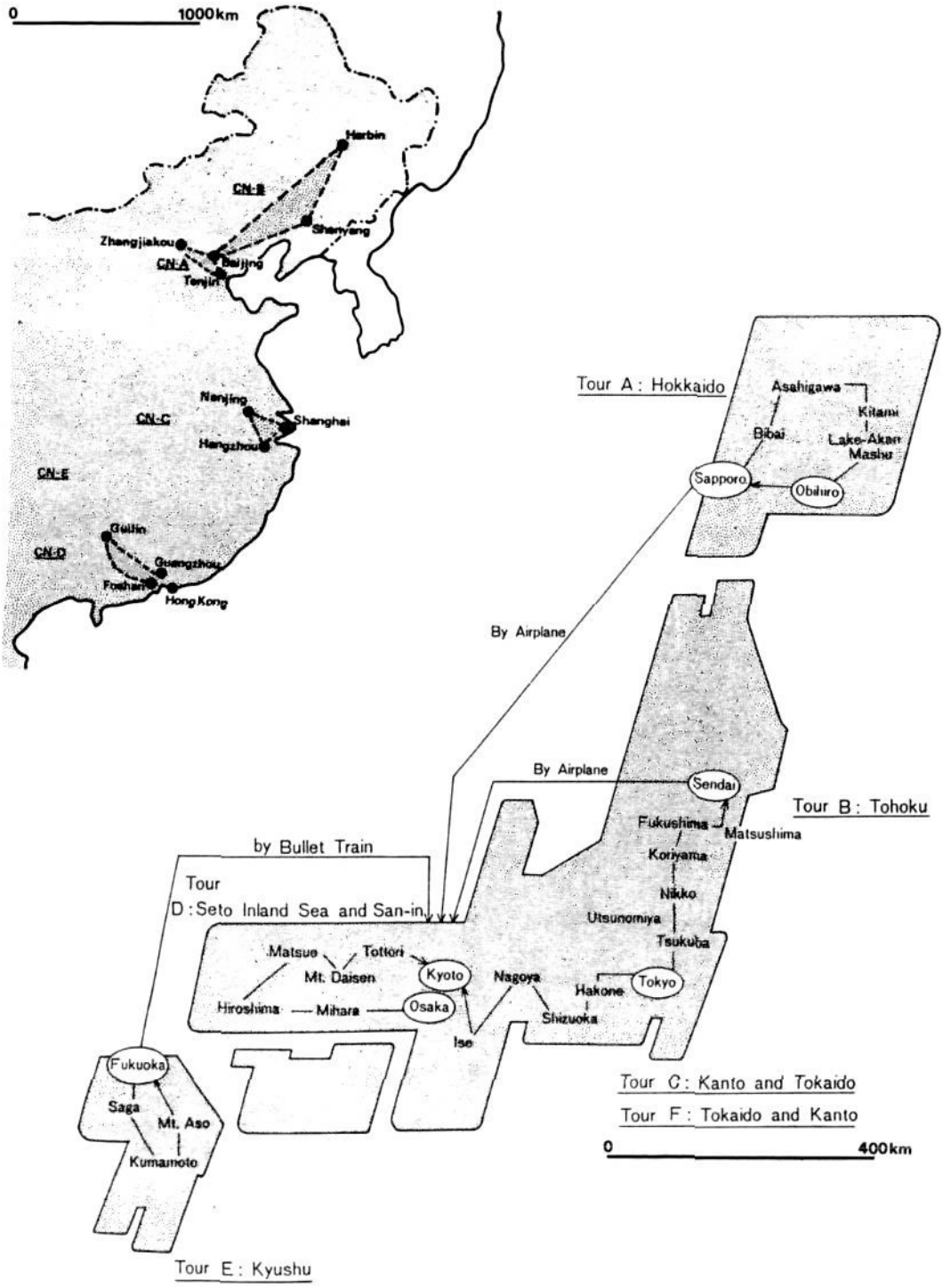
July 28-30	Moscow to Novosibirsk by train (54 hours)
July 31-August 1	Stopover at Novosibirsk with technical tours
August 2-3	Novosibirsk to Irkutsk by train (32 hours)
August 4-5	Stopover at Irkutsk and technical tours
August 6-7	Irkutsk to Khabarovsk by train (45 hours)
August 8-9	Stopover at Khabarovsk and technical tours
August 10	Khabarovsk to Kyoto via Niigata by plane and train

Maximum number of participants: 150

2.2 One-day Field Study Tours during congress:
Tour G: EXPO'90, The International Garden and Greenery Exposition (Osaka) 1990.
Tour H: Mt. Hieizan, Enryaku-ji temple, Lake Biwa, paddy field in Siga Agricultural Experiment Station, hydroponic system.
Tour I: Research Institute for Food Science and other research institutions in Uji campus of Kyoto University, Byodo-in temple, Okura sake (rice wine) factory.

2.3 Post-Congress Field Study Tours:
Japan Inland Tour:
Tour F: Tokaido and Kanto (5 days, August 19-23), Kyoto-Ise-Tokyo.
A course reverse to the Pre-Congress Tour C will be followed with some modifications.

China Tours:
Tour CN-A: North China (7 days). Beijing-Zhangjiakou-Tienjin-Beijing.
Intensive agriculture in the suburbs of Beijing, highland cinnamon soils, brown earths, Zhangbei pasture calcic chestnut soils, alkaline soils, coastal saline soils and North China paddy soils. Sightseeing: the Great Wall, Ming Tombs, Summer Palace, Forbidden City, etc.
Tour CN-B: Northeast China (7 days). Beijing-Shenyang-Harbin-Beijing.
Intensive agriculture in the suburbs of Beijing, highland cinnamon soils, brown earths, castanozems, paddy soils, irrigated area by sewage water, vegetable producing farms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PRE-REGISTRATION FORM
14th ICSS, Kyoto, Japan

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( ) I expect to attend the 14th ICSS, August 12-18, 1990 in Kyoto.

( ) I expect to be accompanied by _____ persons.

My preference for field study tours are:

	1st	2nd	3rd
Japan Inland Pre-Congress Tour (A-E)	( )	( )	( )
Trans-Siberia Pre-Congress Tour (yes/no)	( )		
One-day tours during Congress Tour (G-I)	( )	( )	( )
Japan Inland Post-Congress Tour (F) (yes/no)	( )		
China Post-Congress Tour (CN-A-E)	( )	( )	( )

( ) I expect to present a voluntary paper to the Commission No. _____

Tentative title: _____

_____

I prefer to present my paper at ( ) a symposium No. _____ or ( ) at a poster session.

Note: **No Oral Presentation Sessions will be organized.**

My accomodation preference will probably be:

Category		Single room		Double room
Class A	( )	20,000 Y or more	( )	25,000 Y or more
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Class E	( )	Y 5,000- 7,000	( )	Y 8,000-10,000

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Secretariat of 14th ICSS, 6-26-10-202 Hongo, Bunkyo-ku, Tokyo 113, Japan

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nearby Shenyang, a typical deep black soil, bog soils and the landscape, dark brown earths and their vegetation.

Sightseeing: the Great Wall, Ming Tombs, Forbidden City, Summer Palace, the Forbidden City in Shenyang, North and East Tombs of Qing Dynasty at Shenyang, and Sunny Island at Harbin.

Tour CN-C: East China (6 days). Shanghai-Suzhou-Wuxi-Nanjing-Yixin-Hangzhou-Shanghai.

High yielding paddy fields of the Yangtze river Delta, yellow brown earths, soils distributed in undulating hills and their utilization in the northern part of the mid subtropical zone; highly intensive land use, bamboo forest, karst caves, mulberry field and fish pools, Nanjing Institute of Soil Science, China Tea Research Institute. Sightseeing: Suzhou Gardens, Tai Lake, Mausoleum of Dr. Sun Yatsen, Pottery Center, West Lake.

Tour CN-D: South China (7 days). Guangzhou-Fosha-Guilin (via Hong Kong).
Lateritic red earths, comprehensive utilization of hilly areas, mulberry fields and fish ponds, lateritic red earths and yellow earths under tropical rain forest, rendzina, brown rendzina, terra rossa, and paddy fields with lime hardpan. Sightseeing: Karst mountains and Li river in Guilin, and ancient temple in Foshan.

Tour CN-E: East China (Tour CN-C) + South China (Tour CN-D) (11-12 days).

3. *Registration procedure:*

Preliminary registration by the PRE-REGISTRATION FORM is kindly requested in order to provide information to the Organizing Committee. Please fill in the form of your preferred language attached to this Bulletin and keep one copy for your record. Mail it to the address given on it before **December 31, 1988**.

Final registration will be made on a special form that will be mailed to those who have completed preliminary registration by the PRE-REGISTRATION FORM. The style-guide and form for an extended summary of a voluntary paper will be enclosed with the final registration form.

4. *Correspondence:*
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PREMIERE ANNONCE 14e CONGRES INTERNATIONAL DE LA SCIENCE DU SOL
12-18 août 1990, Kyoto, Japon

'AMELIORATION DE LA GESTION DES SOLS POUR L'HOMME ET L'ENVIRONNEMENT'

Utilisation optimale des ressources en sols du monde pour augmenter la production biologique et protéger l'environnement.

1. *Sessions du Congrès:*

Le programme comprendra des session plénières, des symposiums et des séances de posters. Il n'y aura pas de sessions de présentation orale; par contre, 40 symposiums seront organisés sur des thèmes choisis comme indiqué ci-dessous. Ces symposiums seront animés à la fois par des orateurs invités et volontaires. Ceux qui ont l'intention de présenter une communication volontaire doivent envoyer le formulaire de pré-inscription inclus dans ce bulletin. Ils recevront ultérieurement un formulaire sur lequel ils rèdigeront un large rèsumè. Les communications incluses dans les symposiums seront choisies uniquement sur base de leur appartenance aux thèmes, en fonction du résumé reçu. Les auteurs des communications retenues seront priés par la suite de fournir le texte complet au cours de la seconde moitié de l'année 1989. Toutes les communications volontaires qui ne sont pas incluses dans un symposium seront présentées aux séances de posters et leurs résumés seront publiés dans les compte-rendus du Congrès.

1.1 Sessions plénières (orateurs invités):
Les sujets et les orateurs seront désignés par le Comité organisateur en accord avec toutes les Commissions.

1.2 Thèmes des symposiums:
Les chiffres romains entre parenthèses se rapportent à la commission responsable des symposiums respectifs)

(1) Estimation spatiale des processus hydrologiques et leur aplication en: a) hydrologie des bassins versants; b) utilisation efficace des structures d'irrigation et de drainage; c) évaluation des terres; d) protection de l'environnement (I)
(2) Processus récents de dégradation des propriétés physiques des sols et remise en état des sols dégradés par l'action de l'homme (I)
(3) Problèmes et opportunités dans l'aménagement physique des sols dont l'exploitation est basée sur la riziculture (I)
(4) Cinétique des processus de sorption dans les sols (II)
(5) Chimie de surface sous différentes conditions redox (II)
(6) Accumulation de métaux lourds dans les sols (II)
(7) Processus chimiques à l'interface colloïdes du sol-raciens (II)
(8) Dynamique de P et N dans les sols dont les colloïdes ont des charges variables (II)
(9) Rejet par les sols de substances affectant l'environnement (II)
(10) Association et parasitisme des microorganismes en biotechnologie des sols (III)
(11) Activité microbienne dans la rhizosphère (III)
(12) Ecologie des microorganismes du sol dans les environnements de microhabitats (III)

(13) Biota des sols dans les écosystèmes tropicaux (III)
(14) Rôle de la fixation biologique de l'azote en agriculture intensive (III)
(15) Biodégradation des composés naturels et synthétiques dans les sols (III)
(16) Expérimentations culturales de longue durée sur la fertilisation (IV)
(17) Réponse et mécanismes de tolérance des plantes aux contraintes de l'environnement (IV)
(18) Progrès dans l'utilisation des isotopes en fertilité du sol et nutrition des plantes (IV)
(19) Effets des propriétés du sol sur la vitesse de croissance des racines et sur l'absorption des fertilisants (IV)
(20) Nouveaux aspects concernant les éléments essentiels et utiles en nutrition des plantes (IV)
(21) Utilisation rationnelle des boues d'égout et des déchets urbains en agriculture (IV)
(22) Technologie des engrais et leur efficience sur la production agricole (IV)
(23) Association des éléments nutritifs dans les systèmes sol-plante-animal en conditions de prairie (IV)
(24) Destination de l'azote en riziculture (IV)
(25) Rôle actif des racines dans le contrôle de la rhizosphère (IV)
(26) Développement récent en classification des sols (V)
(27) Méthodes nouvelles en inventaire et cartographie des sols pour le développement des écosystèmes (V)
(28) Géographie des sols en Asie de l'Est (V)
(29) Méthodologie pour évaluer la vulnérabilité des sols à leur dégradation (V)
(30) Aspects historiques, philosophiques et sociologiques du développement en science du sol (V)
(31) Caractérisation et rôle de la matière organique dans différents sols (V)
(32) Les sols du monde à l'échelle du 1:1.000.000 et données de base digitisées: structure, développement et utilisation (V)
(33) Modifications générales des sols et leur dynamique dans un environnement en mouvement (V)
(34) Application de la micromorphologie aux sciences de l'agronomie et de l'environnement (VI)
(35) Exigences en gestion et conservation pour les sols situés dans des zones agro-écologiques contrastées (VI)
(36) Evaluation des modifications dans les propriétés du sol en relation avec des pratiques variées d'aménagement (VI)
(37) Approches pédotechniques sur les problèmes culturaux actuels et les problèmes de passages répétés sur les sols (VI)
(38) Mouvement et accumulation des sels et programme d'irrigation optimale (VI)
(39) Sols affectés par les sels et méthodes efficaces de leur utilisation sous des conditions écologiques d'environnement différentes (VI)
(40) Irrigation, drainage et aménagement des sols argileux lourds (VI)
(41) Situation, structure et propriétés des minéraux du sol (VII)
(42) Caractéristiques physiques, chimiques et minéralogiques des Andosols (VII)

Note: Quelques modifications seront peut-être apportées aux thèmes des symposiums suite à des discussions au sein du Comité chargé du programme.

2. *Excursions de terrain:*

Plusieurs excursions pré- et post-Congrès seront organisées en coopération avec les collègues de la Société Japonaise de Science du Sol et de Nutrition des Plantes, de la Société Chinoise de Science du Sol et de la Société de la Science du Sol d'URSS. Des détails sur le programme des excursions ainsi que les prix seront communiqués ultérieurement.

2.1 Excursions pré-Congrès:
Excursions au Japon:
Excursion A: Hokkaido (6 jours, 6-11 août), Sapporo-Obihiro-Kyoto.
Paysages, sols, utilisation des sols et curiosités à Hokkaido: sols tourbeux et rizicoles à Bibai; riziculture en région tempéré froide; sols argileux lourds et leur amélioration à Takakawa; sylviculture et cultures d'altitude à Abashiri; Parc National d'Akan; sols sur cendrées volcaniques vitriques et fermes laitières à Konsen; sols sur cendrées volcaniques et cultures d'altitude à Tokachi.
Excursion B: Tohoku (6 jours, 6-11 août), Tokyo-Sendai-Kyoto.
Paysages, sols et utilisation des sols à Tohoku: ville scientifique de Tsukuba; Andosols et agriculture intensive dans la zone suburbaine; Andosols, Arts religieus à Nikko, et Institut national de Recherches sur les prairies à Tochigi; Sols de rizières et de vergers à Fukushima, Parc National de Bandai-Asahi, et Station expérimentale d'arbres fruitiers; ferme expérimentale de l'Université de Tohoku, sols de rizières et croisière en bateau dans la baie de Matsushima; curiosités à Sendai.
Excursion C: Kanto et Tokaido (6 jours, 6-11 août), Tokyo-Ise-Kyoto.
Horticulture intensive, cultures d'altitude, ferme modèle et curiosités à Kanto et Tokaido; Horticulture de serre à Hiratsuka et site forestier à Hakone; curiosités aux environs du mont Fuji et de Nihondaira; Théicuoture à Makinohara et au lac Hamanako; aquaculture à Yatomi et biotechnologie des plantes à l'Institut National de Recherches sur les cultures potagères, les plantes ornementales et le thé; Arts religieux à Ise et ferme modèle.
Excursion D: Mer intérieure de Seto et San-in (5 jours, 7-11 août), Osaka-Matsu-Kyoto.
Sols, eutrophisation du lac et curiosités de la mer intérieure de Seto et de San-in: Parc National de la mer intérieure de Seto et Hiroshima; Lacs Shinji-ko et Naka-umi à Shimane, sols de polder et rizicoles; Parc National du Mont Daisen, sols sur cendrées volcaniques, vergers de poires et agriculture sur sable dunaire à Tottori.
Excursion E: Kyushu (5 jours, 7-11 août), Fukuoka-Kumamoto-Kyoto.
Sols, utilisation des sols et curiosités à Kyushu: Cultures d'altitude, sols formés sur basalte, etc., fabrications de porcelaine, riziculture à Saga; vergers, sols rouge jaune, cultures d'altitude, sols 'Imogo' et sols sur cendrées volcaniques, préservation naturelle de la forêt et curiosités à Kumamoto; sols de rizières et de vergers sur alluvions et terrasses de la rivière Chikugo.

Excursion 'Trans-Siberienne':
Le programme est le suivant:

28-30 juillet	Moscou-Novosibirsk par train (54 heures)
31 juillet-1 août	Arrêt à Novosibirsk et excursions techniques
2-3 août	Novosibirsk-Irkutsk par train (32 heures)
4-5 août	Arrêt à Irkutsk et excursions techniques
6-7 août	Irkutsk-Khabarovsk par train (45 heures)
8-9 août	Arrêt à Khabarovsk et excursion techniques
10 août	Kabarovsk-Kyoto via Niigata par avion et train

Nombre maximum de participants: 150.

2.2 Excursions d'un jour au cours du Congrès:
Excursion G: EXPO'90, Jardin International et Exposition Verte (Osaka) 1990.
Excursion H: Mont Hieizan, temple de Enryaku-ji, Lac Biwa, Riziculture à la Station Expérimentale de Siga, aquaculture.
Excursion I: Institut de Recherches sur l'Alimentation et autres Instituts de Recherches au Campus Uji de l'Université de Kyoto, temple Byodo-in, fabrique de sake (vin de riz).

2.3 Excursions post-Congrès:
Excursions au Japon:
Excursion F: Tokaido et Kanto (5 jours, 19-23 août), Kyoto-Ise-Kyoto.
Même excursion que l'excursion C mais en sens inverse avec quelques modifications.
Excursions en Chine:
Excursion CN-A: Chine du Nord (7 jours), Beijing-Zhangjiakou-Tienjin-Beijing.
Agriculture intensive dans la banlieue de Beijing, sols marron d'altitude, sols bruns, sols châtains calcaires de prairie de Zhangbei, sols alcalins, sols salins côtiers et sols rizicoles de la Chine du Nord. Curiosités: la Grande Muraille, les tombeaux Ming, le Palais d'été, la Cité interdite, etc.
Excursion CN-B: Chine du Nord-Est (7 jours), Beijing-Shenyang-Harbin-Beijing.
Agriculture intensive dans la banlieue de Beijing, sols marron d'altitude, sols bruns, castanozems, sols rizicoles, zone irriguée par eau d'épandage d'égout, fermes de culture maraîchères près de Shenyang, un sol noir épais typique, sols de marais et paysage, sols brun foncé et leur végétation. Curiosités: la Grande Muraille, les tombeaux Ming, la Cité interdite, le Palais d'été, la Cité interdite à Shenyang, et l'île du Soleil à Harbin.
Excursion CN-C: Chine de l'Est (6 jours), Shanghai-Suhou-Wuxi-Nanjing-Yixin-Hangzhou-Shanghai.
Champs de paddy à haute productivité dans le delta de la rivière Yangtze, sols jaune brun, sols répartis sur collines ondulées et leur utilisation dans la partie septentrionale de la zone moyenne subtropicale; utilisation intensive des sols, forêt de bambous, relief karstique, champ de mûriers et étangs piscicoles, Institut de Pédologie de Nanjing, Institut Chinois de Recherches sur le Thé. Curiosités: Jardins de Suzhou, Lac Tai, Mausolée du Dr. Sun Yatsen, Centre de poteries, Lac de l'Ouest.
Excursion CN-D: Chine du Sud (7 jours), Guangzhou-Foshan-Guilin (via Hong Kong).
Sols rouges latéritiques, utilisation rationnelle des zones montagneuses, champs de mûriers et étangs piscicoles, sols rouges latéritiques et sols jaunes sous forêt tropicale ombrophile, rendzines, rendzines brunes, terra rossa, et champs de riz avec horizon calcaire induré. Curiosités: relief karstique et rivière Li à Guilin, et ancien temple à Foshan.
Excursion CN-E: Chine de l'Est (Excursion CN-C) plus Chine du Sud (Exc. CN-D).

3. *Mode d'inscription:*

Une inscription préliminaire au moyen du formulaire de pré-inscription est aimablement demandée dans le but d'informer le Comité organisateur. Veuillez remplir le formulaire ci-joint dans votre langue préférée et gardez-en une copie pour vous-même. Envoyez le à l'adresse indiquée avant le **31 décembre 1988**.

L'inscription finale sera faite sur un formulaire spécial qui sera envoyé à ceux qui auront pris une inscription préliminaire au moyen du formulaire de pré-inscription. La méthode à utiliser ainsi que le formulaire à remplir pour le résumé élargi d'une communication volontaire seront inclus dans le formulaire d'inscription définitive.

4. *Correspondance:* *voir le page 7*

FORMULAIRE DE PRE-INSCRIPTION
14è Congrès de l'AISS, Kyoto, Japon
(veuillez écrire à la machine ou en lettres majuscules)

Prof./Dr./M./Mme/Mlle

_____ _____ _____

Nom Prénom Initiales suivantes

Institution: _____

_____

Adresse: ( ) personnelle ( ) de l'Institution (ne reprenez pas le nom de l' Institution).

_____

_____

( ) J'ai l'intention d'assister au 14è Congrès de l'AISS, 12-18 août 1990 à Kyoto.
( ) Je serai accompagné par _____ personnes.
Mes préférences pour les excursions sont les suivantes:

	1e	2e	3e
Excursions pré-Congrès au Japon (A à E)	( )	( )	( )
Excursion trans-sibérienne pré-Congrès (oui ou non)	( )		
Excursion d'un jour au cours du Congrès (G à I)	( )	( )	( )
Excursion post-Congrès au Japon (F) (oui ou non)	( )		
Excursion post-Congrès en Chine (CN-A à CN-E)	( )	( )	( )

( ) J'ai l'intention de présenter une communication volontaire à la commission n°: _____

Titre provisoire: _____

_____

Je préfère présenter ma communication au symposium n° _____ ( ) ou à la séance de posters ( ).

Remarque: **Aucune session de présentation orale ne sera organisée!**.

Mes préférences pour le logement seront probablement:

Catégorie		Chambre simple		Chambre double
Classe A	( )	20.000 Y ou plus	( )	25.000 Y ou plus
Classe B	( )	de 15 à 20.000 Y	( )	de 20 à 25.000 Y
Classe C	( )	de 10 à 15.000 Y	( )	de 15 à 20.000 Y
Classe D	( )	de 7 à 10.000 Y	( )	de 10 à 15.000 Y
Class E	( )	de 5 à 7.000 Y	( )	de 8 à 10.000 Y

Date: _____ Signature: _____

Veuillez retourner ce formulaire à l'adresse suivante avant le 31 décembre 88:
Secrétariat du 14è Congrès de l'AISS, 6-26-10-202 Hongo, Bunkyo-ku, Tokyo 113, Japon

(Veuillez conserver une copie pour vous-même)

ERSTE ANKÜNDIGUNG ZUM XIV INTERNATIONALE BODENKUNDLICHEN KONGRESS

12. bis 18. August 1990, Kyoto, Japan

'BODENNUTZUNG UND BODENSCHUTZ, Optimale Nutzungen aller Böden der Welt Zwecks Erhöhung der Biologischen Produktion bei Gleichzeitigem Schutz der Umwelt'

1. *Der Kongress*

Das Programm wird Plenarsitzungen, Symposien und Posterausstellungen entahlten. Kommissionssitzungen mit mündlichem Vortrag wird es nicht geben, stattdessen werden 40 Symposien abgehalten werden, deren Themen in folgenden aufgelistet sind. Die Symposien werden sowohl aus eingeladenen Beiträgen als auch freien Beiträgen bestehen. Mitglieder, die beabsichtigen einen freien Beitrag einzureichen, sollten das diesem Heft beigefügte Vorregistrierungsformular ausfüllen und möglichst bald abschicken, sie erhalten aufgrund davon die Formblätter für die 'ausführlichen Zusammenfassungen'. Aufgrund der eingesandten Zusammenfassungen werden diejenigen Beiträge ausgesucht, die in die Symposien aufgenommen werden. Die Autoren dieser Beiträge werden gebeten werden, im zweiten Halbjahr 1989 einen vollen Textbeitrag einzureichen. Alle anderen freien Beiträge werden in die Posterausstellungen aufgenommen und ihre verlängerten Zusammenfassungen werden in den Kongressberichten publiziert.

1.1 Plenarsitzungen (eingeladene Redner)
Themen und Redner werden vom Organisationskomitee in Zusammenarbeit mit den Kommissionen ausgesucht.

1.2 Themen der Symposien (römische Ziffern in Klammern geben an welche Kommission für das betreffende Symposium verantwortlich ist)

(1) Flächenhafte Erfassung hydrologischer Prozesse und ihre Anwendung in: a) Wasserscheidenhydrologie, b) Be- und Entwässerungsvorhaben, c) Landbewertung, d) Umweltschutz (I)
(2) Rezente Degradation bodenphysikalischer Eigenschaften und Wiederherstellung durch anthropogene Einwirkungen degradierter Böden (I)
(3) Probleme und Möglichkeiten der physikalischen Bewirtschaftung im Kultursystemen auf Reisbases (I)
(4) Kinetik von Ionensorptionsprozessen in Böden (II)
(5) Oberflächenchemie unter variierenden Redoxbedingungen (II)
(6) Schwermetalakkumulation in Böden (II)
(7) Chemische Prozesse an der Grenzfläche Bodenkolloid-Wurzel (II)
(8) P- und N-Dynamik in Böden mit Kolloiden mit variablen Ladungen (II)
(9) Einfluss von Bodenemissionen auf die Umwelt (II)
(10) Assoziative und parasitische Mikroorganismen in der Bodentechnologie (III)
(11) Mikrobielle Aktivität in der Rhizosphäre (III)
(12) Ökologie von Bodenmikroorganismen in Kleinstsystemen (III)
(13) Lebensgemeinschaften in aakosystemen tropischer Böden (III)
(14) Die Rolle der biologischen Stickstofffixierung bei ackerbaulicher Dauernutzung (III)

(15) Biodegradation natürlicher und synthetischer Situationen in Böden (III)
(16) Langzeit Düngungsversuche (IV)
(17) Reaktions- und Toleranzmechanismen von Pflanzen gegenüber Umweltbelastungen (IV)
(18) Fortschritte der Isotopenanwendungen in Pflanzenernährung- und Fruchtbarkeitsforschung (IV)
(19) Wirkung von Bodeneigenschaften und Wurzelwachstum auf die Nährstoffaufnahme (IV)
(20) Neue Aspekte über essentielle und nützliche Elemente in der Pflanzenernährung (IV)
(21) Rationelle Verwendung von Klärschlamm und Stadtmüll in der Landwirtschaft (IV)
(22) Düngungstechnologie und ihre Anwendung zur Ertragssteigerung (IV)
(23) Nährstoffströme im System Boden-Pflanze-Tier bei Weidebetrieb (IV)
(24) Das Schicksal des N im Reisbau (IV)
(25) Die aktive Rolle der Wurzeln bei der Beeinflussung der Rhizosphäre (IV)
(26) Neuentwicklungen in der Bodenklassifikationen (V)
(27) Neue Methoden der Erfassung und Kartierung von Eigenschaften zur Darstellung von Ökosystemen (V)
(28) Bodengeographie in Ostasien (V)
(29) Methoden zur Erfassung der Empfindlichkeit der Böden für Degradation (V)
(30) Historische, philosophische und soziologische Aspekte der Entwicklungen in der Bodenkunde (V)
(31) Charakterisierung und Einfluss der organischen Substanz in verschiedenen Böden (V)
(32) Die Weltbodenkarte 1:1.000.000, digitale Datensammlungen: ihre Struktur, Entwicklung und Verwendung (V)
(33) Globale Veränderungen der Böden und ihre Dynamik in einer sich wandelnden Umwelt (V)
(34) Anwendung der Mikromorphologie in Landwirtschaft und Umweltschutz (VI)
(35) Bodenerhaltung und Bodennutzung in Anpassung an verschiedene agroökologische Bedürfnisse (VI)
(36) Erfassung der Veränderungen von Bodeneigenschaften als Folge verschiedener Bewirtschaftungsweisen (VI)
(37) Pedotechnischer Ansatz zur Darstellung von Problemen der Bodenbearbeitung und -befahrung (VI)
(38) Bewegung und Akkumulation von Salzen und optimale Bewässerungsplanung (VI)
(39) Salzbeeinflusste Böden und Möglichkeiten effektiver Nutzung unter verschiedenen ökologisch-umweltmässigen Bedingungen (VI)
(40) Bewässerung, Dränung und Bewirtschaftung schwerer Tonböden (VI)
(41) Vorkommen, Struktur und Eigenschaften von Bodenmineralen (VII)
(42) Bodenmineralogie, Bewirtschaftung und Klassifikation (VII)
(43) Physikalisch, chemisch und mineralogische Eigenschaften von Andoböden (VII)

Bemerkungen: Änderungen der Themen aufgrund der Diskussionen im Programmkomitee vorbehalten.

2. *Bodenkundliche Exkursionen*

Eine Anzahl von Vor- und Nachkongresstouren wird in Zusammenarbeit aller Kollegen der Japanischen Gesellschaft für Bodenkunde und Pflanzenernährung der Chine-

sische Bodenkundlichen Gesellschaft und der All-Unions Gesellschaft der Bodenkundler der Sowjetunion ausgearbeitet. Einzelheiten über Programme und Kosten werden später mitgeteilt.

2.1 Vorkongressexkursionen
Japan
Tour A: Hokaido (6 Tage, 6. bis 11. August), Sapporo-Obihiro-Kyoto.
Landschaften, Böden, Landnutzung und Sehenswürdigkeiten in Hokaido, Torf- und Nassböden in Bibai, Reiskulture in kühlen Temperaturen, schwere Tonböden und ihre Verbesserung in Takikawa, Forstwirtschaft und Hochlandlandwirtschaft in Abshiri, Akan-nationalpark, vulkanische Aschen / Glasböden und Milchwirtschaft in Konsen, vulkanische Aschenböden und Hochlandlandwirtschaft in Tokachi.
Tour B: Tohoku (6 Tage, 6. bis 11. August). Tokyo-Sendai-Kyoto.
Landschaftsübersicht, Böden und Landnutzung in Tohoko: Tsukuba Stadt der Wissenschaft, Andosole und intensive National Grünlandforschungsinstitute in Tochigi; Nassböden und Obstkulturen in Fukushima, Bandai-Asahi National Park, Obstgehölzforschungsstation, Landwirtschaftlicher Versuchsbetrieb Tohoku Universität, Nassböden, Schiffstour auf der Matsushima Bay; Sehenswürdigkeiten in Sendai.
Tour C: Kanto und Tokkaido (6 Tage, 6. bis 11. August). Tokyo-Ise-Kyoto.
Intensive Gartenkulturen, Hochlandlandwirtschaft, Perlenfarm und Sehenswürdigkeiten in Kanto und Tokaido; Gewächshauskulturen in Hiratsuka, Forstwirtschaft in Hakone; Sehenswürdigkeiten rundum den Fujiama und den Nihondaira; Teepflanzungen in Makinohara und am Hamanakosee; Wasserkulturen in Yatomi, Pflanzenbiotechnologie am nationale Forschungsinstitut für Gemüsebau, Zierpflanzen und Tee; Ise-Schrein und Zuchtperlenfarm.
Tour D: Seto Inlandsee und San-in (5 Tage, 7. bis 11. August). Osaka-Matsue-Kyoto.
Landschaftsüberblick, Böden und Eutrophierung von Seen, Sehenswürdigkeiten im Seto Inlandsee Gebiet und in San-in: Seto Inlandsee National Park und Hiroshima, die Seen Shinji-ko und Naka-umi in Shimane, Polder und Nassböden, Daisen National Park, vulkanische Aschenböden, Obstanlagen und Landwirtschaft in Sanddünen in Tottori.
Tour E: Kyushu (5 Tage, 7. bis 11. August). Fukuoka-Kumamoto-Kyoto.
Landschaftsüberblick Böden, Landnützung und Sehenswürdigkeiten in Kyushu: Hochlandlandwirtschaft, Böden aus Basalt, Porzellanherstellung, Nassreiskultur in Saga; Obstgärten, rot-gelbe Böden, Hochlandlandwirtschaft, Imogo und vulkanische Aschenböden; Erhaltung von Naturwald, Sehenswürdigkeiten in Kumamoto; Nassböden und Obststandorte in Aue und auf den terrassen des Chikugo-Flusses.

'Transsibirien'-Tour
Vorläufige Planung:

28. oder 30. Juli	Moskau nach Nowosibirsk per Bahn (54 Std.)
31.7/1. August	Exkursion im Raum Nowosibirsk
2. bis 3. August	Nowosibirsk bis Irkutsk per Bahn (32 Std.)
4. bis 5. August	Halt in Irkutsk und lokale Exkursion
6. bis 7. August	Irkustsk nach Khabarovsk per Bahn (54 Std.)
8. bis 9. August	Halt in Khabarovsk mit lokalen Exkursionen
10. August	Khabarovsk nach Kytot über Niigata mit Flugzeug und Bahn

Maximale Teilnehmerzahl: 150

2.2 Eintagesexkursionen während des Kongresses
Tour G: EXPO '90, Internationale Garenbauausstellung in Osaka 1990.
Tour H: Hieizan Berg, Enryaku-ji Tempel, Biwa See; Nassböden in der Landwirtschaftlichen Versuchstation Siga, Hydroponik-Systeme.

Tour I: Forschungsinstitut für Ernährungswirtschaft und andere Forschungsinstitutionen auf dem Campus der Kyoto-Universität in Uji, Byodo-in Tempel, Sake(Reiswein)Fabrik.

2.3. Nachkongress-Exkursionen
Japan
Tour F: Tokaido und Kanto (5 Tage, 19. bis 23. August). Kyoto-Ise-Tokyo.
Verlauf wie Vorkongresstour C in umgekehrter Richtung mit einigen Modifikationen.

China
Tour CN-A: Nord-China (7 Tage). Beijing-Zhangjiakou-Tienjin-Beijing.
Intensive Landwirtschaft rundum Beijing, Zimtfarbene Hochlandböden, Braunerden, Zhangbei kastanienfarbene Weideböden, Alkaliböden, Sehenswürdigkeiten die grosse Mauer, Ming Gräber, Sommerpalast, Die verbotene Stadt, usw.
Tour CN-B: Nordost-China (7 Tage). Beijing-Shenyang-Harbin-Beijing.
Intensive Landwirschaft rundum Beijing, zimtfarbene Hochlandböden, Abwasserverwertungs Bewässerung, Gemüseproduktion nahe Shenyang, Typischer tiefer schwarzer Boden, Sumpfböden, dunkelbraune Erden und ihre Vegetationen. Sehenswürdigkeiten: Die grosse Mauer, die Ming-Gräber, die Verbotene Stadt, der Sommerpalast, die Verbotene Stadt in Shenyang, Nord- und Ost-Gräber der Qing Dynastie in Shenyang, die Sonneninsel in Harbin.
Tour CN-C: Ost-China (6 Tage). Shanghai-Suzhou-Wuxi-Nanjing-Yixin-Hangzhou-Shanghai.
Hochertragsreiskulturen im Yangtse Delta, gelbbraune Erden, gestörte Böden in der welligen Landschaft und ihre Nutzung im nördlichen Teil der mittleren Subtropischen Zone, hochintensive Landnutzung, Bambusforsten, Karstgegenden, Maulbeerkulturen, Fischteiche, Institut für Bodenkunde in Nanking, Teeforschungsinstitut. Sehenswürdigkeiten: Suzhou Graten, Tai See, Mausoleum von Dr. Sun Yatsen, Töpferei Zentrum, West See.
Tour CN-D: Süd-China (7 Tage). Guangzhou-Foshan-Guilin (über Hong-Kong).
Lateritische Roterden, vielseitige Nutzung hängiger Gegenden, Maulbeerkulturen, Fischteiche, lateritische Rot- und Gelberden im Tropischen Regenwald, Rendzinen, braune Rendzinen, Terra rossa, Nassböden mit Kalkinkrustationen im Unterboden. Sehenswürdigkeiten: Karstberge und Li Fluss in Guilin, Tempel in Foshan.
Tour CN-E: Ost-China (Tour CN-C) und Süd-China (Tour CN-D) zusammen (11 bis 12 Tage).

3. *Der Anmeldungsvorgang*

Vorläufige Anmeldung auf dem Voranmeldungsformular wird erbeten, damit das Organisationskomitee sich auf die Teilnehmerzahl einstellen kann. Bitte füllen Sie das dem Bulletin beiliegende Formblatt in der von Ihnen bevorzugten Sprache und behalten Sie eine Kopie. Schicken Sie das Formblatt an die darauf angegebene Adresse **vor dem 31. Dezember 1988**. Verbindliche Anmeldung erfolgt auf einem speziellem Formblatt, das an die Einsender des Voranmeldungsformulares versandt wird. Formblätter und Anweisungen für die ausführlichen Zusammenfassungen von freien Beiträgen werden dem endgültigen Anmeldungsformular beigefüget sein.

4. *Anschriften: sehe Seite 7*

VORANMELDUNGSFORMULAR
14. Kongress der IBG in Kyoto, Japon
(Bitte Maschinenschrift oder lateinische Blockbuchstaben)

Prof./Dr./Herr/Fr./Frl.

_____ _____ _____

Familienname Vorname (Rufname) weitere Vornamen

Name der Dienststelle: _____

_____

Postadresse: ( ) Wohnort ( ) Dienstadresse (Bitte Namen der Institution nicht wiederholen).

_____

_____

( ) Ich beabsichtige am 14.IBG Kongress, 12. bis 18. August 1990 in Kyoto teilzunehmen.
( ) Ich werde voraussichtlich von _____ Person(en) begeleitet.

Ich plane die Teilnahme an folgenden Exkursionen:	Wahl 1.	2.	3.
Japan Inland Pre-Congress Tour (A-E)	( )	( )	( )
Trans-Siberia Pre-Congress Tour (ja/nein)	( )		
One-day tours during Congress Tour (G-I)	( )	( )	( )
Japan Inland Post-Congress Tour (F) (ja/nein)	( )		
China Post-Congress Tour (CN-A-E)	( )	( )	( )

( ) Ich beabsichtige eine freien Beitrag zu leisten in Kommission Nr. _____
Voraussichtlicher Titel: _____

_____

Für die Präsentation meines Beitrages bevorzuge ich Symposium Nr _____ ( ) oder eine Posterausstellung ( ).

ACHTUNG: **Es wird keine sitzungen für den Vortrag freie Beiträge geben!**

Für die unterbringung werde ich vermutlich bevorzugen:

Kategorie		Einzelzimmer		Doppelzimmer
Class A	( )	20.000 Y u.m.	( )	25.000 Y u.m.
Class B	( )	Y 15.000-20.000	( )	Y 20.000-25.000
Class C	( )	Y 10.000-15.000	( )	Y 15.000-20.000
Class D	( )	Y 7.000-10.000	( )	Y 10.000-15.000
Class E	( )	Y 5.000- 7.000	( )	Y 8.000-10.000

Datum: _____ Unterschrift: _____

Bitte schicken Sie dieses Blatt vor dem 31. Dezember 1988 an:
Secretariat of 14th ICSS, 6-26-10-202 Hongo, Bunkyo-ku, Tokyo 113, Japan

(Bitte behalten Sie eine Kopie)

Announcement

INTERNATIONAL CONFERENCE ON SOIL CLASSIFICATION

Institute of Soil Science and Agrochemistry, Alma-Ata, USSR
12-16 September 1988

This is a scientific conference aiming at the review and discussion of the state of soil classification as well as at pooling together the world knowledge and experience in view of current international efforts on classification, diagnostics and nomenclature of soils of the world.

Scientific Program: The Conference will consist of three days of presentations and discussions in plenary sessions with invited and voluntary papers (no posters will be arranged) and two days of scientific excursions to plains and mountains around Alma-Ata for the purposes of on-the-spot soil correlation. Voluntary papers are invited on the following topics: Principles of soil classification, Systems of soil classification, Soil diagnostic attributes, General (basic) and applied soil classifications, Soil taxonomic units. The author of each voluntary paper accepted by the Organizing Committee will be given 20 minutes for his presentation.

Language: Russian and English with simultaneous translation.

Registration Fee: 200 $US, that covers two field trips by bus with lunches and daily refreshments, proceedings and their mailing to the participants.

Cost and arrangement: The participants are invited to make their arrangements through any nationally available tourist company or an agency co-operating with INTOURIST agency of the USSR. The cost of INTOURIST tour will be about 70$ per day for single room occupancy and 46$ per day for room shared by two persons, including hotel accommodation, breakfast, meeting at and transportation to Alma-Ata airport with luggage handling, one bus excursion with guide round the town, daily transportation to place of the Conference and back to the hotel. The above costs will be charged by INTOURIST 10 percent higher after 12 July 1988 and 20 percent higher after 12 August 1988. Please contact INTOURIST as early as possible.

Travel: Your travel will be arranged by INTOURIST, mostly via Moscow on both ways. Same is applicable to obtaining visas.

Publication: The participants are invited to bring with them the texts of their papers, ready for publication, containing not more than ten 1.5-spaced pages.

Note: The Conference is to be followed by a one-day business meeting on 17 September of the extended core group of ISSS Commission V on the elaboration of an International Reference Base for soil classification (IRB). This meeting, in turn, will be followed by a one-day mid-term meeting on 18 September of the Executive Committee of ISSS (Officers of the Bureau and Chairmen of the seven standing scientific Commissions).

NOTICE OF INTENT

International Conference on Soil Classification, Alma Ata

Name .....
Organization .....
Mailing Address .....
I intend to participate in the Conference.
Proposed title of my paper for presentation is .....
.....
Date ..... Signature .....
This notice is to be sent to: Prof. Boris G. Rozanov, Faculty of Soil Science, Moscow State University, 117234 Moscow, USSR.

ISSS Commission VI **African Soil Science Society**

Announcement

FIRST AFRICAN SOIL SCIENCE SOCIETY CONFERENCE

Kampala, Uganda, December 5-10, 1988

Background: Sustainable agriculture is the goal of all African nations, and toward this end, more and more land has come under cultivation. But, despite this fact, many countries in Africa may not be able to feed their peoples by the end of the century. The primary reason for this is that the combination of increased population and the limited availability of cultivated land has forced farmers to exploit fragile lands for cultivation; that is, small farmers of Africa, in order to feed themselves and provide fuel for cooking, have denuded the land of forest and shrub. This denudation, coupled with inadequate conservation practices and no reforestation effort, has produced a significant alteration in the climatic patterns of the continent and resulted in widespread erosion and soil loss. Cumulatively, this cycle has effected a slow degradation of the continent's soils resources and led to a decrease in net food and fiber production.

Although much international and national effort has been and is being spent in Africa on commodity research, no parallel undertaking has been enjoined to evaluate the soil resource of the continent, or to manage and conserve it for future generations. The conference theme is *Managing Soil Degradation for Sustainable Agriculture in Africa,* and in addressing this issue of soil degradation as the root cause of declining food and fiber production at this inaugural conference of the African Soil Science Society, the organizers hope that donor interest will be attracted, and more particularly that concerted efforts, such as the establishment of an African Soil Research Institute (ASRI), will be triggered. The conference has been organized by the Ministry of Agriculture and Makerere University, Uganda in collaboration with the International Soil Science Society (ISSS); and cosponsored by the Organization of African Unity (OAU), Soil Management Support Services (SMSS), and others.

Objectives: 1. Evaluate the extent of soil degradation in Africa; 2. Determine state-of-the-art techniques for managing soil degradation; 3. Report on current research and future approaches to managing soil degradation; and 4. Examine the feasibility of establishing an African Soil Research Institute.

Programme: Nine technical sessions are foreseen, on respectively: Agroclimatology; Desertification; Erosion and Soil Conservation; Agroforestry; Farming Systems; Case studies with respect to Agro-ecological Zones; Case studies with respect to specific soils; Livestock and Range Management; Institutional framework and linkages. For each session there will be an invited lead paper, and four to six voluntary papers (25 minutes). Deadline for receipt of the complete paper is 30 October. There will be a one-day mid-conference field trip in the vicinity of Kampala and a post-conference tour of several days to the Kabale area.

Information: For registration and details of the programme, costs and accommodation, please write to: Prof. Julius Y.K. Zake, Secretary ASSS, P.O.Box 7062, Kampala, Uganda. Tel. 542277, telex 61531 mubso-uga.

NOTICE OF INTENT

First African Soil Science Society Conference

Name (Dr.,Mr.,Miss,Ms.) .....
Organization .....
Mailing Address .....
Country .....
Telephone ..... Telex .....
I intend to submit a paper:O Yes O No
I will participate in post-conference tour: O yes O no
I will be accompanied by: .....
Date ..... Signature .....

Announcement

INTERNATIONAL WORKSHOP ON MULTI-PURPOSE USE OF SOIL SURVEY INFORMATION FOR EFFICIENT LAND USE MANAGEMENT

Nairobi, Kenya, March 12-20, 1989

organized by the Department of Soil Science, University of Nairobi and the Kenyan Soil Survey, Ministry of Agriculture; sponsored by the Soil Management Support Services (SMSS) of USDA/USAID, and others.

Background: An International Symposium on Properties and Management of Red Soils of East and Southern Africa was held in Harare, Zimbabwe in February 1986. The symposium was attended by 72 participants from 17 countries. During the symposium, the idea to hold a workshop on 'Multipurpose Utilization of Soil Survey Information for Efficient Land Use Management' received popular support.
Soil Management Support Services (SMSS) jointly with the International Society of Soil Science wish to sponsor an international workshop with the above title that will be jointly organised by the Department of Soil Science University of Nairobi and Kenya Soil Survey. The two institutions will seek organization support from other relevant Kenyan institutions such as National Council for Science and Technology and the National Agricultural Laboratories.

Theme: Soil Survey has been executed in almost all the countries of the world at various intensities and for different purposes. The proposed workshop is envisaged to bring together soil scientists from different parts of the world who will discuss various uses of soil survey information. From the ensuing discussions, the scientists will share their experiences with regard to the most efficient ways of utilizing soil survey information for land use management.

Objectives: 1) To compare experience in the methodologies used in gathering soil survey information for various land uses; 2) To discuss the techniques of packaging soil survey information to meet user needs; 3) To discuss the cost effectiveness of soil survey information.
Program: The workshop will be held from March 12 to 19, 1989 and will include invited papers, voluntary papers, group discussions and workshop summary, and a four-day tour of the Great East African Rift Valley, Kericho highlands and Lake Victoria basin areas. The technical sessions of the workshop will cover several topics: soil survey for rainfed agriculture, irrigated agriculture, utilization of peatlands, forestry and agro-forestry, range and wildlife, engineering and other uses as well as cost effectiveness of soil survey information. Group discussions will centre on soil survey information needs for quantified land evaluation; on computerizing of soil survey information; and on effective communication of the information to users.

Details: The official workshop language is English. Full texts of voluntary papers should be submitted by December 31st, 1988. The registration fee, covering workshop package, break refreshments and a copy of the proceedings, is US$ 120.–. Reasonable good hotels in Nairobi will charge between US$ 40.– and US$ 70.– for room, bed and breakfast.

Address: For detailed information, preliminary registration for the conference and the field tour, and indication of the paper to be submitted, write to: Dr. V.P. D'Costa, Soil Science Department, University of Nairobi, P.O. Box 30197, Nairobi, Kenya, *or*: Mr. S.M. Wokabi, Kenya Soil Survey, P.O. Box 14733, Nairobi, Kenya.

6TH INTERNATIONAL SOIL CONSERVATION CONFERENCE

Addis Abeba-Ethiopia and Kenya, November 6-18, 1989

'Soil Conservation for Survival'

Background: Soil erosion and land degradation is an ecological disaster and a life-threatening process to agricultural societies and mankind. This is especially important for subsistence-based economies, and particularly on the African continent, where production per capita has been decreasing during the past 20 years. Soil conservation must be integrated with the farming and productions systems, especially on land of the World's poorest farmers who are existing at subsistence or mere survival levels. The International Soil Conservation Organization (ISCO) has decided to hold its 6th International Soil Conservation Conference on the African continent, specifically in Ethiopia and Kenya. Previous ISCO conferences were held in Europe, America and Asia and reported on scientific advances in soil erosion, production and conservation research. The 6th ISCO Conference in Ethiopia and Kenya will focus on problems and progress of conservation implementation, while being open to contributions in other fields of soil erosion and conservation research.
Cooperation will be given by the Ethiopian and Kenyan Ministries of Agriculture; the Universities of Addis Abeba, Nairobi and Berne, the Regional Soil Conservation Unit of SIDA, and other national and international organizations.

Purpose: The purpose of the 6th International Soil Conservation Conference is to bring together scientists and implementors working towards 'Soil Conservation for Survival', to present recent advances in soil conservation implementation, to exchange information on strategies to improve life support and sustainable and regenerative production systems for poor farmers, and to provide a forum for discussions and contacts for all people concerned.

Objectives:
- To report on recent research in the field of sustainable production, conservation farming and ecological rehabilitation on small-scale farms and subsistence systems on steep lands;
- To report on positive and negative experiences in soil conservation implementation at various scales ranging from fields to farms, communities, watersheds, nations and regions;
- To critically analyze social, economic, cultural and political conditions in relation to soil conservation for survival.

Activities: The 6th ISCO Conference in Ethiopia and Kenya will be organized to cover three principal activities:
1. Presentation of papers (4 days during main conference of 10-15 November 1989)
2. Pre-Conference study tour of 4 days in Kenya on 6-9 November 1989 to dryland and agroforestry research stations, small-scale farm conservation sites on steep slopes and marginal areas in various agro-climatic zones and farming systems, and including touristic activities.

Mid-Conference one-day excursion on 13 November 1989 to degradation, conservation, afforestation and research sites in the *extreme highlands of Ethiopia.*

Post-Conference study tour of 3 days on 16-18 November 1989 to the *highlands and upper lowlands of Ethiopia* showing degradation, conservation and rehabilitation in different production systems, including touristic activities and wilderness areas.

3. Displays, exhibitions and group discussions during the main conference of 10-15 November 1989.

Information: For the detailed programme and the call for contributions please contact: 6th ISCO Conference, attn. Mr. Kebede Tato, P.O. Box 2597, Addis Abeba, Ethiopia; or: Soil Conservation Group, attn. Dr. Hans Hurni, GIUB, Hallerstrasse 12, 3012 Berne, Switzerland; telex 912643.

ISSS Commissions III and IV **German Society of Soil Science**

INTERNATIONAL WORKSHOP ON DENITRIFICATION IN SOIL, RHIZOSPHERE AND AQUIFER

Giessen, FRG, March 17-19, 1989

The workshop is organized by the ISSS Commissions for Soil Biology (III) and Soil Fertility and Plant Nutrition (IV) in cooperation with the Commission for Soil Biology (III) of the German Society for Soil Science (DBG) and the German Society for General and Applied Microbiology (VAAM). Host will be the Justus Liebig-University in Giessen, FRG.

Programme

- Methods and techniques to evaluate denitrification in situ (field, rhizosphere or aquifer)
- Sink and source mechanisms of N_2O, NO and N_2 in soils
- Denitrification losses as influenced by manuring and fertilization
- Ecological prerequisites and mechanisms of denitrification in subsoil and aquifer
- Ecophysiology and kinetics of denitrification
- Organism-specific denitrification products
- Modelling of denitrification

Invited Key note speakers will introduce each session.

Language: English

Location: Facilities of the Justus Liebig-University, Giessen, FRG.

Registration: Research papers on any of the topics listed are invited. Return NOTICE of PARTIPICATION together with an abstract of no more than 250 words before December 31, 1988. Registration fee: US$ 65,– should be transferred to J.C.G. Ottow, Deutsche Bank, Marktplatz 4, D-6300 Giessen, account no. 0139980 (BLZ 513 700 08) using code 'denitrification' before December 31, 1988. Late registration: US$ 80,–.

Accomodation: Upon receipt of your registration you will receive an information package with hotel reservation card. Programm will be available at the congress.

NOTICE OF PARTICIPATION, DENITRIFICATION WORKSHOP

Name: .....
Institution: .....
Address: ..... Tel: .....
I will present O a paper / O a poster
entitled: .....
.....
.....
Date: ..... Signature: .....

This registration is to be sent to: Dr. J.C.G. Ottow, Institute for Microbiology, University of Giessen, 3 Senckenbergstrasse, D-6300 Giessen, FRG.

REPORTS OF MEETINGS
COMPTE-RENDU DE REUNIONS
BERICHTE VON TAGUNGEN

INTERNATIONAL CONFERENCE ON STEEPLAND AGRICULTURE IN THE HUMID TROPICS

Kuala Lumpur, Malaysia, August 17-21, 1987

This conference followed closely on the heels of a workshop which was organized by the World Association of Soil and Water Conservation (WASWC) in March, 1987 at San Juan, Puerto Rico. The themes of the two gatherings however differed significantly. The primary objective of WASWC's workshop was to specifically address the needs, successes and failures of soil and water conservation projects on steeplands. This conference, sponsored by the Malaysian Agricultural Research and Development Institute (MARDI) and the Malaysian Society of Soil Science, was intended to address 'New means of maximizing farming on steeplands through reviewing the existing approaches'. It became clear during the course of this conference and subsequent field trip that the subject is of immediate urgency in Malaysia where steeplands occupy nearly 50% of the terrain but population encroachment on such lands has yet to reach the severity already suffered by many other nations (notably, Ethiopia, Haiti, Indonesia, Nepal and the Philippines).

The following points summarize the major outcome and conclusions from the various technical presentations:

1. Extensive evidence and experience clearly show that steeplands in the humid tropics are *high risk areas* as regards the probability of undergoing high rates of soil erosion, excessive water runoff, and contributing to the flooding and sedimentation problems of downstream structures and low-lying lands. Effective conservation of soil and water resources must, therefore, be the primary consideration in land use planning for steeplands.
2. *Natural forest vegetation* possesses the canopy structure and stratifications, littering habits, rooting characteristics, as well as the hydrologic and nutrient dynamics capable of imparting near-complete protection and stability, regenerative power, and sustainability of productive capacity to steep landscapes. Because 'prevention is better than a cure' there are situations where deforestation should not be practiced, but if it must, only very carefully selected, tailored and maintained agricultural development activities may be feasible on such lands.
3. Since not all regions contemplated for agricultural development have a 'local community' of land users, a balance must be struck between the so called *top-down and bottom-down approaches* to soil conservation planning. Policy makers must exercise their 'top' authority in setting strict national or regional strategies for the use of steeplands based on a thorough inventory of land and soil resources, erosion risk assessments, land capability, soil suitability, and economic goals. When agricultural development of a particular site has been decided upon, then the participation of the 'root' layer in the society structure (i.e. the farmers) becomes a necessity in conceptualizing, designing, and implementing soil management and conservation measures. The top-down elements insure government commitment to the productive, effective and safe use of vulnerable lands and to the protection of downstream investments (e.g. reservoirs and hydro-electric power generation plants); these concerns extend beyond a single farmer or even a group of farmers. The bottom-up elements insure farmer's acceptance of recommended practices and commitment to the maintenance of required conservation measures. The 'farming systems' method looms as an effective research tool for generating improved agricul-

tural technology on steeplands. Here, the research team includes biological, physical, economic and social experts who conduct their activities on farm with farmer participation. The resulting reiterative recommendations address not only the technical feasibility but the economic profitability and cultural compatibility requirements of generated technology as well.

4. Although no universal definition emerged for 'steeplands' at the conference it is clear that the concerns of conference participants were aimed at slopes above 20%. An extensive literature search revealed that *few or no valid data now exist* for predicting surface erosion and systematically designing conservation measures for such slopes. The most advanced and widely used technology, based on the universal soil loss equation (USLE), is symptomatic of this deficiency; the 'hard' data used to derive the topographic factor for slope steepness and length (LS) were confined to a steepness range of 3 to 18% and a length range of 10 to 100m.
5. The state-of-the-art for predicting and controlling *mass wasting, gullying and landslides* is even younger than explained in 4, above. These forms of erosion are all very important features of steep landscapes and can often dominate the erosional dynamics of these regions.
6. Soil-resource inventories and data banks on *soil characteristics* are urgently needed for any humid-tropical steeplands being considered for agricultural development. In the absence of such information, and at the risk of excessive generalizations, it is to be expected that the most abundant soils are very acid, highly-weathered, sesquioxide- and low-activity-clay-enriched, nutrient-depleted, leaching-prone, often shallow, and void of the all important organic fraction once the natural forest vegetation is removed. The implications of this generalization are many and for the purpose of this conference include:
   a. High initial and sustained levels of input (chemical, physical and biological) are required to attain a viable, productive and protective level of farm productivity.
   b. High susceptibility to erosion should the adopted agricultural system fail to meet requirement 6.a, above.
   c. High requirement for extension services to assure sustaining a high calibre of soil management. Corporations which own or manage estate crops often provide such calibre.
   d. Low soil loss tolerance (permissible erosion) particularly when the soils are shallow, the nutrients tend to be concentrated at the soil surface, the levels of inputs are low, and, all importantly, where sediment delivery poses a threat to downstream investments. To a great extent, the setting of soil loss tolerances for various soils and locations must be based not only on technical considerations (e.g. soil renewal rates or erosion impact on productivity or water quality) but also on policy matters (to protect the society-at-large from loss of resources or economic investments).
7. Conservation-effective land use strategies should be based on a holistic, integrated, and *micro-watershed-based* amalgamation of the factors which determine both productivity and resource stability at a given site. When cultivation is primarily rainfed, the loss of water as runoff is just as important as soil loss by erosion in determining farm productivity; both must be effectively managed to prevent short and long-term degradation of the resource base.
8. Selection and implementation of *conservation-effective management practices* for soils and cropping systems, and not massive and expensive engineering structures, should be the highest priority for agricultural development enterprises on steeplands. A high priority research area, therefore, is to determine the upper slope limits beyond which agronomic practices alone may be ineffective and mechanical/struc-

tural conservation measures become necessary for runoff and erosion control.

9. Evidence now abounds, and has for years, on the harmful effects of *mechanical forest clearing* on soil properties, stability, and productivity. It remains unclear, however, whether these effects arise mainly from the mechanical disturbance or from vegetation clearing per se.

The organizing committee for the conference is to be complimented for an excellent theme, program and field trip.

S.A. El-Swaify, Hawaii, USA

AGRICULTURAL WORLD CONGRESS

organised by the
CITA International Confederation of Technical Agricultural Engineers
Athens, Greece, April 4-7, 1988

Background

The International Confederation of Technical Agricultural Engineers (CITA) was founded in 1930 by Franco Angelini in Rome. Professor Angelini was an outstanding person in the history of scientific societies in the field of agriculture. He established nearly ten different professional societies, most of them still active. An example is the CIEC (International Centre of Fertilizers) which held its congress and golden jubilee in Budapest, Hungary 11-16 June, 1984.

The CITA (original name until the 2nd World War FITA; Federation Internationale des Ingenieurs Agronomes) from the beginning of its activity tried to serve as a coordinating organization for all the diverse branches of professional societies in agronomy.

The first conference of CITA was held in Rome in November 1930, with participation of delegates from 22 European and nearly 10 overseas countries. The first Secretary General of the organization was professor Angelini.

Before the 2nd World War the FITA played a very active role in professional life and it organized meetings in Milan 1934 and in Lausanne 1936. The three general assemblies of the Confederation were held in Prague 1931, Budapest 1934 and Bruxelles 1935.

The activity of FITA like other professional societies was interrupted by the 2nd World War and came to life again in 1948 at its Vth general assembly in Zürich, under the new name CITA. Under the guidance of two outstanding persons, professor F. Angelini and professor Morales y Fraile, the Confederation performed very considerable activity in the period from the fifties. It should be mentioned that more than thirty meetings of CITA have been organized since its reorganization in Zürich. The meetings, including two world congresses and nearly ten general assemblies, were held mainly in Europe, in ten different countries. In 1986 in Rome, at the XIVth general assembly, professor Morales presented a memorial paper about the activity of the organization during more than 50 years. At that meeting it was decided that the next congress of the CITA should take place in Athens, Greece and professor Kypriadis as its new Secretary-General was appointed for the preparation.

Unfortunately neither professor Angelini, nor professor Morales were alive at the time of the Athens Congress. The local organizing committee was headed by professor El. Dekazos from Department of Pomology, Athens Agricultural College as President, and professor G. Karaolanis, Faculty of Agriculture, Aristoteles University, Salonica.

The Congress

On the 4th of April, 1988, at the opening ceremony in Athens Caravel Hotel, the representatives of Greek institutions as well as of international organizations addressed the Congress which followed its program in five working sessions, on recent

problems of agricultural engineers in different parts of the world.

The topic of 1st working session 'The agriculturist and the agricultural associations' included problems of communalities and specifications of a great number of different agricultural societies, both national and international. The introductory lecture of this session was held by professor Dr. hab. Jerzy Szymrer, President of the Agronomical Society in Poland.

The 2nd working session was devoted to the problem of 'Tightening of relations and aid among agricultural organizations'. The introductory lecture was held by prof. I. Szabolcs, Deputy Secretary General of ISSS.

The title of 3rd working session was 'New technical achievements and their contribution to the agriculturist's work' and the introductory lecture was held by prof. G.A. Couvillon, Head of Department of Horticulture, the University of Georgia, College of Agriculture, USA.

The 4th working session was devoted to the very up-to-date problems of agricultural education and teaching in universities and high schools. The speakers at this session, Prof. I. Szabolcs, Hungary; Prof. Davidis, Greece and others presented their papers about the strength and weaknesses of recent university curriculums in agricultural and other universities as well as the problems of meeting the increasing demands from the practice of agriculture and environmental conservation towards the different branches of agro-, horti- and silviculture.

At the last working session, different papers of technical, economical and political problems of recent agriculture were presented and followed, like in other sessions, by free discussions.

Concluding the congress, the president of the organizing committee summarized the achievements of recent agricultural activity in different regions and mentioned some urgent problems to be solve for better recognition of agricultural engineers, both in professional activity and in society.

During the congress, new officials of CITA were elected, as follows:

President: Prof. D.R. Victoria Pires, Rua Antonio do Saldanna 34, 1400 Lisboa, Portugal

President of Honour: Prof.Doc.acad. David Davidescu, member of Romanian Academy; Str. Av.N. Drosu 14, 71338 Bucharest, Romania

Secretary-General: Prof. Minos Kypriadis; 37 Alexandras Avenue, 11473 Athens, Greece.

New Vice-Presidents and members of Central Committee were also elected, one of the new Vice-Presidents being the Depute Secretary-General of ISSS.

The congress was followed by a half-day and a full-day excursion, to the south of Attica peninsula and the Peloponnesus island respectively.

It is the merit of the organizing committee and mainly Prof. M. Kypriadis that prepared a successful congress in a comparatively short time and conducted it successfully. The cordial hospitality of organizers and all of the Greek colleagues, as well as the exceptional beauty of Greece left a long-lasting memory in all the participants.

I. Szabolcs, Budapest, Hungary

FIFTH INTERNATIONAL CONFERENCE ON SOIL CONSERVATION

Bangkok, Thailand, January 18-29, 1988

This conference was a continuation of the series of conferences organized by the International Soil Conservation Organization (ISCO). Previous conferences had been held in Ghent (Belgium), Silsoe (U.K.), Honolulu (USA), and Maracay (Venezuela). The ISSS, through Subcommission C, was an official co-sponsor. The conference theme was 'Land Conservation for Future Generations'. Its primary purpose was to receive reports on recent soil and water conservation technologies, priority needs in research and training, and strategies of enhancing the adoption of available technologies by farmers and other land users. Activities included ten sessions of oral and poster presentations (approximately 70 papers in each), one final panel discussion, a mid-conference field trip, and an extended post-conference tour. A full set of extended abstracts was published in time for the meeting and the proceedings of accepted papers will be published by the Department of Land Development, Ministry of Agriculture and Cooperatives, Thailand.

The high esteem in which this occasion was held in Thailand was vividly demonstrated by a great honour yet to be received at an ISCO conference. Her Royal Highness Princess Maha Chakri Sirindhorn participated in the inaugural ceremony and formally pronounced the opening of the conference.

Although no technical consensus or specific conclusions were intended as a product of the conference, the following general observations may be made, particularly with view of other recent conservation conferences and workshops:

1. The soil conservation movement continues to prosper; this meeting attracted nearly twice the number of participants of earlier ISCO conferences with forty countries being represented. Furthermore, it was revealed during the discussion sessions that several international, cooperative and networking activities are now in place with global or regional emphasis. These activities are coordinated through FAO, professional and scientific societies (including ISSS) and with funding from the major donor agencies of developed countries and consortia.
2. Despite increasing awareness of and considerable supporting data on erosion effects on soil productivity and the environment, undue emphasis continues to be placed on the actual tonnage of soil lost by erosion. Erosion impacts as well as magnitudes are critical for realistically assessing the total erosion hazard. It is essential, therefore, that runoff and erosion studies include assessments of changes in productivity due to the nutrient load of lost sediment and declines in soil quality subsequent to erosion. Off-site impacts of erosion require a full understanding of not only soil loss parameters but also sediment movement, deposition and delivery from the appropriate watershed scale.
3. Over the years, extensive investments have been made in many countries for 'empirically' oriented research on soil erosion prediction and control. Meanwhile, a new emphasis on 'process' oriented research is emerging, primarily in developed countries, with the primary intention of replacing empirical models such as the universal soil loss equation. The immediate urgency of solving erosion problems in many countries, particularly in the tropics is so great that the complete abandonment of models in existing use in favour of others with unproven field utility is unwise. A more constructive and cost-effective approach would be to capitalize on established investments by maximizing the use of existing information (empirical or otherwise) in new sound models. Model soundness should not be measured only by theoretical rigour but also by validity at field scale and for meeting the ever increasing problems on steep slopes.
4. New computer-based decision-support systems, including 'expert systems' offer great promise for accelerating the use of biophysical and socio-economic knowledge for developing soil and water conservation technologies, enhancing the sound application of these technologies by specialists and policy makers, and targeting future research efforts where most needed.
5. More emphasis is needed in research and at future conferences on the socio-economic-political elements of soil conservation. These elements assume critical importance in all phases of land development beginning with sound conceptualization and ending with effective implementation/maintenance.

Panel discussion at the closing session of the 5th International Soil Conservation Conference. Left to right: Mr. A. Tato (Ethiopia), Dr. B.M. Cunningham (Australia), Prof. R.P.C. Morgan (UK), Prof. N.M. Hudson (Chairman), Prof. I. Pla-Sentis (Venezuela), Prof. Mrs. Tang Ke-Li (P.R. China), Dr. V.V. Dhruvanarayana (India) and Mr. M.S. Wilder (USA).

Participants in the post-Conference tour at the Teak forest Improvement Centre at Amphoe-Ngeo in Northern Thailand.

6. Similarly, the problem of wind erosion continues to receive only token attention in soil conservation conferences. This is due, in part, to the disproportionately strong emphasis which has been traditionally placed by ISCO on erosion problems of the humid tropics. Wind erosion is not only extensive on a global scale but is also much less understood; the state-of-the-art is presumed to be about 20 years behind that of water erosion. A deliberate effort is needed to improve the balance between presentations on water and wind erosion research achievements at future conferences.

Subcommission C and the ISCO Organizing Committee, in continuance of ISSS's encouragement of excellence in poster presentations, contributed awards to the best four posters presented on disciplinary and interdisciplinary subjects at the conference. The winning posters and their authors are listed on page 42 of this bulletin.

A one-day mid-conference field trip was arranged in the eastern region of the country where the research and demonstration activities of the Department of Land Development were highlighted. The post-conference tour, lasting for six days, spanned the northeastern, central, and northern regions. Soil salinity, infertility and erosion dominate as major problems in these regions, respectively. Shifting cultivation, often by illegal encroachers, is the major form of land use in the sparsely populated areas including those in close proximity to the infamous Golden Triangle.

The Organizing Committee under the leadership of ISCO President Mr. Sanarn Rimwanich is to be complimented for a successfully organized and conducted conference.

ISCO takes its next conference, the 6th, to Africa where it will be held in November 1989 in Ethiopia. The 7th conference is also tentatively set for 1990 or 1991 in Australia. More details will be available soon from the respective organizing committees.

S.A. El-Swaify, Hawaii, USA

INTERNATIONAL INTERACTIVE WORKSHOP ON SOIL RESOURCES: THEIR INVENTORY, ANALYSIS AND INTERPRETATION FOR USE IN THE 1990's

Minneapolis, Minnesota, USA, March 22-24, 1988

This workshop was organized by the Minnesota Cooperative Soil Survey. Some 150 participants attended, most of them from the USA. In the United States, detailed soil maps will be complete for the cropland by 1991 as mandated by the Food Security Act of 1985. Other lands will be mapped by about 2000. Use of detailed soil information is increasing in the areas of agricultural, forestry and urban management as well as for the assessment of environmental impacts. As production mapping becomes less important soil scientists will need to shift their emphasis to innovative investigations and interpretations of the soil resource for these varied uses. During the workshop attention was paid to data collection, interpretation for the 1990's, computerized systems for manipulating soil resource information and future roles for using soil resource information in environmental assessments.

Broad agreement was reached about the need for improved communication among different disciplines both within and outside soil science. Soil survey data are as yet not effectively communicated to modelers. However, introduction of Geographical Information Systems and application of modern techniques such as remote sensing and geostatistical analysis, can help to more efficiently utilize existing data and to generate new data on variability. Also, increased attention is needed to improve communications with users and politicians. In this context, information technology is effectively being used in Minnesota. The need to balance agricultural and environmental interests was well expressed by an operational, computerized soil fertilization system using digitized soil maps as a basis for applying soil-specific quantities of fertilizers. Quantification of procedures and increased use of information technology are crucial elements to adequately characterize our precious soil resource in the decade to come. Existing soil survey information is quite useful in this context as was repeatedly demonstrated in this well organized workshop which clearly pointed the way towards new approaches in soil survey research. The Proceedings of this important and successful workshop will soon be published by the University of Minnesota, Extension Service.

J. Bouma, Wageningen, the Netherlands

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

5TH SYMPOSIUM OF COMMISSION V WORKING GROUP ON REMOTE SENSING

'Remote Sensing as a Tool for Soil Scientists' was the theme of the 5th Symposium of the ISSS Commission V WG Remote Sensing in Budapest, Hungary, from 11 to 15 April 1988. More than seventy scientists from twenty countries participated in the meeting. Forty-six technical papers were presented under four different subjects related to the applications of remote sensing: mapping, 17 papers; monitoring, 8 papers; modeling, 15 papers; and geographic information systems, 6 papers.

Prof. George Varallyay, director of the Research Institute of Soil Science and Agricultural Chemistry (RISSAC) of the Hungarian Academy of Sciences, served as chairman of the Organizing Committee. He presided at the opening session and welcomed participants to the Symposium. Dr. Ilona Juhasz, RISSAC soil scientist, is secretary of the WG and served as secretary of the Symposium Organizing Committee. Conference participants were appreciative beneficiaries of the warm reception and Hungarian hospitality so efficiently arranged and implemented by Dr. Juhasz and her colleagues.

WG Chairman Dr. Frederik Hilwig, International Institute for Aerospace Survey and Earth Science, Netherlands, presented the keynote address at the opening session in which he gave 1) a brief history of the WG, 2) a statement on how remote sensing is being used by soil scientists today, and 3) a challenge to soil scientists to use new information tools to improve our capabilities to map monitor, and model soil resources.

Dr. Jelle Hielkema, representing the U.N. Food and Agriculture Organization, presented an invited paper on the applications of remote sensing in modeling. Dr. Csaba Ferencz, Eötvös Laránd University, Hungary, gave an invitational paper on the use of remotely sensed data in modeling. Prof. Marion Baumgardner, Purdue University, USA, presented an invitational paper on geographic information systems with special attention to the ISSS Project to develop a World Soils and Terrain Digital Database at a scale of 1:1M (WG/DM).

Future activities of the Working Group include the planning for the 6th Symposium, tentatively scheduled to be held in Asia in late 1989. Plans are also being developed for a one-half day symposium for the Soil Congress in Kyoto in August 1990.

M. Baumgardner, Purdue University,USA

ISSS Commission VII: Soil mineralogy

The intercongress meeting of Commission VII will take place in the framework of the 9th International Clay Conference (August 28-September 2, 1989).

It was agreed with the organizing Committee of this Conference that Commission VII of ISSS will be in charge of the two following activities:

a) A pre-conference field trip in the Black Forest and the Rhine Valley, August 27th-28th. Tour guide: Pr.K. Stahr, 2nd Vice Chairman Commission VII.

b) A Symposium on the theme 'Rock Weathering and Soil Mineralogy', August 29th. Convenor: Prof. A.J. Herbillon, Chairman Commission VII.

The second circular for the ICC Conference (which is to be sent out in April) will provide full details on this meeting including the part of it that is to be organized by Commission VII.

Further details, as well as the 2nd ICC circular, can be obtained in writing from: A.J. Herbillon, CPB-CNRS, B.P. 5, 54501 Vandoeuvre-les-Nancy Cedex, France.

ISSS Working Group DM

Update on the SOTER project: GLASOD

Phase 1 of the ISSS Commission V Working Group DM Project to develop a World Soils and Terrain Digital Database (SOTER) got off to good start at the first SOTER Workshop held in Montevideo, Uruguay, from 21 to 25 March 1988. This phase is being conducted under a contract from the United Nations Environment Programme (UNEP) to the International Soil Reference and Information Centre (ISRIC), Wageningen, the Netherlands.

This UNEP funded project has been given the name GLASOD which is short for 'Global Assessment of Soil Degradation', the project title on the UNEP Project Document. GLASOD has two objectives: 1) the development of a 1:10M generalized soil degradation map of the world for use by UNEP, and 2) the development of a soils and terrain digital database, with interpretation on soil degradation, at a map scale of 1:1M for a pilot area of 250,000 sq.km, about one third of which is in each of the countries Argentina, Brazil and Uruguay.

The Montevideo Workshop specifically addressed GLASOD's second objective. Discussions centered on four topics related to the development of a 1:1M soils and terrain digital database for the pilot area: 1) methodologies, 2) availability and organization of data, 3) an implementation plan, and 4) utilization of soils and terrain digital database.

A draft of the SOTER Procedures Manual, prepared by J. Shields and D. Coote, Canada, provided the basis for the discussion of methodologies to be used. The Procedures Manual includes definitions of parameters to be included in the SOTER database, structure of the database, and coding forms for recording data and entering into the database.

In the discussion of availability of data for the three countries included in the pilot area, participating soil scientists reported that more than 90% of the map and attribute data for the pilot area exists already.

Goals developed for the implementation plan include the following:

1. April-May 1988. Testing and assessing of procedures (from Procedures Manual) for small areas in the pilot area of each country.
2. June 1988. Discussions of procedures and correlations among participating soil scientists of each country and an external SOTER soil correlator; field excursion to small study areas in each country by all correlator participants.
3. 31 December 1988. Completion of entry of 1:1M map data and attribute data into the database; test use of the database for assessment of soil degradation status and hazard, and other purposes.

Participants in the Workshop included three soil scientists from each of the pilot area countries, members of the legend subcommittee, other members of the WG, Dr. Wim Sombroek, ISSS, and Dr. Roel Oldeman, Manager of GLASOD

Prof.Dr. M. Baumgardner, Chairman WG/DM

ISSS Working Group HP

HISTORY, PHILOSOPHY AND SOCIOLOGY OF SOIL SCIENCE

You may be interested to know ....

A comprehensive *history of soil physics*, of over 100 pages, was published by *Walter H. Gardner* of Washington State University in Advances of Soil Science, vol. 4-1986, covering its early beginnings and up to the present days. It includes the highlights of many contributions with emphasis on soil-water relationships, a rare photo of Henry Darcy (1803-1858), photos of 17 other prominent soil physicists, and nearly 600 references. Similar accounts of other fields in soil science would be welcome.

E.G. Hallsworth, a past president of the ISSS, has published a book with the intriguing title Anatomy, Physiology and Psychology of Erosion (J.Wiley, 176 pp., 1987) which contains a chapter on the *Traditional Methods of Soil Conservation*. He traces the 3000 years old practice of terracing on hillslopes to the Iron Age in the Land of the Bible and to China's first hereditary dynasty of Xia, where the actual dates are less well documented. The tradition of stone or soil built terraces has persisted in a number of rather isolated regions, including the Lebanon, Yemen, Philippines, Nepal, Java and Peru, in some of them combined with irrigation from small local springs. It is not known whether the systems developed independently or how and when the techniques were transferred.

J. Låg of Norway draws our attention in Soil Sci., 144:281, 1987 that a good description and illustration of a bleached layer of a podzol (now albic horizon) was made in 1832 or 1833 by B.M. Keilhau during his travels in Norway, while the forester J.B. Barth already in 1856 speculated, following observation on Danish heaths, that the formation of the underlying hardpan (now spodic horizon) was due to leaching of humus particles. However, he subsequently reversed his ideas and concluded that the humus-rich hardpan is an old surface layer buried by wind-blown sand.

The recently published *Short History of Geomorphology*, by K.J. Tinkler (Croom Helm, 317pp, 1985), covers besides the development of the classical concepts in geomorphology also a chapter on the post-war II process-oriented studies in landscape development, but includes little on weathering or soils-and-landform relations which have also become popular research subjects.

The French Society of Soil Science published a special volume which summarizes the contributions of French soil scientists to the study of the various fields of soil sciences over the last fifty years: *Livre Jubilaire du Cinquantenaire 1934-1984*, Assoc. Française pour l'Etude du Sol (AFES), Paris 1984. There are 25 chapters covering 349pp. A special number of Cahiers ORSTOM-Pédologie (21:133-217, 1984-85) is also dedicated to AFES, which now has over 700 members. It includes an article on the leading French agronomist *A. Demolon* (1881-1954) prepared by J. Boulaine.

A brief history of the *British Soil Science Society* was included with its Newsletters No.3-1983 and 8-1985. It was founded in 1946 and started publishing the Journal of Soil Science in 1949/50. Another journal, Soil Use and Management was added in 1985.

C. Feller and *J. Boulaine* have traced the changing meaning of the term *humus* in the 18th century. French writings, from the classical *terre végétale* to the present dual definition as the resistant organic matter fraction in soils and a soil horizon (cf. R.F.F. 39(6):487-495, 1987).

Luis Bramao of Portugal, a retired staff member of FAO and the first director of its World Resources Office, which subsequently undertook the preparation of the 1:5 million FAO/Unesco Soil Map of the World (1971-1977), describes the early days of the project in FAO's Land and Water Newsletter No. 28-1987.

According to F. Giesecke, in the Handbuch der Bodenkunde, vol. 1:28-86, 1929, the first attempt of a *soil survey map* in Germany was in 1743 by Packe. Anybody knows of a copy or of earlier attempts?

D.H. Yaalon, Jerusalem

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

New National Society: Senegal

L.S.,

'Nous avons le grand plaisir de vous annoncer la création de l'Association dénommée 'ASSOCIATION SENEGALAISE DE LA SCIENCE DU SOL' (A.S.S.), reconnue par les autorités sénégalaises le 04 Mars 1988 sous le récépissé n° 5758/M.INT/DAGAT.

Elle a pour but:

- d'unir tous les spécialistes de la science du sol (pédologues, agropédologues, géomorphologues, conservateurs des sols, physiciens du sol, microbiologistes du sol, géologues) Sénégalais et étrangers exerçant au Sénégal, pour leur permettre de parfaire leur formation et d'échanger des connaissances dans toutes les disciplines de la science du sol;
- de contribuer et de favoriser le développement de la science du sol au Sénégal, en Afrique et dans le monde;
- d'assister les pouvoirs publics dans la mise en oeuvre des politiques de développement et d'utilisation des ressources en sols.

L'association est administrée par:

Un Président: Simon Pereira-BARRETO
Un Secrétaire Général: Syaka SADIO
Un Trésorier: Mamadou DAFFE

Nous vous serons très reconnaissants de toute forme d'aide ou appui que vous pourriez nous apporter.'

(signed: S.Pereira-Barreto)

Siège Provisoire de l'Association: ORSTOM, BP. 1386, Dakar, Sénégal

Asociación Argentina de la Ciencia del Suelo

En Diciembre de 1987, se realizó la Asamblea Anual Ordinaria de la Asociación Argentina de la Ciencia del Suelo. Durante la misma se aprobó la memoria y el balance correspondiente al ultimo ejercicio.

Asimismo se efectuó la elección de las nuevas autoridades, por lo que la nueva Comisión Directiva quedó constituida por los años 1988 y 1989 de la siguiente manera:

Presidente: Carlos R.O. Miaczynski
Vice Presidente: Alberto J. Ferrer
Secretario: Horacio E. del Campo
Pro-secretario: Luis Berasatogui
Secretario de Actas: Martín A. Hurtado
Tesorero: Carlos A. Vollert
Pro-tesorero: Liliana G. Marban
Vocales Titulares: Raúl S. Lavado, José L.Panigatti, Oscar Costamagna.
Vocales Suplentes: Ramón Rosell, Juan C. Salazar, Jorge Irisarri, Adelqui Ocaranza, Crispín Venialgo
Revisores de Cuentes: Carlos Casamiquela, Peter E. Daniel

Direccion: Horacio E. del Campo, Secretario A.A.C.S., J.R. de Velasco 847, CP 1414, Buenos Aires, Argentina.

Soil Science Society of China

The 6th Membership Congress of Soil Science Society of China was held in Nanchang, China, from 6th-12th, November 1987. The Congress was devoted to problem of protecting the soil resource and raising the soil fertility. More than 481 papers were received, and 73 persons were elected as member of a Council.

The new officers of the central council of the Soil Science Society of China are:

President: Prof. Director Zhao Qiguo, The Institute of Soil Science, Academia Sinica, in Nanjing.

Vice-Presidents: Prof. Honorary President Zhu Zuxiang, Zhejiang Agriculture Uniersity

Prof. Zeng Zaoshung, The Institute of Applied Ecological Science, Academia Sinica, in Shenyang.

Secretary-General: Prof. Xie Jianchang, The Institute of Soil Science, Academia Sinica, in Nanjing.

Address: P.O. Box 821, Nanjing, People's Republic of China.

Persatuan Sains Tanah Malaysia

At the 17th Annual General Meeting of the Malaysian Society of Soil Science held on the 29 March 1988, the following members have been elected in to the Executive Committee for 1988/1989 Session:

President: Dr. Sharifuddin Hj.Ab. Hamid
Vice President: En. Jamil Mohd. Ali (Peninsular Malaysia)
Vice President: Donson Simin (Sabah)
Vice President: Ahmad Hj. Ebon (Sarawak)
Hon. Secretary: Dr. Mohd. Khanif Yusop
Hon. Treasurer: Dr. Ng Ai Peng
Asst. Secretary: Eddic Chew Keong Lye
Asst. Treasurer: Dr. Zaki Ghazalli
Committee Members: Hj. Mohd. Taib Hj. Dolmat, Dr. Peter Lim Kim Huan, Dr. Aminuddin Hussin, Dr. Jalaluddin Japelos.

Address of the Society: P.O. Box 12644, Kuala Lumpur 50784, Malaysia

Soil Science Society of America

At the annual meeting of the Soil Science Society of the USA in Atlanta, Nov.29-Dec.4, 1987, Professor Dennis R. Keeney (University of Wisconsin) assumed the presidency for the year 1989, while Dr. John J. Mortvedt (NFDC, Muscle Shoals) became the President-elect. Dr. Robert F. Barnes continues to serve as the Executive Vice-President.

The following members were honoured by the Society: Gary A. Peterson of Colorado State University (Applied Research Award); Robert A. Olson (†) of the University of Nebraska (International Soil Science Award); Sterling R. Olsen of USDA-ARS Ft. Collins (Bouyoucos Distinguished Career Award); Larry P. Wilding of Texas A&M University (Research Award); Percy E. Skaling of Soil Moisture Equipment Corp (Professional Service Award); L. Touby Kurtz of the University of Illinois and Ralph J. McCracken of USDA Washington (Distinguished Service Award); and William W. McFee of Purdue University (Educaiton Award).

Address of the SSSA: 677 South Segoe Road, Madison WI 53711-1086, USA

Soil Science Society of Sri Lanka

The 1987 Annual Session of the Soil Science Society of Sri Lanka was held at the Post-graduate Institute of Agriculture, University of Peradeniya. Seven scientific papers on different topics of soil science were presented. At the occasion, a general assembly of the society was held, in which the new office bearers for the year 1987/1988 were elected.

President:	Dr. L.G.G. Yapa
Vice President:	Mr. P. Krishnarajah
General Secretary:	Dr. A.N. Jayakody
Treasurer:	Mr. D.M. Jinadasa
Editor:	Dr. R.B. Mapa
Auditor:	Dr. S. Somasiri
Committee Members:	Dr. S.L. Amarasiri, Mr. P. Weerasinghe, Mrs. S. Marikkar, Mr. M. Wadasinghe, Mr. A.R. Dassanayaka, Mr. M.L.L.W. Somasiri.

Main objectives of the society are:
- to promote advancement of soil science in Sri Lanka
- to foster contact between workers in all branches of soil science
- to diseminate knowledge pertaining to soil science.

The society also publishes the Journal of Soil Science Society of Sri Lanka annually. Furthermore, the society organizes bimonthly seminars inviting local and foreign experts and holds joint annual field trips.
Address of the General Secretary: Dept. of Soil Science, Faculty of Agriculture, Peradeniya, Sri Lanka.

Belgian Soil Science Society – Société Belge de Pédologie

The Executive Board of the Belgian Society of Soil Science for the period 1988-1990 is composed as follows:

President:	Prof. R. Gombeer (Leuven)
Vice-presidents:	Prof. L. Mathieu (Gembloux) and Prof. G. Stoops (Gent)
Secretary general:	Prof. W. Verheye (Gent and Antwerpen)
Treasurer:	Dr. R. Vermeire (Gent)
Members:	Dr. L. Bock and Dr. J.P. Heck (Gembloux), Prof. J. Chapelle (Huy), Prof. J. Dufey (Louvain-la-Neuve), Prof. J. Feyen, Prof. R. Dudal and Prof. K. Vlassak (Leuven), Dr. G. Hofman and Dr. O. Van Cleemput (Gent), Prof. A. Van der Beken (Brussel).

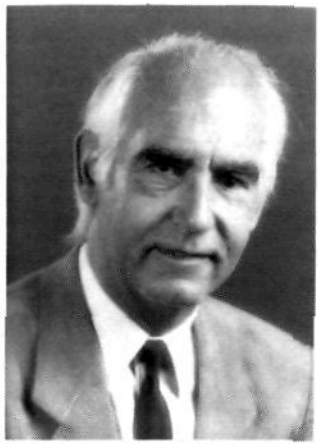
At the same occasion Prof. R. Dudal (Leuven) has been appointed as the Belgian representative at the ISSS for the period 1988-1991.
Address of the Secretariat: Krijgslaan 281-S8, B-9000 Gent, Belgium

Sociedade Portuguesa da Ciência do Solo

A new Executive Board of the Portuguese Society of Soil Science has taken charge as follows:

President:	Prof.Dr. Edgar C. Sousa
Secretary:	Prof.Dr. Manual A. Valeriano Madeira
Treasurer:	Dr. António F.A. Sanches Furtado

Address of the Secretary: SPCS, Instituto Superior de Agronomia, Tapada de Ajuda 1399, Lisboa Codex, Portugal.



IN MEMORIAM

Professor Dr. agr. Ernst Schlichting (1923-1988)

Ernst Schlichting, Professor in general soil science at the University of Hohenheim, FRG, and past-chairman of ISSS Commission V, died suddenly from heart failure on April 17, 1988, one day before his formal admittance as Member of the German Academy of Nature Research 'Leopoldina' in Halle (GDR).

Prof. Schlichting was born on January 25, 1923 in Holstein, northern Germany and grew up in the local moraine landscape with its platt-Deutsch speaking community, which he fondly remembered throughout his life. His participation in the second World War resulted in a leg-amputation, a painful handicap which he courageously bore without any complaint during his frequent professional travels, fieldwork and study tours in Germany and throughout the world.

After the war he studied agricultural sciences in Halle and Kiel and received a doctorate from his teacher Prof. Willy Laatch on the subject 'Eigenschaften und Genese des Heidehumus'. Already in 1951, only 31 years old, he obtained the right to university teaching in the subjects soil science and plant nutrition through his dissertation 'Copper fixing by humic substances'. At the time copper was a deficient plant nutrient, while nowadays it is often a soil environmental burden because of industrial waste; Dr. Schlichting's basic studies on copper-humus reactions, carried out partly during a stay as guest researcher at Uppsala-Sweden, are therefore still very relevant.

In 1961, Dr. Schlichting was appointed to the Chair of General Soil Science at the University of Hohenheim (Landwirtschaftliche Hochschule) in Southern Germany, soon combined with honorary professorships at the Universities of Stuttgart and Tübingen. Both as a teacher and as a researcher Prof. Schlichting always approached soils as complete natural systems, paying equal attention to their respective genesis, dynamics, ecology, and their use possibilities. He was particularly intrigued by the difference and relation between individual soil bodies (pedons and 'pedotope') and their spatial patterns in the landscape (soil cover, 'pedochore', or 'Bodengesellschaften'). He was also a straightforward in-depth critic of colleagues, with a steadfast preoccupation to prevent deviations from science for temporary utilitarian purposes – though from time to time softening his remarks with his favorite adagium 'Jede Konsequenz führt zum Teufel'.

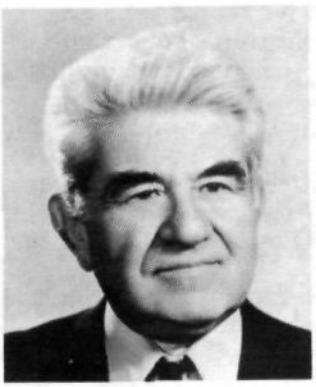
Ernst Schlichting studied all kinds of soils and their occurrence in the landscape. He had a special interest in hydromorphically differentiated soils. This resulted in the organising, together with Prof. U. Schwertmann and Dr. H.-P. Blume, of the ISSS International Conference on 'Pseudogley and Gley' in Hohenheim in 1971 with an ample and elucidating field study tour through southern Germany. He published well over 100 scientific articles in German or English, as well as two well-known textbooks, viz. 'Einführung in die Bodenkunde' and 'Bodenkundliches Prakticum'. At Hohenheim University Prof. Schlichting conceived and supported two major international research programmes, viz. 'Site specific forms of small-holders' farming in the tropics' and 'Environmentally sound farming systems'.

For many years Dr. Schlichting was chairman of Commission IV (Soil Fertility) of the Deutsche Bodenkundliche Gesellschaft and member of the editorial board of its prestigious scientific journal 'Zeitschrift für Pflanzenernährung und Bodenkunde'. From 1978 to 1982 he was a very active chairman of ISSS Commission V (Soil Genesis,

Classification and Cartography). He had the interest of ISSS always at heart, as demonstrated through his membership of the ISSS Standing Committee on Rules, recently renamed Committee on Structure and Statute (CSS). He also led the ISSS Working Group on the development of an International Reference Base for soil classification (IRB) untill 1986 and stayed active in the subject until his untimely death. Prof. Schlichting's preoccupation with scientifically sound and useful international soil classification became well known to pedologists the world over, through his enthusiastic participation in a number of international soil classification workshops. Recently he had the satisfaction of seeing his and Prof. Blume's arguments on a basic distinction between Gley soils and Pseudo/Stagnogley soils accepted in international classification systems.

Ernst Schlichting has made a definite imprint on the development of soil science; he will be sorely missed for a very long time, both nationally and internationally, for his thorough knowledge, his drive, his positive criticisms, and his cheerful companionship. He is survived by his wife and two daughters and we wish them much strength to bear this grievous loss, at a time when he was about to retire from active teaching and to start enjoying a well-earned emeritate.

Wim Sombroek



Dr. G.P. Petrosyan (1923-1987)

The International community of soil scientists, the Soviet and the Armenian soil science suffered an irreparable and grievous loss on October 17, 1987 when Dr. G.P. Petrosyan breathed his last in Moscow after a heavy illness.

We all suffer grief at the loss of this exceptionally active and outstanding man in many respects.

Dr. G.P. Petrosyan was esteemed and widely recognized as a prominent soil scientist-theoretician, who has performed great services for soil science and as a meliorator, agronomist-practician, who has cultivated fruit-bearing orchards and vineyards on salt-affected soils in Armenia.

Dr. G.P. Petrosyan was born on 27th December 1923 in Yerevan. In 1941 as volunteer he went to the war and served as a fighter pilot. After demobilization in 1947 Dr. Petrosyan entered the Armenian Agricultural Institute, graduated from it and began work as chief of the agronomical faculty at the institute. In 1958 the Armenian Research institute of soil science and agrochemistry was organized under G.P. Petrosyan's guidance and he was active as director of this institute to the very end of his life.

Since his youth G.P. Petrosyan was very keen on a deeply humane idea – to make the soils of his native land more fertile and productive. Armenia is a little republic, where there are few fertile soils and where the main territory especially in Ararat plain is covered by barren salt-affected soils. Dr. Petrosyan devoted his life to this idea, and his hopes and desires have been fulfilled. Under his guidance thousand of hectares of the first-rate fruitful orchards, vineyards, etheric-olive plantations, highly productive crop and pasture areas have been created in Armenia. Based upon thorough soil-geochemical research he studied mechanisms and the history of the formation of soil salinization and sodicity, and the semidesert Aridisols of the Ararat plain. On this theoretical foundation he elaborated the most efficient methodology for chemical-hydrological reclamation of these soils.

A brilliant gift and great erudition of the eminent soil scientist, and a great energy of the organizer made it possible to elaborate the whole cycle of scientific-meliorative project and to put into practice the theory and his own methodology. Being a man of generous nature, Dr. Petrosyan shared his knowledge and practical experience to reclaim salt-affected soils with many specialists of the Soviet Union and the whole world. A great impact was also provided by his contribution relating the soil genesis and geography, environment conservation, etc. He was an author of more than 200 publications on different aspects of soil science. Dr. Petrosyan was also an excellent teacher and guided the research work of more than 50 post-graduate students who were recipients of candidate and doctorate degrees of different institutes. But he was not only example and preceptor of his co-workers and colleagues, he was also their responsive kind friend.

Dr. G.P.Petrosyan always actively supported the development of international scientific relations and made a great contribution to scientific co-operation between soil scientists and meliorators all over the world. For many years he was a deputy chairman of ISSS Subcommission on salt-affected soils. Under his assistance international courses for specialists from the developing countries of Asia and Africa have been organized on the amelioration of saline and irrigated soils. He has been associated with numerous national and international congresses and conferences on soil amelioration and soil science. The works of the institute headed by him were awarded by many prizes of international exhibitions both in the USSR and abroad.

Dr. G.P. Petrosyan was a great activist in the struggle against formality and bureaucracy in science and in agriculture; he was always active in promoting a careful attitude towards the soils and nature at-large.

Being very ill for four years he beared courageously physical pain and didn't stop work to the last day.

Due to his courage, his vast knowledge, his professional interests and his great capacity of work he was generally recognized and admired. His simple life style, amiable disposition and affectional behaviour will be remembered by all his colleagues and friends, who have always found him easily approachable.

His life and creative work will serve as an example for us to love our native land as Dr. Petrosyan loved his Armenia and his people, whom he presented with 'revived' soils, orchards and vineyards. It will never be forgotten, and his bright image will remain forever in the hearts of all who knew him.

All-Union Society of Soil Scientists of the USSR

Dr. Frank T. Bingham (1921-1987)

Frank T. Bingham, professor of soil science, University of California, Riverside, died Jan. 14, 1987.

Dr. Bingham was born in Pasadena, Calif., USA, in 1921. He received his B.S. degree in soil science from the University of California, Berkeley, in 1943. Following graduation, he joined the U.S. Navy and served in the Pacific as a gunnery officer aboard a cruiser. After his discharge in 1946 he resumed graduate studies at the University of California, Berkeley, under the direction of professor Hans Jenny. Dr. Bingham completed his Ph.D. in 1951 in soil science and joined the Citrus Experiment Station as a junior chemist in the Department of Soils and Plant Nutrition, University of California, Riverside. His dissertation research involved the development of a laboratory method to assess the phosphorus availability in soils to crops. The test, which bears his name, proved to be highly successful and is still used, particularly where organic soils are involved.

At U.C. Riverside, Dr. Bingham received tenure in 1960, and was promoted to

professor of soil science in the College of Natural and Agricultural Sciences, and chemist in the Agricultural Experiment Station in 1967. During his early career he continued his research on phosphorus in soils and its availability to crops. In 1962, in recognition of his research on phosphorus, he received the Blue Ribbon Paper Award from the Soil Science Society of America. Dr. Bingham spent most of his career on research related to arid zone soils, and on trace element chemistry in soils and their availability to crops.

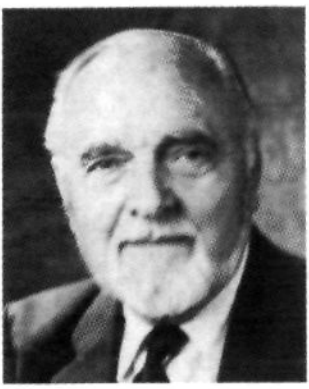
He made numerous contributions to the understanding of the effects of salinity on the growth of crops as well as the chemistry of boron in soils and factors influencing its phytotoxicity. He also made notable and important contributions in the area of environmental quality, particularly as related to trace element contamination of soils, their phytotoxicity and accumulation by food crops.

Dr. Bingham was a recognized international expert in arid zone agriculture and was frequently invited to other nations to assist in obtaining solutions to salinity, sodicity, and boron problems. He lectured and conducted research under the auspices of the Ford Foundation and the Rockefeller Foundation in Egypt and Chile. He was a senior Fulbright lecturer in Spain, and was invited by scientists in Venezuela, Peru, and Brazil to assist in solutions to their problems.

His research in the area of trace element chemistry and bioavailability in soils is equally impressive. He was among the first to show that plant availability is dependent upon and influenced by inorganic ion speciation. His research on aluminum led to an invitation by the Swedish National University to participate in an International Workshop on Aluminum Toxicity.

Twenty-five students completed graduate degrees under the direction of Dr. Bingham. Up to the time of his death, he maintained ties to his students through visits and correspondence. Dr. Bingham also hosted a number of postdoctoral candidates from the US and other countries, including Israel, Korea, Egypt, People's Republic of China, Chile, Spain and Brazil.

Dr. Bingham was a Fellow of the Soil Science Society of America and the American Society of Agronomy.



Prof. em. Dr. rer.hort. Diedrich Schroeder (1916-1988)

Im Alter von 72 Jahren verstarb am 2.3.1988 in Kiel nach einem Herzinfarkt Prof.Dr. Diedrich Schroeder, Präsident der Deutschen Bodenkundlichen Gesellschaft 1974-1981. Mit ihm verlieren die Deutsche Bodenkundliche Gesellschaft und die Internationale Bodenkundliche Gesellschaft ein fachlich wie kollegial herausragendes langjähriges Mitglied.

Als Sohn eines Moorvogtes am 16.04.1916 in Gross-Augstumalmoor/Memelland geboren, erlebte er bereits als Jung wie sich wissenschaftliche Erkenntnisse der Moorforschung praktisch umsetzten. Zunächst wählte er jedoch 1935 den Soldatenberuf, den er nach Krieg und Gefangenschaft als Major beendete.

1946-49 studierte er Agrar- und Naturwissenschaften in Göttingen. Dort von F. Scheffer bereits für die Bodenkunde interessiert, folgte er P. Schachtschabel nach Hannover, wo er 1951 mit seiner Dissertation über die mineralogische Zusammensetzung von Weißjurakalken promoviert wurde. Auch in seiner bereits 1954 vorgelegten Habilitationsschrift über Verwitterung und Bodenbildung in Lössprofilen zählte er zu den Wissenschaftlern, die der Tonmineralforschung früh Impulse gaben. Bereits 10 Jahre nach Beginn seines Studiums erhielt dieser konsequent unter Einsatz auch von Arbeits-

methoden der Nachbardisziplinen bodenkundliche Probleme anpackende junge Wissenschaftler einen ehrenvollen Ruf auf den Lehrstuhl für Bodenkunde an der Christian-Albrechts-Universität in Kiel als Nachfolger von W. Laatsch.

Seine fast 30 Jahre als Ordinarius in Kiel waren bodenökologisch bestimmt: zunächst wendete er sich mit Arbeiten über den Magnesium-, Kalium-, und Schwefelhaushalten schleswig-holsteiniger Böden einem Grenzgebiet der Pflanzenernährung zu. Die 60er Jahre waren geprägt durch Arbeiten über das Verhalten radioaktiven Strontium fall outs in Böden und vor allem die Entwicklungsprozesse in marinen Sedimenten und Marschböden. Bis in seine Emeritierung hinein verfolgte er theoretische und praktische Fragen der Bodenklassifizierung und -regionalisierung mit dem Ziel eines umfassenden Bodeninformationssystems. Seine hohe humanistische Bildung fand ihre Verknüpfung mit dem Fach Bodenkunde in seinen letzten Arbeiten über Goethes und Alexander von Humboldts bodenkundliche Aussagen.

Diedrich Schroeder war ein beliebter Hochschullehrer. Er verstand es, den wissenschaftlichen Nachwuchs zu fördern. Von seinen zahlreichen Schülern bekleiden inzwischen einige in der Bodenkunde herausragende Ämter. Mit seiner 'Bodenkunde in Stichworten', 4. Aufl., 1984, F.Hirt Verlag, Unterägri/Schweiz und ihre vom International Potash Institute, Bern ermöglichten englischen Übersetzung 'Soils – facts and concepts', ebenfalls 1984, beschritt er einen neuen Weg der Wissensvermittlung, die sich daneben in über 100 wissenschaftlichen Publikationen dokumentiert.

Es blieb nicht aus, dass eine von Studenten und Kollegen über sein wissenschaftliches Ansehen hinaus als ausgleichend, hilfsbereit und tolerant anerkannte Persönlichkeit sich zahlreichen Ehrenämtern zur Verfügung stellen musste.

1960/61 Dekan der Landwirtschaftlichen Fakultät, 1962/63 und 1971/72 Rector magnificus der Universität Kiel hat er in zum Teil schwierigen Phasen Anerkennung und Achtung in der akademischen Selbstverwaltung erhalten. In über 10 wissenschaftlichen Vereinigungen hat er die wissenschaftliche Entwicklung der Bodenkunde im nationale wie internationale Rahmen entscheidend mit beeinflusst. Bereits 1962 wurde er in die Deutsche Akademie der Naturforscher Leopoldina in Halle in Anerkennung seiner über sein Fachgebiet hinausgehenden wissenschaftlichen Leistungen berufen.

Nach Funktionen als Kommissionsvorsitzender und Vizepräsident fand seine zweimalige Wahl zum Präsidenten der Deutschen Bodenkundlichen Gesellschaft 1974/77 und 1977/81 ihren Höhepunkt. Für seine Verdienste um DBG ernannte diese ihn zu ihrem Ehremitglied (1983).

Er bekleidete mehrere Jahre auch das Amt des Vizepräsidenten des Dachverbandes Wissenschaftlicher Gesellschaften der Agrar-, Forst-, Ernährungs-, Veterinär- und Umweltforschung.

Diedrich Schroeder bleibt als pflichtbewusster, hilfsbereiter, umfassend gebildeter, auch im heftigen wissenschaftlichen Disput um Ausgleich bemühter, konsequent forschender akademischer Lehrer, Kollege und Freund, den Mitgliedern der DBG und ISSS unvergessen. Er wirkt fort in seinen Schülern und Werken. Er ist zu früh auch aus unserer Mitte gerissen worden.

Prof.Dr. Kuntze, Präsident DBG

Also passed away:

Dr. Raymond B. Farnsworth, former professor of soil science at Brigham Young University of Provo, Utah-USA; he taught over 700 agronomy students and did significant research on nitrogen fixation by non-leguminous plants. He also directed a successful assistance programme to Indian tribal groups of Canada, the USA and Mexico, improving their understanding of agricultural production techniques and establishing self-sufficiency in their agricultural enterprises.

(also passed-away cont'd)

Dr. Franklin R. Miller, recently retired as head of the Soil Conservation Service Northeast Technical Centre in Chester, Pennsylvania and chairman of the International Committee on the Classification of Spodosols.

Dr. Ko Veenenbos, formerly senior staffmember of the Dutch Soil Survey Institute, for many years FAO soil survey specialist in Arab Countries, and subsequently senior lecturer or dean at international diploma courses in the Netherlands (ITC-Enschede, the Agricultural University of Wageningen, and IHE-Delft).

Ir. Jan Henk Bruin, soils officer of FAO, first on field assignments in West Africa (Togo, Côte d'Ivoire and Burkina Faso) and lately at FAO Headquarters in Rome.

Ir. Richard Breimer, of Freising-Weihenstephan, FRG, formerly of Unesco's Regional Office for Latin America in Montevideo, and main author of MAB's Technical Notes 17 'Guidelines for soil survey and land evaluation in ecological research'.

APPOINTMENTS, HONOURS NOMINATIONS, DISTINCTIONS ERNENNUNGEN, AUSZEICHNUNGEN

Prof.Dr. **Istvan Szabolcs**, Deputy-Secretary-general ISSS, was elected Vice President of the International Confederation of Technical Agricultural Engineers (CITA), during its world congress in Athens, Greece, April 1988.

Prof.Dr. **Yasuo Takai**, Vice-President of ISSS was appointed chairman of the Japanese National Committee for Unesco/MAB; he was also awarded a purple-ribbon medal from the Japanese Prime Minister for his contributions both to the development of paddy soil ecology and to scientific exchange with South-east Asian countries.

The Chairman of the ISSS Subcommission on Soil Zoology, Dr. **Ken Lee** of Adelaide, Australia and formerly of Lower Hutt, New Zealand, won the prestigious 1986 Prescott Medal of the Australian Society of Soil Science.

L'Académie d'Agriculture de France a décerné à deux belges, membres de l'AISS, les Dr. **J. Lozet** et **C. Mathieu**, le diplôme et la Médaille d'Argent pour leur ouvrage 'Dictionnaire de Science du Sol' publié aux Editions Lavoisier à Paris.

Dr. **M.S. Swaminathan**, until recently Director-General of IRRI and at present Chairman of IUCN was the recipient of both the first General Foods 'World Food Prize' (see ISSS Bulletin 70, page 45) and the 1986 Albert Einstein World Award of Science of the World Cultural Council. He also was awarded a honorary doctorate from Wageningen Agricultural University, adding lustre to an already impressive list.

Dr. **Dennis J. Greenland**, formerly of IRRI and now Deputy Director-general of CAB International, UK, was elected Fellow of the World Academy of Art and Science.

Professor **Bernard Ulrich** of the University of Göttingen, FRG, received the Swedish Marcus Wallenberg Prize. He was also awarded a honorary doctorate of the ETH University in Zurich.

Dr. **John Rodda**, of Wallingford (UK), long-time Secretary-General of the International Association of Hydrological Sciences (IAHS) was appointed Director of the Hydrology and Water Resources Department of the World Meteorological Organisation (WMO). The new Secretary-General of IAHS is Ir. **Henny J. Colenbrander** of the Netherlands (P.O. Box 297, 2501 BD The Hague).

The World Prize for Environmental Achievements (Tyler Prize*) for 1987 was shared between **Richard Schultes** for pioneering ethnobotany in the Amazon region and for tropical forest conservation, and **Gilbert White** for understanding the pivotal role of human perception and adjustment to natural hazards and for promoting integrated river basin development. The 1988 recipient of the Prize is Prof. Dr. **Bert Bolin** of Stockholm, specialist in meteorology and atmospheric chemistry, and member of the IGBP Special Committee.

Dr. **Martin Holdgate** (UK) was appointed General Director of the Intern. Union for the Conservation of Nature and Natural Resources (IUCN) in Gland, Switzerland.

Dr. **Klaus Lampe**, formerly of the German Society for Technical Cooperation GTZ, is the new Director-General at IRRI, the Philippines.

Prof.Dr. **Hector Gurgulino de Souza** (Brazil) took up his duties as the third Rector of the United Nations University in Tokyo.

ISSS POSTER AWARDS

At the 5th International Soil Conservation Conference in Bangkok, Thailand, *awards were given to the four best poster presentations, as follows:*

H. Huizing and **C. Valenzuela** (ITC, the Netherlands), 'Towards an Integrated System for Land and Watershed Management' (in S. Sumatra, Indonesia).

N. Suddhapreda, **E.P. Paningbatan Jr.**, **W. Chankong**, and **B. Piadang** (Thailand), 'Prediction of Soil Erosion by Using Physical Model in the North of Thailand'.

R.A. Veloz and **T.J. Logan** (USA), 'Steepland Erosion Research in the Dominican Republic'.

W.P. Miller and **M.E. Sumner** (USA), 'Dispersion Processes Affecting Runoff and Erosion in Highly Weathered Soils'.

NOTEWORTHY

The **Soil Survey of England and Wales** moved from Rothamsted to Silsoe, where it joined the Cranfield Institute of Technology, and changed its name to reflect its broadening activities. The new address is: Soil Survey and Land Research Centre, Silsoe Campus, Silsoe, Bedfordshire MK45 4DT, England, tel. 05 25 60 428. The Director is Dr. P. Bullock.

In Scotland, the **Macaulay Institute for Soil Research** and the Hill Farming Research Organisation amalgamated to form the Macaulay Land Use Research Institute (MLURI).

The new director of the **New Zealand Soil Bureau** is Dr. J.D.G. (Derek) Milne. He succeeds Dr. Mike Leamey who stood down from that position for health reasons and is now concentrating on his interest for Andisol classification.

The **Dutch Soil Survey Institute** (Stiboka) of Wageningen has Mr. R.F. van de Weg as its new director, succeeding Dr. F. Sonneveld and Ir. R.H.P. van der Schans. The Institute will soon amalgamate with the Institute for Land and Water Management Research (ICW) and some smaller Wageningen research groups to form the Institute for Research of Rural Areas (ILG) or 'Staring Centre'.

* Nominations for the 1989 Prize, $ 150.000 – $ 200.000, can be submitted till october 15, 1988; the address is: Dr. J.B. Walker, Executive Director of the Tyler Prize, University of Southern California, Los Angeles CA 90089-4019, USA.

INTERNATIONAL RELATIONS
RELATIONS INTERNATIONALES
INTERNATIONALE VERBINDUNGEN

IGBP

Geosphere-Biosphere Observatories proposed

The International Union of Biological Sciences (IUBS) published the report of a meeting held at ICSU-Paris in january 1987 on Geosphere-Biosphere observatories and transects. The meeting was co-sponsored by Unesco-MAB, SCOPE, IUBS and the US National Committee for MAB. Among the 15 participants were Dr. Francesco di Castri (soil microbiology) and Dr. Wim Sombroek (pedology), while Dr. Brian Walker (savannah soils) contributed in writing.

As the International Geosphere-Biosphere Programme on Global Change (IGBP) gets underway, it will be necessary to set up a reliable network of research sites where the processes of change can be observed and validated over long periods of time. The definition and design of such observatories was the subject of the Paris meeting. It was concluded that several types of *observatories* are needed:

- a few large, centralised observatories for in-depth examination of ecological processes.
- many small centres for comprehensive coverage of global phenomena.

Such facilities would be placed in critical biogeographic areas, such as vanishing tropical forests, flooded lowlands, and similar biotic provinces.

The meeting also put forward the idea of using *transects*:

- microtransects for cutting across the sensitive transition zones, or ecotones, along coastal and inland areas;
- megatransects, which might range over whole continents, crossing major agro/bioclimatic belts, or biomes, for monitoring rates of change by a combination of detailed terrestrial observations with a nested remote sensing approach.

A number of follow-up workshops are recommended, on respectively a) possible networks of G-B Observatories, including many of the existing Man and Biosphere Reserves of Unesco; b) identification of existing long-term data sets amenable for quantifying changes in global processes; c) issues of data management (data quality, manipulation and storage) as well as requirements of common documentation; d) evaluation of the potential application of remote sensing techniques to the study of global processes.

The report is entitled 'Geosphere-Biosphere Observatories; their definition and design for studying global change' (M.I. Dyer, F. di Castri and A.J. Hansen, eds.) and is available as Special Issue no 16 of 'Biology International' from: Secretariat IUBS, 51 Boulevard de Montmorency, 75016 Paris, France.

□

1st IGBP Scientific Advisory Council Meeting, Stockholm, Sweden, October 24-27, 1988.

Information: IGBP Secretariat, Royal Swedish Academy of Sciences, Box 50005, S-10405 Stockholm, Sweden

THIRD WORLD ACADEMY OF SCIENCES

The Third World Academy of Sciences (TWAS) is a non-governmental and non-political scientific organization whose general objective is to give recognition to high level scientific research performed by scientists from developing countries, to facilitate their mutual contacts, to strengthen their research work and to foster it, for the development of the Third World and the benefit of human welfare.

It was established on 5 July 1985 in Trieste, Italy. The President is Prof. Abdus Salam (Pakistan) there are three Vice Presidents: Prof. C. Chagas (Brazil), Prof. M.G.K. Menon (India) and Prof. T.R. Odhiambo (Kenya), as well as twenty-eight Founding Fellows.

TWAS Grants for Scientific Meetings held in Developing Countries

The Third World Academy of Sciences, with generous funds provided by the Direzione Generale alla Cooperazione per lo Sviluppo of the Italian Ministry of Foreign Affairs and by the Canadian International Development Agency, is willing to consider applications for Grants to support scientific meetings to be held in Developing Countries in the following fields of Natural Sciences: *Biological Sciences, Chemical Sciences and Geological Sciences.*

- The purpose of the Grants is to encourage the organization of Regional and International Scientific Conferences, Workshops and special meetings in the Third World.
- *Scientific Institutions* and *Organizations* in Third World Countries holding meetings in their countries may apply for Grants to cover the travelling expenses of lecturers from abroad and/or young scientists from the region.
- *Organizers of International Conferences* being held in Developing Countries may apply for Grants to assist with travelling expenses of eminent scientists from Developing Countries, the expenses of principal speakers who are unable to obtain sufficient funds from other sources or travelling expenses for young promising scientists from the region.
- Applications should be made on a Request Form and should state the relevance of the activity to the development of science in the country/region. *Only requests filled in by Organizers will be considered.* Special consideration will be given to those meetings which are likely to benefit the scientific community in Developing Countries and to promote regional and international cooperation in developing science and its application to the problems of the Third World.
  The closing dates for receipt of completed requests is 1 December 1988 for meetings to be held during July-December 1989.

TWAS South-South Fellowships

One of the main objectives of the Third World Academy of Sciences is to facilitate and promote mutual contacts of research scientists in the Third World and to further relations between their scientific institutions.

In pursuance of the above objective, the Academy awards Fellowships to scientists of proven research ability to enable them to pursue research and/or undertake lectureship, by working with colleagues *in developing countries* other than their own.

Fellowships will normally be awarded for a minimum period of six weeks and are only provided for visits within the *Third World.*

Fellowships, which are established through funds provided by the Dipartamento per la Cooperazione allo Sviluppo of the Italian Ministry of Foreign Affairs and the Canadian International Development Agency, will cover international travel to the host country and back. In general, visiting fellows will be expected to obtain the cost

of their living expenses from local sources. However, a number of Third World Countries have agreed to cover the living expenses for visitors to their own institutions.

Applicants should be nationals of developing countries, normally with some research experience working in universities or research institutes in developing countries.

Applications should be made on the Third World Academy of Sciences' form entitled 'Fellowship Scheme Application FORM'. They will be reviewed and evaluated by the host institutions and the Academy. Special consideration will be given to visits which can be expected to promote cooperation among scientists of the *same region* and yield substantial benefits to the visitors, their hosts and their respective scientific communities.

Applications will be considered by the Academy throughout the year. Applicants are requested, however, to give at least *six months notice* of the visits to allow for the completion of the review and evaluation procedure.

Selected candidates are expected to submit to the host institution and the Third World Academy of Sciences, near the end of the tenure of the Fellowship, a report on the work carried out during the fellowship period.

TWAS Research Grants

One of the principal objectives of the Third World Academy of Sciences is to help in providing promising scientists in the Third World with the conditions necessary for the advancement of their research work. In pursuance of this objective, the Academy awards research grants on a cost-sharing basis for high-level and promising scientific research projects to be carried out in developing countries by the individual scientists named. The purpose of theses grants is to reinforce and promote basic and applied scientific research in the Third World, and to strengthen the endogenous capacity in science.

At present, TWAS Research Grants provide support for research projects in the following fields of science: *Experimental Physics, Pure and Applied Mathematics; and Molecular Biology/Biochemistry.*

A grant may be used to purchase scientific apparatus, materials, specialized literature and other items needed for the project and which are not obtainable locally. The grant does not cover the salary of the grantee and does not cover international travel or study leave.

Grants for projects in Mathematics cover a period of one to three years for an amount of US$ 2,000 – 5,000 per year, according to the type and needs of the project. These grants are normally intended to cover the cost of scientific literature (research textbooks and proceedings) and microcomputers essential for the project. A small portion of the grant may be used for local travel and for supporting one or two graduate students directly associated with the research project.

Grants in *Experimental Physics, Molecular Biology and Biochemistry* amount to a maximum of US$ 5,000 and are normally provided for one year. Requests for additional grants to allow for an extension of a successful project will be considered by the Academy. These grants are normally intended to cover the cost of scientific equipment, expendable supplies and other essential items.

An applicant for a research grant must be a national of a developing country, who has an advanced academic degree and some research experience. The applicant must be employed by a university or research institute in the Third World where the research work is to be carried out.

Requests for research grants must be submitted in English on the 'TWAS Research Grants Form'. These forms can be obtained from the Office of the Executive Secretary, National Academies and Research Councils in developing countries. A copy of the

application should be sent to the local National Science Academy or National Research Council. Applications may be submitted at any time throughout the year.

The President of the Academy has appointed four consultants, who are experts in the fields covered by the programme, to assist the Academy in taking appropriate decisions. As soon as an application is received by the Secretariat, it is sent to the relevant consultant who, after receiving it, appoints a number of specialists to whom the application is sent for appraisal and assessment.

The consultants, after receiving the comments by the specialists, make appropriate recommendations to the Academy. These recommendations are considered by a review committee, chaired by the President of the Academy, which normally meets twice a year (in May and November) to take final decisions.

Following a decision to award a research grant, a written agreement is made between the Academy, the grantee and his institute. The institute undertakes to administer the grant according to the agreement and to provide laboratory space, salaries and other facilities necessary for the project. Equipment, material and literature provided for the project through the TWAS Research Grant remains the property of the institute after the project is completed. The grantee is required to submit reports as specified in the agreement, and a final report must be submitted within one month of the completion of the project. This report should include a summary of the results obtained and details of the expenditure. While the Academy does not claim rights to any publications or inventions arising out of the project, the grantee must keep the Academy properly informed about such matters, as well as of any applications of the results obtained. Any research results obtained under a TWAS grant must be made freely available without restrictions.

Address: Mohamed H.A. Hassan, Executive Secretary TWAS, The Third World Academy of Science, c/o ICTP, P.O.Box 568, 34100 Trieste, Italy. (telex: 460392 ictp-i).

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

Meetings etc. marked with *, are organized or (co)-sponsored by ISSS, implying that participation with support from the ISSS Fellows Fund can be considered (for details on the Fund see page 42 of Bulletin 72).

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

Les réunions, etc., marquées d'un astérisque (*) sont organisées ou (co)-financées par l'AISS, ce qui implique qu'il y a possibilité d'y participer avec un financement du Fond pour Aspirants de l'AISS (voir détails page 42 du Bulletin 72).

Tagungen usw, versehen mit (*) werden organisiert bzw (mit)finanziert von der IBG, was bedeutet dass die Möglichkeit gegeben ist sich zu beteiligen mit finanzielle Unterstützung aus der IBG Stipendien (für Einzelheiten siehe Seite 42, Mitteilungsblatt no. 72).

Las reuniones, etc. marcadas con un asterisco (*) son organizadas o (co)-promovidas por la SICS, implicando la posibilidad de participar con el apoyo del Fondo para becarios de la SICS (ver detalles, p.42 del Boletin No.72).

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

3rd International Symposium on Spatial Data Handling, Sydney, Australia, August 15-19, 1988.
Information: Prof. Duane F. Marble, Dept. of Geography, Ohio State Univ., Columbus, Ohio 43210, USA.

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

MAB Regional Technical Workshop and Research Planning Meeting on Redevelopment Processes of Degraded Ecosystems in S.E. Asia, Bogor, Indonesia, August 22-27, 1988.
Information: Unesco-ROSTSEA, UN Building, Jl. Thamtin 14, 273/JKT Tromolpos, Jakarta, Indonesia.

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

International Symposium on Artificial Recharge of Groundwater, Anaheim, California, USA, August 21-28, 1988.
Information: Dr. I. Johnson, 7474 Upham Court, Arvada, Colorado 80003, USA

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

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

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

International Symposium on Modelling Soil-Water-Structures Interactions (IAHR), Delft, the Netherlands, August 28-September 4, 1988.
Information: SOWAS '88, c/o KIVI, P.O.Box 3024, 2500 GK The Hague, the Netherlands.

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

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

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

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

***International Conference on Soil Classification**, Alma-Ata, USSR, September 12-16, 1988 (ISSS Commission V).
Information: Prof. B.G. Rozanov, Faculty of Soil Science, Moscow State University, 117234 Moscow, USSR.

1st International Workshop on Soil Management and Smallholder Development in the Pacific Islands, Honiara, Solomon Islands, September 16-22, 1988 (SMSS and IBSRAM).
Information: Dr. R.J. Cheatle, Dodo Creek Research Station, Ministry of Agriculture and Lands, P.O.Box G13, Honiara, Solomon Islands.

25th Annual Meeting of the Clay Mineral Society, Grand Rapids, Michigan, USA, September 18-21, 1988.
Information: Dr. T.J. Pinnavaia, Dept. of Chemistry, Michigan State Univ., East Lansing MI 48824, USA.

International Conference on Sustainable Agricultural Systems, Columbus, Ohio, USA, September 19-23, 1988.
Information: Dr. C.A. Edwards, Dept. of Entomology, Ohio State University, 1735 Neil Avenue, Columbus OH 43210, USA.

3rd International Wetlands Conference; Conservation and Development: the Sustainable Use of Wetlands Resources; Rennes, France, September 19-23, 1988.
Information: Museum National d'Histoire Naturelle, Lab. d'Evolution des Systèmes Naturels et Modifiés, Rue G. St.Hilaire, 75231 Paris Cedex, France.

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

Eurocarto Seven; Environmental Applications of Digital Mapping, Enschede, the Netherlands, September 20-22, 1988.
Information: R. Bertrand, ITC, P.O. Box 6, 7500 AA Enschede, the Netherlands.

II Congreso Nacional de la Ciencia del Suelo, Sevilla, Spain, September 26-30, 1988.
Information: Secretaria General del Congreso, Instituto de Recursos Naturales y Agrobiologia, Apartado 1052, 41080 Sevilla, Spain.

International Conference on the Application of Geology in Developing Countries, Nottingham, England, September 26-30, 1988, with a workshop on Agrogeology.
Information: Dr. D.A.V. Stow, Conference Secretariat, Geology Dept. University Park, Nottingham NG7 2RD, England. Telex: 37346 uninot-g.

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

International Workshop on Ecology and Management of Asian-Australasian Savannes, Darwin, Australia, October 10-14, 1988.
Information: Dr. B. Walker, CSIRO, Division of Wildlife and Rangeland Research, P.O. Box 84, Lyneham ACT 2602, Australia.

25th Anniversary of the International Training Course for Postgraduate Soil Scientists, Ghent, Belgium, October 10-14, 1988 with a Symposium on Soils for Development and Workshops on Progress in Soil Science Research; theory and application for development projects.
Information: Secretary ITC, Krijgslaan 281, S-8, B-9000 Ghent, Belgium.

23rd General Assembly of the International Union of Biological Sciences (IUBS), Canberra, Australia, October 17-24, 1988.
Information: Organising Secretariat, 23rd General Asembly IUBS, c/o Management & Policy Studies Centre, Canberra College of Advanced Education, P.O.Box 1, Belconnen ACT 2616, Australia.

22nd International Symposium on Remote Sensing of Environment, Abidjan, Côte d'Ivoire, October 20-26, 1988.
Information: Dorothy M. Humphrey, Conference Services, Environmental Research Institute of Michican, P.O.Box 8618, Ann Arbor Mich. 48107-8618, USA. Telex 494 0991.

18th Brazilian Meeting of Soil Fertility, Vitória, Espirito-Santo, Brazil, October 23-28, 1988.
Information: Pedro I. Fazio, Secr. de Agricultura, Rua Raimundo Nonato 116, 29000 Vitória ES, Brazil

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

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

Symposium on Modelling of the Productive Potential of Soils in Agro-ecosystems, Varna, Bulgaria, November 10-12, 1988.
Information: Prof.Dr. V. Valev, N.Poushkarov Institute of Soil Science and Yield Production, 7 Skosse Bankya Str., 1080 Sofia, Bulgaria.

9th Regional Soil Correlation Meeting for West and Central Africa, Cotonou, Benin, November 14-23, 1988.
Information: Dr. R. Sant'anna, FAO Regional Office, P.O.Box 1628, Accra, Ghana.

Biennal Conference of the New Zealand Society of Soil Science, Nelson, New Zealand, November 21-25, 1988.
Information: I.B. Campbell, NZ Soil Bureau, DSIR, Private Bag, Nelson, New Zealand

Annual Meeting of the Soil Science Society of America (with ASA and CSSA), Anaheim, California, USA, November 27-December 2, 1988.
Information: Dr. R.F. Barnes, SSSA, 677 South Segoe Road, Madison WI 53711-1086, USA.

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

***1st All-Africa Soil Science Society Conference**, Kampala, Uganda, December 5-10, 1988.
Information: Prof. J.Y.K. Zake, general coordinator, ASSS, c/o Dept. of Soil Science, Fac. of Agriculture, Makerere University, P.O. Box 7062, Kampala, Uganda. Telex: 61531 mubso-uga.

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

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

1989

***International Symposium Managing Sandy Soils**, Jodhpur, Rajasthan, India, February 6-10, 1989 (postponed from February 8-12, 1988).
Information: Dr. S.P. Malhotra, Director, Central Arid Zone Research Institute, Jodhpur 342003, Rajasthan, India.

International Workshop on Phosphorus Requirements for Sustainable Agriculture in Asia and the Pacific Region, Los Baños, Philippines, March 6-10, 1989.
Information: Dr. J.R. Freney, CSIRO Division of Plant Industry, G.P.O.Box 1600, Canberra, Australia.

International Symposium on Global Changes in South America during Quaternary: Past-Present-Future. São Paulo, Brazil, March 8-12, 1989.
Information: Prof. Kenitiro Suguio, Instituto de Geociências-USP, CP 20899, CEP 01498-Sao Paulo S.P., Brazil.

***International Workshop on the Multipurpose Use of Soil Survey Information for efficient Land Use Planning**, Nairobi, Kenya, March 12-20, 1989 (ISSS Commission V and SMSS).
Information: Mr. S.M. Wokabi, Head Kenya Soil Survey, P.O.Box 14733, Nairobi, Kenya.

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

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

3rd Scientific Assembly of the International Association of Hydrologic Sciences, (IAHS), Baltimore, USA, May 10-19, 1989. With Symposia on: Atmospheric Deposition; Surface Water Modelling; Sediment and the Environment; Groundwater Contamination; Remote Sensing and Large-scale Global Processes; Image Processing and geographic Information Systems; a.o.
Information: Dr. A.I. Johnson, Organising Committee, 3rd IAHS Assembly, 7474 Upham Court, Arvada CO 80003, USA.

International Symposium on Peat/Peatland Characteristics and Uses, Bemidji, Minnesota, USA, May 16-19, 1989
Information: Center for Environmental Studies, Bemidji State University, 1500 Birckmont Drive NE, Bemidji MN 56601-2699, USA

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

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

4th International Symposium on River Sedimentation, Xian, China, June 5-9, 1989.
Information: Prof. D.E. Walling, Dept. of Geography, Univ. of Exeter, Amory Bldg. Rumes Drive, Exeter EX4 4RJ, England.

International Conference on Soil Quality in Semi-arid Agriculture, Saskatoon, Canada, June 12-16, 1989.
Information: Mr. Hans Korven, Saskatchewan Institute of Pedology, Univ. of Saskatoon, Sask. S7N 0W0, Canada.

International Symposium on Rice Production on Acid Soils of the Tropics; achievements and challenges, Kandi, Sri Lanka, June 26-30, 1989.
Information: Dr. Cyril Ponnamperuma, Director, Institute of Fundamental Sciences, Hantana Road, Kandi, Sri Lanka, telex 21700 IFS-ce.

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

22nd Brazilian Congress of Soil Science, Recife, Pernambuco, Brazil, July 23-29, 1989.
Information: Fernando B. Be Silva, EMBRAPA/SNLCS, Rua Antonio Falcao 402, Boa Viagem, 51020 Recife PE, Brazil.

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

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

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

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

10th International Symposium on Soil Biology, Keszthely, Hungary, August 27-31, 1989.
Information: Prof.Dr. J. Szegi, Research Institute for Soil Science and Agric. Chemistry, Pf 35, 1525 Budapest, Hungary.

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

*Pre-conference study tour in Black Forest and Rhine Valley, and one-day **Symposium on Rock Weathering and Soil Mineralogy**, organised by ISSS Commission VIII, August 27-29, 1989.
Information: Prof.Dr. A.J. Herbillon, CPB-CNRS, B.P.5, 54501 Vendoeuvre-les-Nancy Cedex, France.

International Symposium on Fertilization and the Environment, Leuven, Belgium, August 27-30, 1989.
Information: K.U. Leuven, Laboratory of Soil Fertility and Soil Biology, Kardinaal Mercierlaan 92, 3030 Leuven, Belgium

MAB Workshop on Management of the Forest Ecosystems in Humid Tropical Regions; comparative approach between Africa and the Americas, Cayenne, French Guyane, September 1989.
Information: H.F. Maître, CTFT/CIRAD, 45 bis Avenue de la Belle Gabrielle, 94736 Nogent-sur-Marne Cedex, France.

Réunion internationale sur les Horizons du Sol: concept d'horizon, leur utilisation dans la caractérisation, la classification et la cartographie des sols, Rennes, France, Septembre, 1989 (co-sponsoring by ISSS Commission V).
Information: M. Pierre Aurousseau, ENSA Chaire de Sciences du Sol, 65 rue de Saint-Brieuc, 35042 Rennes-Cedex, France.

2nd International Conference on Geomorphology, Frankfurt/Main, FRG, September 3-9, 1989. Theme: 'Geomorphology and Geo-ecology'.
Information: Prof.Dr. A. Semmel, Inst. für Physische Geographie, Universität Frankfurt, Postfach 111932, D-6000 Frankfurt/Main 11, F.R. of Germany.

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

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

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

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

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

***6th International Soil Conservation Conference**, Addis Abeba, Ethiopia, November 6-18, 1989 (ISCO; co-sponsoring by ISSS Subcommission C).
Information: Mr. Kebede Tatu, 6th ISCO Conference, P.O.Box 2597, Addis Abeba, Ethiopia. Telex: 21619; or: Dr. Hans Hurni, Geography Institute, Hallerstrasse 12, 3012 Berne, Switzerland.

1990

International Symposium on Land Drainage for Salinity Control in Arid and Semi-arid Regions, Cairo, Egypt, February 16-March 3, 1990
Information: Drainage Research Institute, Irrigation Building, 13 Giza Street, El Giza, Cairo, Egypt; or: ILRI, P.O.Box 45, 6700 AA Wageningen, the Netherlands.

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

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

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

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

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

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

NEW PUBLICATIONS
NOUVELLES PUBLICATIONS
NEUE VERÖFFENTLICHUNGEN

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

Les titres de nouvelles publications sont mentionnés à titre d'information. Veuillez adresser vos commandes non pas au Secrétariat de l'AISS, mais à une librairie ou directement aux éditeurs. Presque toutes les publications mentionnées peuvent être consultées au siège de 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 besichtingen an der Stelle der IBG, p/a Internationales Bodenreferenz und Informations Zentrum (ISRIC) im Wageningen, Holland.

Rangelands: A Resource under Siege. Proceedings of the Second International Rangeland Congress. P.J. Joss, P.W. Lynch and O.B. Williams, editors. Australian Academy of Science, Canberra, 1986, xv + 634 p. ISBN 0-85847-129-9. Hardbound.

The aim of the International Rangeland Congress is to promote the interchange of scientific and technical information on all aspects of rangelands: research, planning, development, management, extension, education and training.

'Rangeland – A resource under siege' is the title given to these Proceedings of the Second Congress, held at Adelaide, May 1984 because this theme was described by so many of the contributors in the 13 symposia around which the Congress was constructed. Presently it seems that few of the world's rangelands remain in the 'under threat' category; siege has already been laid and the battle for the resource has been joined. Indeed, contributors in these Proceedings describe in the less-colourful and sometimes prosaic words used by rangeland scientists what the world now sees on television and in the print media. But siege does not predicate defeat or surrender. Contributors to the Congress may describe socio-economic environments that give little cause for optimism, but their analyses of the rangeland resource, its functioning, its improvement and its management are encouraging. The siege can and must be lifted.

The present book contains the invited papers and some addresses in full and the contributed papers as synopses of approximately one page.

Price: Austr.$ 50.00 in Australia, plus portage and packing.

Orders to: In Europe: Ms. B.E. Wilson, 24 Thornhill Square, London N1 1BQ, England. In Australia: Australian Academhy of Sciences, G.P.O.Box 783, Canberra ACT 2601, Australia. Elsewhere: Cambridge University Press.

Histoire d'un Paysage: Le Lousséké. Paléoenvironnements quaternaires et podzolisation su sables Batéké (R.P. du Congo). Etudes et Thèses. D. Schwartz. ORSTOM, Paris, 1988, 285 p. ISBN 2-7099-0884-0.

Les 'loussékés' sont une unité de paysage typique des sables Batéké. Cette unité se caractérise par la présence systématique de podzols très développés (podzols géants) et anciens, ainsi que par une végétation steppique. La position originelle des loussékés est celle de bas-fonds hydromorphes, mais l'existence d'un gradient d'évolution permet de définir deux sous-unités: le lousséké hydromorphe, où l'influence d'une nappe battante se fait sentir sur les sols en saison des pluies, et le lousséké sec, exondé, souvent en position de terrasse. Si l'histoire géomorphologique de cette unité est longue de 40.000 ans, le paysage lousséké est le fruit d'une anthropisation poussée, qui lui a conféré son expression définitive. En effet, les formations steppiques, qui, avec les podzols, sont typiques des loussékés, paraissent être une formation relativement récente, vieilles au plus de 2-3 millénaires, liées à la pratique des brûlis, et donc indissociables de l'anthropisation importante et généralisée qui caractérise les paysages actuels du Congo.

Une approche originale de la podzolisation en milieu tropical, fondée sur la multiplication et la confrontation des niveaux de perception (pédologie, sédimentologie, géomorphologie, radiochronologie, paléobotanique, isotopie 13C, préhistoire) a permis de préciser l'histoire et l'écologie de la podzolisation sur sables Batéké.

Il est ainsi apparu que ces podzols ont une histoire extrêmement complexe, faite de successions de phases de pédogénèse entrecoupés d'arrêts et de phases de ramaniement. Il a été possible de distinguer trois épisodes de podzolisation en liens étroits avec les environnements climatiques, géomorphologiques et floristiques. Mais l'essentiel de la formation des podzols s'est fait en position de bas-fonds hydromorphes et sous couvert forestier au Njilien (40 000-30 000 BP), qui est une période climatique plus humide que l'actuelle. Ces podzols sont donc des sols reliques, qui constituent une couverture pédologique en déséquilibre avec les actuelles conditions de milieu. Leur environnement présent ne permet en rien d'appréhender l'influence des facteurs écologiques sur la podzolisation.

Par ailleurs, il apparaît que, tout comme dans les régions tempérées, les podzols sont d'excellents témoins des variations de milieu, dont ils conservent la mémoire; ils ont ainsi permis de préciser différents épisodes de l'évolution géomorphologique, climatique et chronologique du Stanley-Pool (région de Brazzaville), au cours des quarante derniers millénaires. Ces épisodes paraissent en particulier synchrones des variations des paléoenvironnements bien connues sur le littoral.
Ordres à: Editions de l'ORSTOM, 70 route d'Aulnay, 93140 Bondy, France.

Oribatid Mites of the Neotropical Region I. The Soil Mites of the World, Volume 2. J. Balogh and P. Balogh. Elsevier, Amsterdam, Oxford, 1988, 335 p. ISBN 0-444-98935-8 (this volume, 0-444-99654-0 (series). Hardbound.

The first volume, entitled Primitive Oribatids of the Palaeartic Region, was published in 1983.

The present volume gives brief characterizations and identification keys of oribatid mites (more than 600 species) inhabiting the Neotropical Region. This is the first work of its kind to summarize the oribatid fauna of this large area. Only a few distinguishing features are listed in the diagnoses and in the identification keys and the order of features follows the principle of practicality. The text is simple and easy to understand: the scientific terminology is minimal and is explained in context. Identification keys are given for the main groups, and for 53 families, for 194 genera and for more than 600 species. The descriptions and keys are illustrated by 1018 drawings on 143 plates, almost for all keyed species. The identification keys and diagnoses are in most cases based on the genera and species of the Neotropical Region, even though they may be more widespread. The catalogue of the species and the references will be given in Part II of this volume.

This work is destined to become a basic handbook that will serve academic and applied science/taxonomists, field workers, ecologists, etc., for years to come. It will also aid the work of Latin American oribatologists.
Price: Dfl 260.00.
Orders to: In USA and Canada: Elsevier Science Publ. Comp., P.O.Box 1663, Grand Central Station, New York, NY 10163, USA. In E.Europe: Kultura, P.O. Box 149, H-1389 Budapest 62, Hungary. Elsewhere: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, the Netherlands.

Transport of Reactive Contaminants in Heterogeneous Soil Systems. S. van der Zee. Thesis, Wageningen Agricultural University, 1988, 283 p. plus four Appendices.

Transport of reactive contaminants was studied in soil systems that exhibit pronounced variability with respect to the flow and sorption parameters and the solute feed function at the inlet boundary. Emphasis was given to the sorption and transport of orthophosphate (P) in soil. An approximate P sorption kinetics model was derived, that is based on a mechanistic description of reaction processes at the microscopic scale. The approximate model, that involves a reversible adsorption according to Langmuir kinetics, and an irreversible diffusion-precipitation reaction, as a function of a concentration scaled time variable, described experimental sorption and desorption data well. Validation by predicting P-transport using independently assessed sorption parameter values, showed a reasonable agreement between experimental and numerical results. With the distributions of sorption model parameters and soil variables found for a field and a watershed, transport was simulated for homogeneous and heterogeneous soil systems at conditions resembling those of the field. It appeared that only a smaller part of sorbed P is subject to desorption, and that transport in many cases conforms to shock from displacement. Transport at field conditions, furthermore, appeared to be largely controlled by P-sorption and to a lesser extent by flow.

Assuming soil in the field may be described as a number of parallel, non-interacting columns, and assuming piston type displacement, P-transport was described if the sorption capacity and P-input differ from each column, using stochastic theory. The main trends for P-displacement in such a heterogeneous field were in agreement with experimental data, and showed large differences with the solutions of the convection-dispersion equation for average parameter values. An analytical solution for a more specific case supported these findings, for heavy metal transport, and showed faster breakthrough in the small concentration range than expected using average parameter values. The effect of transversal interaction between two layers with different properties showed that the loss of solute from the layer with the largest transport velocity may be significant, when at the sharp interface, in the direction of flow, soil properties vary much.
Orders to: Dept. of Soil Science and Plant Nutrition, Wageningen Agricultural University, P.O. Box 8005, 6700 EC Wageningen, The Netherlands.

Influence of Various Water Management and Agronomic Packages on the Chemical Changes and on the Growth of Rice in Acid Sulphate Soils. Le Ngoc Sen. Thesis Wageningen Agricultural University, 1988, 207 p.

Acid sulphate soils are derived from marine and estuarine sediments containing high concentrations of reduced sulphur components. Upon drainage and aeration they show a definite and severe acidification due to the oxidation of sulphides, leading to the formation of sulphuric acid. These soils have pH values below 3.5 or 4 in the upper 50 cm. They are found both in the temperate and tropical regions, but the vast majority of such soils are in the economically underdeveloped tropics where mounting population pressure will require maximum utilization of all available land in the near future.

About 13 million hectares of potential agricultural lands in tidal swamp areas are not developed because of acid sulphate soils.

Although physiographic and hydrologic conditions are generally favorable for rice growing in acid sulphate soils, a number of unfavorable factors such as soil acidity, salinity, aluminum toxicity, iron toxicity, hydrogen sulphide concentration and nutrient deficiencies associated with high acidity, preclude their efficient utilization.

The high degree of acidity (or potential acidity makes reclamation through liming economically impractical in most cases. The only practical way to manage these soils is by proper drainage and water management. Maintaining a high water table can control the oxidation of pyrite (the sulfur source in these soils). Where feasible, drainage and removal of acidity by leaching can be used. Proper water management and drainage control have made rice production possible in large acid sulphate areas of Thailand and Vietnam.

This thesis is the outcome of various studies. First and investigation about the influence of different water management and agronomic packages on the chemical changes and on the growth of rice in acid sulphate soil is given. Various methods of water managements and agronomic practices are pointed out. Soil column experiments carried out to study the evaporation and acidification process in acid sulphate soil are described next. Following chapters deal with the effects of acid sulphate flood water on the chemical changes and on the growth of rice; results of pot experiments on the effect of different methods of application of rock phosphate fertilizers on the transformation of phosphorus; and a simulation of the oxidation and acidification processes in acid sulphate soils.

Orders to: Dept. of Soil Science and Geology, Wageningen Agricultural University, P.O. Box 37, 6700 AA Wageningen, the Netherlands.

The Geomorphology of Southeast Kenya. A.P. Oosterom. Thesis, Wageningen Agricultural University, 1988. 227 p. With 1 map.

A geomorphological map of an area of 66,500 km^2 in the southeastern part of Kenya has been prepared at a scale of 1:500,000.

In the littoral zone eight major terrace levels occurring between the present shore and approximately 160 m + MSL have been described.

Analysis of radiometric datings and uplift rates of the coastal succession suggested that the formation of the terraces extends over the last 1.4 my of the Pleistocene. Soil development indicate a climatic change from humid to savanna conditions at approximately 800 ky BP.

Three sedimentary levels occurring in the landward part of the coastal region have been linked with the three highest littoral terraces.

In the interior region, the denudation of the vast plains east of the 38°15′ meridian was correlated with the deposition of Plio-Pleistocene deposits in the Lamu embayment and the coast.

Orders to: Dept. of Soil Science and Geology, Wageningen Agricultural University, P.O. Box 37, 6700 AA Wageningen, the Netherlands.

Geomorphological Models. Theoretical and Empirical Aspects. Catena Supplement 10. F. Ahnert, editor, Catena Verlag, Cremlingen, 1987, 210 p. ISBN 3-923381-10-7 (this volume). ISSN 0722-0723 (series). Hardbound.

In April 1986 an International Workshop on Theoretical Geomorphological Models was held in Aachen, Germany. The purpose was to encourage discussion between empirical and theoretical geomorphologists. Neither group can advance its research effectively without the other. Empirical geomorphology provides the observational evidence from which theoretical considerations may be developed; in addition, it serves to confirm or reject the validity of theoretical concepts. Theoretical geomorphology, on the other hand, combines the available empirical knowledge with the application of general physical principles to arrive, by a process of generalization and abstraction, at the formulation of theories which in turn can suggest goals for further empirical research. Thus there is a need to communicate on both sides; accordingly, participants of the workshop came from both groups.

All but one of the eighteen papers in this volume were presented and discussed at the workshop. Some of the manuscripts have been substantially modified after the workshop as a result of the discussion there. The papers are arranged under four major themes.

Six papers deal with slope processes and slope form. Channel processes and channel form are the topic of the following four papers. The next group of four papers, deal with questions related to water and sediment yields. As the concluding section there are four papers on general theoretical considerations.

The papers span a wide range of topics. Their contents may also reflect, to some extent, the various stages of methodological advancement and the various directions of geomorphological research that exist in different parts of the world today. However, common to all papers is the aim to contribute to the strengthening of the ties between theoretical and empirical geomorphology.

The International Workshop on Theoretical Geomorphological Models took place within the framework of the IGU Commission on Measurement, Theory and Application in Geomorphology.

Price: DM 149.00 or US$ 88.00

Orders to: In USA and Canada: Catena Verlag, P.O.Box 368, Lawrence KS 66044, USA; elsewhere: Catena Verlag, Brockenblick 8, D-3302 Cremlingen, Fed.Rep. of Germany.

Proceedings of the 9th International Symposium on Soil Biology and Conservation of the Biosphere. 2 volumes. J. Szegi, editor. Akadémia Kiadó, Budapest, 1987, 945 p. ISBN 963-05-4760 (vol.1), 963-05-4761-9 (vol.2), 963-05-4759-7 (series).

Soil evolution and its fertility greatly depend on the trend of biological processes and their intensity. From the prehistoric age, microorganisms have ensured the required nutrient uptake of plants decomposing the organic residues and the humus contents of soil, the farmyard manure and other organic fertilizers; they have fixed the gaseous nitrogen of the atmosphere and in this way enriched the soil with biogenic elements. The leguminous stages fo crop rotation systems have increased the nitrogen content of the soil.

After the turn of the century and especially during the decades following the Second World War, in the developed agricultural countries the form of nutrient addition has necessarily changed. As a result of the development of chemistry the use of artificial plant nutrients and fertilizers spread extensively to such an extent that the level of fertilization will indicate the state of agricultural development. Moreover, the complex machinery, the spread of chemical plant protection, application of a specific technology for the different production systems are characteristic of up-to-date, large-scale agricultural production.

Therefore it is important to know the present situation of experimental soil biology and biochemistry and the biological viewpoint concerning soil fertility. It remains to be seen whether by maintaining and increasing soil fertility, microbiological processes could be substituted or neglected by intensive human interference on soils.

The effect of fertilization on soil biological processes, interaction between soil organisms and pesticides, biological N-fixation in soil fertility, the role of soil organisms in the decomposition and synthesis of organic matter, in soil formation processes and soil ecosystems, as well as relationships between higher plants and soil organisms which are the main topics of the papers presented at the Symposium, focus on the current problems of soil biology in an age when conservation of the biosphere has assumed such importance for mankind.

Volume 1 contains papers on the effect of fertilization on soil biological processes (16 papers), interaction between pesticides and soil organisms (9 papers), importance of biological nitrogen fixation in soil fertility (23 papers), and the role of soil organisms in the decomposition and synthesis of organic matter (18 papers). Volume 2 has papers on the role of soil organisms in the soil forming processes (12 papers), interrelations between soil properties and biological activity (10 papers), and relationships between higher plants and soil organisms (8 papers). The second volume also has a subject index.

This series will be of interest not only to environmentalists and researchers concerned with soil biology, but botanists zoologists and ecologists as well.

Price: (2 volumes) US $ 89.00

Orders to: Kultura, P.O. Box 149, H-1389, Budapest 62, Hungary.

Wise Utilization of Tropical Rain Forest Lands. Tropenbos Scientific Series 1. C.F. van Beusekom, C.P. van Goor and P. Schmidt, editors. The Tropenbos Programme, Ede, 1987, 154 p. ISBN 90-5113-002-3.

Tropical rain forest are the world's richest ecosystems and are a source of sustenance for millions of people. Destruction and devastation of these forest is growing to alarming proportions due to intense pressure by populations seeking food, energy, wood, shelter and economic reward. This large-scale deforestation is not only of local or national, but even of world-wide detriment, and is gradually being recognized as one of the world's main problems. The direct and indirect effects of this process have far-reaching socio-economic, environmental and ecological consequences, such as: serious reduction of the availability of wood and of a wide variety of other forest products; elimination of unique habitats and of plant and animal species; 'desertification' of deforested land; disruption of the water regime of watershed areas, resulting in, among other things, erosion, flooding and siltation; possible changes in local and regional climate; possible changes of climate on a global scale.

In the present book a basic approach is outlined and recommended for management of tropical rain forest land, which is essentially simple, but poorly observed or even neglected in most current tropical rain forest projects. Most of the minor constraints and perhaps even some of the major constraints could be solved when this approach is followed.

Fortunately there is a fast-growing awareness in both tropical and non-tropical countries that adequate action is now very urgent. Several valuable initiatives have been taken the last few years, among others the Tropical Forestry Action Plan. The present contribution is an attempt to link up with these initiatives. The MAB-Unesco Committee of The Netherlands considered it worthwhile to bring together a wide variety of professional knowledge concerning tropical countries and tropical rain forests in order to elaborate the above general approach for tropical rain forest land-use planning.

This was effectuated during a meeting held in Amsterdam, December 1984, assembling experts on forestry, ecology, economics, sociology, commerce and industry, government and politics. The results of this multi-disciplinary seminar is found in the present book. It is composed of (1) general contributions on aspects of demands, supply, land use planning and constraints and (2) case studies of tropical rain forest development and management projects in South America, Africa and Asia, and illustrating the issues discussed in the thematic chapters.

Price: US$ 15.00 or Dfl. 25.00, including postage.

Orders to: Tropenbos, Galvanistraat 9, 6716 AE Ede, The Netherlands.

Effects on Conservation Tillage on Groundwater Quality. Nitrates and Pesticides. J.L. Baker and M.R. Overcash. Lewis Publishers, Chelsea, 1987, xviii + 292 p. ISBN 0-87371-080-0.

During the last decade, there has been a major shift by U.S. farmers away from inversion tillage, such as moldboard plowing, towards systems with reduced tillage, various versions of which are collectively termed conservation tillage (CT). CT has been defined by the U.S. Soil Conservation Service as providing 30% or more crop residue cover of the land surface at the time of planting, and the most recent statistics indicate that about 30% of cropland in the continental United States is planted with some form of CT.

Protection of the soil surface by residue cover from raindrop impact and runoff is highly effective in reducing soil loss and sediment loads. The very high surface residue coverage provided by no-till can reduce water erosion by as much as 90%, and residue cover in the 30% range by which conservation tillage is defined will usually reduce soil loss by more than 50%. These decreases in erosion and in sediment loads from agricultural land are accompanied by reductions in sediment-bound nonpoint-source pollutants, of which phosphorus and pesticides are the most prominent. The ability to achieve significant reductions in these important pollutants by adoption of farmer-acceptable practices has led to the promotion of conservation tillage as a 'best management practice' for nonpoint-source pollution control.

This book focuses on the potential contamination of groundwater, and to a lesser extent surface water, by nitrate and pesticides as a result of widespread shifts from inversion tillage to conservation tillage. Concern for groundwater contamination by agricultural and industrial chemicals commands national attention today. Among these, nitrate and pesticides receive considerable attention because of the large quantities used by farmers and because of the high mobilities of nitrate and some of the pesticides in soil. The question posed here is not whether these compounds migrate to groundwater as a result of agricultural practices, or the extent of groundwater contamination. Rather, the authors were asked to consider whether extensive shifts from inversion tillage to conservation tillage would increase the potential for groundwater contamination by nitrate and pesticides.

The first three chapters provide background on the extent of conservation tillage practices as currently used in the United States, and pesticide and nitrogen fertilizer use with conservation tillage. These are followed by a review chapter on nonpoint-source pollution in the Great Lakes, with particular emphasis on nitrogen and pesticides. A series of lead and discussion chapters are then presented on effects of conservation tillage on physical, chemical, and biological processes in soil and on surface and groundwater hydrology. The transformations in soil, and the final chapter is on interactions of conservation tillage and agricultural waste management.

Price: £ 32.85.

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

Determinants of Tropical Savannas. IUBS Monograph Series No.3. B.H. Walker, editor. Published for the ICSU Press by IRL Press, Eynsham, Oxford, 1987, 156 p. ISBN 1-85221-017-6.

This book brings together presentations made by savanna researchers at a workshop in December 1985, in Harare, Zimbabwe. The workshop was part of the International Union of Biological Sciences (IUBS) Decade of the Tropics programme on Responses of Savannas to Stress and Disturbance, and the authors were requested to produce accounts of the four major determinants of savannas – water, nutrients, fire and herbivory. The exclusion of Man as a determinant was deliberate, since the intention was to first obtain an understanding of the inherent structure and function of savannas, and then to undertake research which would provide a predictive understanding of the ways in which savannas respond to the combination of natural variation in these four determinants, and the added effects of Man.

Previous books on savannas have been comprehensive in their treatment of savanna ecology. This book focuses on the major determinants and was intended to set the scene for the forthcoming decade of research into the world's savannas.

Price: £ 15.00 or US$ 29.000, including postage if prepaid.

Orders to: IRL Press Ltd., P.O.Box 1, Eynsham, Oxford OX8 1JJ, England; or: P.O.Box Q, McLean, VA 22101-0850, USA.

Making Soil and Water Conservation Work: Scientific and Policy Perspectives. D.W. Halbach, C.F. Runge, and W.E. Larson, editors. Soil Conservation Society of America, 1987.

One question regularly confronts the soil and water conservation community: How do we apply scientific knowledge to improve conservation policy while recognizing political reality? This problem is captured by three interlinked adages: all politics is local; all conservation is local; all conservation is political. The difficult task of balancing the local and political interests of scientists, conservationists, and government servants led to the papers in this volume. Each paper reflects on this problem while charting a course for new and innovative approaches. Charting this course requires attention to the scientific, state, and federal issues confronting current soil and water conservation policy in the USA.

The changing scientific basis of conservation policy is most clearly reflected in the research success achieved by soil scientists in quantifying productivity losses die to soil erosion and the vulnerability of soils to these losses. While much remains to be done, the recent development of a 'productivity index' as well as measures of soil resistance to erosion is an important step beyond older, more subjective measures.

Their most important, current use is in targeting policy.

The second main task of the volume is to assess current federal conservation efforts using the insights gained from this scientific information.

The final perspective brought to bear by this volume is the role of the states within the USA. Federalism – the shared authority of state and federal governments – is nowhere more important than in environmental policy, where local information and initiative is crucial. As budget constraints bind federal initiatives ever more tightly, imaginative state programs will become increasingly important.

Although the questions dealt with are American, persons outside the USA may also find this book of interest, since innovative policies in soil and water conservation, benefitting both the conservation community and the general public will be important issues worldwide in the years to come.

Price: US$ 10.00, postpaid.

Orders to: SCSA, 7515 NE Ankeny Road, IOWA 50021, USA.

Water and Soil Conservation Guidelines for Land-Use Planning. Report of a Seminar-Workshop by A.J. Pearce and L.S. Hamilton. East-West Center, Honolulu, 1986, 43 p.

The Environment and Policy Institute (EAPI) of the East-West Center conducts research and educational programs directed toward improving natural resources and environmental management in the Asia-Pacific region. Much of the work focuses on the management of land and water resources, with watershed as the primary spatial unit for analysis and planning.

Beginning in 1980, EAPI activities in watershed management were directed primarily toward tropical forest watershed land use, with emphasis on the biophysical aspects. The scope of the work was gradually broadened to incorporate economic aspects and the interrelation of upper watershed land use and management to downstream river basin development activities.

The present summary report on a meeting in Gympie in May 1985 contains specific guidelines for forest land-use planning, and forms a contribution to the improvement of watershed management in the Asia-Pacific region.

Price: US$ 3.00.

Orders to: Distribution Office, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848, U.S.A.

Sols et Eaux. Acquis et perspectives de la recherche agronomique française en zone intertropicale. Actes du séminaire tenu a la Banque Mondiale, les 15 et 16 mai 1986. Texte en Français et Anglais / Text in French and English. ORSTOM, Paris, 1987. 182 p. ISBN 2-7099-0856-5.

Parmi les pays industriels du nord, la France occupe une position unique par le système complexe de recherches orientées vers le développement des régions chaudes du globe dont elle dispose. Au total, 6 organismes et 5000 cherchers, techniciens et administratifs participent à ces programmes.

Au niveau international, un système comparable existe pour la recherche agricole sous le parrainage de la Banque Mondiale, de l'OAA et du PNUD. C'est le système des Centres Internationaux de Recherche Agricole (CIRA) orientés essentiellement vers les production vivrières.

Le système français a principalement travaillé en Afrique depuis le début du XX^{e} siècle. C'est sur ce continent que les problèmes de développement des productions agricoles sont aujourd'hui les plus pressants.

Il était donc logique que la Banque Mondiale, prenant d'importantes initiatives pour aider au renforcement des structures nationales africaines de recherche agronomique et la France se concertent.

Une première réunion de concertation, qui s'est tenue en 1985 à Paris, décide d'établir des relations plus étroites entre les CIRA et le système français.

Une seconde réunion s'est tenue 1986 à la Banque Mondiale. Le thème principal en était l'exposé des compétences françaises en matière d'évaluation des connaissances et d'utilisation des ressources en eaux et en sols.

C'est exposé a permis de présenter pour la première fois depuis plus de 40 ans et de manière synthétique et condensée les connaissances acquises dans les domaines des eaux et des sols ainsi que les méthodes d'évaluation des ressources et leurs techniques d'utilisation assurant une n'ecessaire conservation des milieux, garantie d'une stabilité à long terme des productions agricoles.

A cette volonté de concertation et de mise en' oeuvre de synergies internationales correspond un effort français dans le domaine de l'information Scientifique et Technique. La présente publication est une ilustration au moment où les pays du nord et du sud collaborent plus étroitement au développement des régions les plus déshéritées. Mettre l'accent sur la diffusion de l'information et la communication des connaissances accroit l'efficacité des apports de la recherche au développement.

Les quatre documents présentés ici éclairent particulièrement les décideurs et les aménagistes sur les outils d'analyse que la recherche française a élaborés tant sur le plan général des ressources et de l'environnement que sur celui de l'aide à la production agricole.

Des bibliographies particulièrement sélectionnées et des annexes illustrées complètent ces documents de synthèse. Elles en font des instruments de travail et de réflexion pour tous ceux qui ont en charge le développement des régions chaudes du globe.

Commandes à: Librairie de l'ORSTOM, 213 rue Lafayette, 75480 Paris Cedex-10, France.

Rôle du squelette dans l'organisation des sols. J. Chretien. Thèse, Université de Dijon, 1986. INRA, Paris, 1986, 412 p. ISBN 2-85340-776-4.

Traditionnellement, la Science du Sol était surtout orientée vers l'étude des propriétés physico-chimiques des sols dans le but d'en maintenir ou d'en améliorer la fertilité. De ce point colloïdale du sol, communément appelée 'complexe argilo-humique', et en particulier à ses deux constituants principaux: l'argile et la matière organique.

Avec la prise de conscience plus récente dans le domaine agronomique des problèmes plus spécifiquement liés aux propriétés physiques des sols, tels que engorgement, dégradation physique ou pollution, et l'introduction à grande échelle de nouvelles techniques: assainissement, irrigation, épuration ..., c'est l'ensemble des constituants du sol, y compris ses fractions grossières considérées comme inertes, qui interviennent. Elles le font notamment par leur mode d'assemblage qui est à l'origine du système poral, siège des phénomènes de transfert de l'eau et des solutés.

Ainsi, le squelette des sols qui, jusqu'alors n'a fait l'objet que d'une caractérisation très sommaire selon un critère de taille dans le cadre de l'analyse granulométrique, revêt-il une réelle importance qui justifie l'étude plus approfondie de ses diverses caractéristiques et de son rôle dans l'organisation et le comportement des sols. C'est d'ailleurs la raison essentielle que l'auteur conduit à réaliser ce travail.

Le squelette des sols peut être défini comme l'ensemble des constituants minéraux de taille supérieure à 2 afam. Généralement, ces constituants sont des particules simples, rigides, indéformables et non dotées de propriétés d'absorption. Il s'agit de minéraux primaires: quartz, feldspaths, micas blancs ayant résisté à l'altération et à l'érosion, et possédant une origine minéralogique commune quelle que soit leur taille.

Au cours de la primière partie de ce mémoire, l'auter préciserais tout d'abord le cadre de l'étude: choix des profils, description morphologique et micromorphologique de ceux-ci, caractérisation physique des constituants et en particulier du squelette. Puis, pour la plupart des horizons de chacun d'entre eux, l'étude de l'espace poral se situera à deux niveaux: mesure classique de la porosité totale *in situ* à l'aide du densitomètre à membrane, caractérisation qualitative et quantitative au laboratoire par la porosimétrie au mercure et l'analyse d'images. Ainsi, l'auteur traitais successivement du cas des sols sur arènes et de celui des sols sur terrasses fluviatiles dont la morphologie, la pédogenèse et l'organisation sont apparues rapidement très différentes.

Dans la seconde partie la diversité des résultats obtenus concernant les relations entre les caractéristiques du squelette et celles du systèmes poral de ces sols, les problèmes posés et non résolus sur le plan explicatif, rendent nécessaires la conduite d'une étude expérimentale afin de dégager le rôle des différentes critères mis en jeu sont discutés.

La troisième partie débute par la présentation des profils porosimétriques des différentes sols retenus en procédant à quatre séries de mesures à différentes échelles et dans diverses conditions expérimentales: porosité totale, porosité sur mottes humides et sèches et porosité texturale. Chacune des composantes, en particulier la porosité pédologique fait ensuite l'objet d'une analyse particulière.

La quatrième partie est consacrée à une interprétation générale et à la synthèse des données acquises au cours de ce mémoire. Après un chapître rappelant les aspects méthodologiques de l'approche utilisée, les résultats sont présentés sous deux grandes rubriques.

Prix: FF 190,00.

Commandes à: INRA Publications, Rte de St-Cyr, F-78000 Versailles, France.

Introduction to the Principles and Practice of Soil Science. Second edition. R.E. White. Blackwell Scientific Publications, Oxford, London, 1987, x + 244 p. ISBN 0-632-00052-X (paperback); 0-632-01606-X (hardbound).

There is a growing need for information about soils, their behaviour and their influence on land use. The demand for food and other natural products is rising as the world's population continues to grow; and an increasing proportion of that population has an awakening expectation of an improved quality of life – better food, shelter and recreational areas in which to enjoy their leisure.

In the preface to the first edition of the book, the author drew attention to the fundamental contribution that soil science has made to many of the applied sciences associated with management of the environment – either natural or man-made. This contribution is even more important today. Commodity surpluses in many developed Western countries have depressed world market prices to the extent that producers in the developing countries have had to adopt more exploitative farming techniques – reducing fertilizer inputs and deferring improvements such as irrigation, drainage and soil conservation measures – to reduce their costs of production. Soil scientists therefore need to find ways of producing food and fibre crops more efficiently, in terms of both yield per hectare and value of product relative to cost of inputs, while preserving the intrinsic value of the soil resource for posterity. Similarly, scientists whose brief is to maintain a healthy environment for people living in highly technological society, need a better quantitative understanding of the fate of toxic chemicals (pesticides, industrial residues) and waste materials (domestic refuse, sewage sludge) in the soil, and their possible dissemination into the atmosphere or to surface and groundwater. Also this new edition is well-illustrated.

Prices: £ 11.95, paperback; £ 22.00, hardbound.

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

Soil Compaction and Regeneration. G. Monnier and M.J. Goss, editors. Published by the Commission of the European Communities by A.A. Balkema, Rotterdam and Boston, 1987, viii + 167 p. isbn 90-6191-780-8. EUR 10396.

Since the establishment of the European Economic Community, changes in the technology of crop production in member countries have increased the risks and hence potential importance of soil compaction. Firstly, intensive management and the tendency towards monoculture have tended to limit the time available for tillage and harvest so constraining farmers to operate more often in unfavourable, wet conditions. The increase in power and weight of tractors, harvesting machinery and trailers has aggravated the situation.

The consequences of these developments in agriculture for crop production and soil conservation can be serious. For example, compaction may reduce hydraulic conductivity and hence restrict water movement through the soil leading to waterlogging, breakdown of drainage systems and a lowering of the effective use of irrigation water. Similarly more compact soil has reduced gas diffusivity which limits biological activity in soil and hence adversely affects the cycling of nutrients such as nitrogen and sulphur. In compacted soil, root systems are frequently shallow and sparsely branched leading to a greater susceptibility to drought and a reduced efficiency of fertilizer utilization. To avoid these possible effects the practical response has been an increase in energy requirements for tillage to overcome the damage to soil.

Until the last few years the consequences of compaction for crop yields have been partly hidden by the rapid progress in crop protection, soil fertility and plant breeding. However, annual improvements in yield by these means have become progressively less so that limitations to yield due to other factors have become more obvious. Now the increased production costs due to the lowerd efficiency of utilising inputs is becoming clearer. This new situation has encouraged new programmes of research in many European countries, but we have insufficient knowledge to solve all the problems. There is need of accurate methods for describing and predicting all the changes to soil resulting from compaction. We must be able to estimate the natural regeneration of structure following compaction. In this way, it should be possible to make recommendations to prevent compaction and alleviate or correct soil damage under different cropping systems in the main climatic and soil zones.

A workshop to address these issues was held in Avignon in September 1985. It was the aim to discuss and compare the methods available for studying compaction and structural regeneration and, starting from the current state of knowledge, define the main questions for research and identify profitable links where collaboration would improve research capabilities.

Each session of the workshop was centred on a number of invited papers but some shorter contributions were also presented. The first session was devoted to the physical criteria for describing soil compaction and the efficiency of various techniques for assessing them. The second session considered micro- and macromorphological approaches to the study of soil structure evolution during compaction. In the third session consideration was given to the application of modelling to describe and understand the processes involved in structural regeneration. Particular attention was given to factors that affect the susceptibility of soils to compaction and the soil's tendency to recover from damage. The influence of soil compaction on crop growth and yield together with the consequences of tillage in improving some compacted soils, but making others more susceptible to compaction, was discussed in the next session. Plant roots were the main topic in the fifth session. Consideration was given to the fact that not only are roots affected by soil physical conditions but they themselves can and do modify soil properties. A synthesis of the discussions that took place during the sessions and in the closing session are also included.

Price: Dfl. 65.00.

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

International Workshop on Agricultural Research Management, The Hague, September 1987. International Service for National Agricultural Research, The Hague, 1987, 231 p.

The International Service for National Agricultural Research (ISNAR) began operating at its headquarters in The Hague, Netherlands on September 1, 1980. It was established by the Consultative Group on International Agricultural Research (CGIAR), on the basis of recommendations from an international task force, for the purpose of assisting governments of developing countries to strengthen their agricultural research. Of the 13 centers in the CGIAR network, ISNAR is the only one that focuses primarily on national agricultural research issues. It provides advice to governments, upon request, on research policy, organization, and management issues, thus complementing the activities of other assistance agencies.

During the workshop a range of issues facing national agricultural research systems (NARS) were discussed. The sessions were grouped around five themes. Within each theme a number of topics were discussed, first with ISNAR presenting an overview of its experience or reporting work in progress and followed by presentation by NARS leaders giving the NAR's experience. The following themes were discussed: issues in agricultural research policy and planning; linkage issues in research organizations, improving management processes; management of human and physical resources; and organizing agricultural research in large national systems.

Requests to: ISNAR, P.O. Box 93375, 2509 AD, The Hague, The Netherlands.

The Effects of Forest Land Use on Erosion and Slope Stability. Report of a Seminar by C.L. O'Loughlin. East-West Center, Honolulu, 1985, 26 p.

Over the past two decades much research has focused on slope processes and slope erosion in steep forest environments of the Asia-Pacific region. Most of this work has been carried out in moist, temperate steepland forests in the western United States, Japan and New Zealand where mass wasting is a dominant process. Removal of forest vegetation and construction of roads, more than any other activities of humans, have been shown to raise seriously the incidence of landsliding and the acceleration of erosion rates in the western United States and in New Zealand. Studies have been conducted to understand the relationships between forest disturbances and slope stability and erosion, including soil mechanics of slopes and development of simple slope models. Despite these research efforts, much remains to be learned about the mechanisms of tree root reinforcement, mechanisms of failure in residual soils and other regolith materials, and the role of forests in modifying soil pore-water pressures, before reliable and meaningful predictions of slope responses to forest changes can be made.

A large part of the present erosion-sedimentation problems in tropical forests appears to be related closely to a shift from small-scale technologies by rural societies to large-scale technologies, including forest-based industries using heavy equipment and extensive roading.

The present report summarizes a seminar held in Honolulu in May 1984 and contains an overview of the meeting and the abstracts of the papers presented. They focus on societal, physical and biological factors affecting erosion and slope stability in mountainous regions, and management for the prevention and control of erosion and slope stability problems.

Price: US$ 3.00.

Orders to: Distribution Office, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848, USA.

Aeolian Dust and Dust Deposits, K. Pye. Academic Press, London, Orlando, 1987, ix + 334 p. ISBN 0-12-568690-0 (hardback), 0-12-568691-9 (paperback).

Dust can be defined as a suspension of solid particles in a gas, or a deposit of such particles. Dust particles transported in suspension in the Earth's atmosphere are mostly smaller than 100 μm. Grains larger than about 20 μm settle back to the surface quite quickly when the turbulence associated with strong winds decreases, but smaller particles can remain in suspension for days or even weeks unless washed out by rain. Material which is transported very long distances in the Earth's atmosphere is mostly smaller than 10 μm and much is smaller than 2 μm. Continental loess deposits are composed mainly of particles in the 10-50 μm size range which have not been transported great distances, while aeolian deposits in the oceans are composed mostly of far-travelled material finer than 10 μm.

Scientific observations on dust have been made for at least 200 years. Dobson (1781), in an account of the Harmattan wind between Cape Verde and Cape Lopez, reported conditions of poor visibility which he attributed to the dust content of the air. Darwin (1846) summarized earlier reports of dust falls on vessels off the West Coast of Africa and described a fall observed at first hand during the voyage of the Beagle. Reports of falls of dust associated with rain and snow in Europe and elsewhere also extend back at least to the mid nineteenth century.

This book aims to provide a concise summary of the nature of aeolian dust and dust deposits. The processes of dust formation, erosion, transport and deposition are reviewed in the first six chapters. The second half examines the physical and chemical properties of loess deposits, their depositional history, and the post-depositional changes which affect their character with increasing age. The book draws together much of the scattered multi-disciplinary literature, of which over 1000 references are given. The book has been written primarily for research workers and advanced students in sedimentology, geomorphology and Quaternary studies, but it is also likely to be of value to meteorologists, planetary geologists, engineers and others concerned with environmental management. Also soil scientists will find much interesting information in this well-illustrated publication.

Price: £ 16.50; US$ 29.50.

Orders to: Academic Press, Oval Road, London NW1 7DX, England; or Academic Press, Inc., Orlando, FL 32887, U.S.A.

Africa's Agrarian Crisis. The Roots of Famine. S.K. Commins, M.F. Lofchie and R. Payne. Lynne Rienner Publ., Boulder, 1986, xiii + 237 p. ISBN 0-931477-60-3 (U.S.A. edition) 0-86187-591-5 (U.K. edition). Hardbound.

This is not a soils book, but of interest to soil scientists concerned with food production in Africa, where an increasing number of countries cannot feed themselves. After three contributions on general perspectives and the decisive importance of public policy as a key determinant of the economic performance of the agricultural sectors of African countries, a number of case studies point to the complex relationship between public policy and agricultural productivity.

Price: £ 21.50.

Orders to: Lynne Rienner Publ., 948 North Street, Boulder, CO 80303, U.S.A. Outside North and South America and Japan: Frances Pinter, 25 Floral Street, London WC2E 9DS, England.

Vegetation in Civil and Landscape Engineering. D.H. Bache and I.A. MacAskill. Granada, London, Toronto, 1984, xv + 317 p. ISBN 0-246-11507-6.

Land use and landscape are continuously changing – fashioned by natural processes and reflecting the aspirations of mankind. Considerable demands are laced on land in terms of agricultural output, mineral production, water resource development and recreational uses; or simply for habitation, industry and transport. In nearly all cases the pattern of land use is altered with forest lands converted to grazing, grazing in turn to arable, and each yielding to urban development. Concurrently we witness a greater incidence of flooding, accelerated erosion, desertification and many other maladies stemming from a poor understanding of effects of altered land use, and from plain mismanagement.

Many problems can be avoided by good planning, but this depends on the perception and cooperation between parties engaged in landscape design. Major projects such as highway construction often call for a broad range of expertise covering ecology, soil science, meteorology, civil engineering, landscape architecture and others. Each discipline requires at least an elementary understanding of the others in order that problems are understood and for compatible solutions to emerge.

This book has a number of objectives: first, it demonstrates the use of vegetation as an engineering medium and evaluates its role in environmental control. Second, it brings together a large body of information, hitherto uncollated, and acts as a guide to specialised literature. Third, it has an important educational role – introducing and demonstrating the use of scientific methodology for specifying the attributes of vegetation.

Following a basic introduction to aspects of plants and soils considered in the later text, the reader is introduced to the role of plants in surface hydrology since this provides a common thread to environmental problems in many disciplines. Problems are varied, ranging from catchment water yields to erosion control and irrigation planning. Erosion control and soil stabilization form the basis of a second major chapter which again dwells on problems associated with water transfer. Plants are widely used by landscape architects and others for functional purposes as well as the aesthetic. Roads, fields and dwellings can be partially protected from wind and snow by shelterbelts. These and other important areas are assessed in terms of design and analysis. A final chapter aims to broaden insight into matters of environmental concern.

Price: £ 27.50.

Orders to: Blackwell Scientific Publications, Osney Mead, Oxford, OX2 0EL, England.

The Geophysiology of Amazonia. Vegetation and Climate Interactions. Wiley Series in Climate and the Biosphere. R.E. Dickinson, editor. Published for the United Nations University by John Wiley & Sons, New York, Chichester, 1987, xvii + 526 p. ISBN 0-471-84511-6. Hardbound.

The Climate and the Biosphere series focuses on the interaction of atmospheric processes and the biosphere. In recent years there has been a growing awareness of the extent to which atmospheric processes affect ecological systems and society. Human activities, such as deforestation and the burning of fossil fuels, have likewise directly or indirectly modified the atmosphere. Changes in the atmospheric processes, in turn, affect ecological processes and societal activities.

Several scientific issues involving the atmosphere have been identified in the past as being crucial to society. Each of these has become a major worldwide concern to a set of scientists and policymakers. The present volume in this series is on Amazonia, a region of intense popular interest and concern, both for the countries of South America and for the world as a whole.

In spite of their popular appeal, the Amazon region and moist tropical regions in general are scientifically poorly understood because they have received comparatively little attention. Some progress has been made in studying their meteorology, hydrology, climate, soils, biology, ecology, paleontology, biogeography, biogeochemistry, forestry, and agriculture. Yet the resources devoted to research in these areas are meager indeed compared to those devoted to the study of temperate-latitude problems such as the effects of acid rain on Europe and North America. Furthermore, interdisciplinary efforts to follow the linkages among these different subjects are almost nonexistent.

This volume is the result of a collective effort by a diverse group of scientists to better comprehend the current knowledge of the natural environment of Amazonia from the viewpoint of the science of geophysiology. Geophysiology deals with the functions, processes, and phenomena of a planetary-scale system composed of the biosphere and its support elements, principally the hydrosphere, upper lithosphere, and atmosphere, or any of its regional components. Of particular importance are the processes and mechanisms of interaction among the many elements of the system.

Reviews and comments address four broad areas: climate, vegetation, and human interactions in the Amazon; biogeochemical cycles in the Tropics; climate micrometeorology and the hydrological cycle in the moist Tropics; and tropical climate and general circulation and its susceptibility to human intervention. Highlights include a survey of climate interactions in the Humid Tropics, an essay on geophysiology and what is needed to protect the global environment, an up-to-date report on deforestation in the Brazilian Amazon, and a review of the importance of the Tropics for atmospheric chemistry. The concluding section covers conference discussions, suggestions from a future development scenario workshop and recommendations.

Price: £ 66.50.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England; or: John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Soil Resource Surveys for Forestry. Soil, terrain, and site mapping in boreal and temperate forest. K.W.G. Valentine. Clarendon Press, Oxford, 1986, x + 147 p. ISBN 0-19-854570-3. Hardbound.

Forestry, once exploitive and extractive, is turning to managed husbandry. Our largest forests are not limitless. Modern mechanized harvesting is so efficient (and occasionally so destructive) that the next crop of trees, if left to seed itself and grow unaided, may not be mature by the time we wish to harvest it. Like any other crop a commercial forest needs tending.

In some parts of the world this has been recognized for centuries. In others it is only just becoming apparent. Two hundred years ago the forests of Western Europe were dwindling, cut for domestic fuel, ships' timbers, and industry and not sufficiently replaced. Now this deforestation is being arrested, partly because we no longer build ships or smelt iron with wood, but also through intensive silviculture. It has taken longer to recognize over-cutting in North America. Yet projections of future demand exceed supply in both Canada and the USA. As a result, cutting regulations and planting programmes are being introduced. Now it is the turn of the tropics. The demand for fuelwood and the constant pressure of agriculture is causing serious deforestation.

Faced with such situations foresters have turned part of their attention from the trees to the land on which trees grow. Hence the need for surveys of forest land to answer such questions as: 'What different types of soil are there?', 'What are they like, and where are they?', 'What trees will grow best on them, and will there be any harvesting problems?'

The present book was written for recent graduates in soil science or associated disciplines, who have to prepare a soil map and a report, to be used by foresters. It has the following contents: Ch. 2: What boreal and temperate forests are like, how the forest industry is organized, and what it produces; Ch. 3: The main tasks involved in growing and extracting trees (silviculture and harvesting), and the attributes of soil and land that are significant; Ch. 4: The various systems used to describe or classify forest soils or land; Ch. 5: The stages of a survey and how to produce a soil map; Ch. 6: the way to plan and design a survey; Ch. 7: Collecting and recording information in the field, and the equipment required; Ch. 8: Evaluating the information to express the potential of soil and land for forestry; Ch. 9: Presenting information to the forester in the form of soil descriptions, maps, and evaluations; Ch. 10: Using computers in forest soil surveys.

Although written for use in boreal and temperate regions, the principles and practices discussed will also largely be applicable in tropical regions.

Price: £ 30.00.

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

Introduction to Environmental Science. Second ed. J.M. Moran, M.D. Morgan and J.H. Wiersma. W.H. Freeman & Comp., New York, 1986, xii + 709 p. ISBN 0-7167-1684-4. Hardbound.

Environmental science is a dynamic field of study. Since publication of the first edition in 1980, scientists have learned more about the components of the environment and how they interact. They have gathered more data on the ecological relationships of endangered species, the impact of toxic materials on human health, the dispersal of pollutants in the atmosphere, the accumulation of persistent chemicals in aquatic food webs, and the control of agricultural pests with minimum application of pesticides. Equipped with this better understanding, scientists are now refining models of environmental systems of predicting more accurately the consequences of environmental change -- both natural and human-related.

Since the first edition, much has happened as well in the arena of environmental issues. Some issues have gained in importance while others have gradually receded from the public eye. Today, acid rain and management of hazardous wastes are receiving considerable attention from the scientific community and the media. On the other hand, construction of numerous wastewater treatment plants has significantly lessened the impact of some water pollutants on aquatic ecosystems, and so water pollution has faded somewhat from public awareness.

The present publication remains both a basic science text and a text on environmental issues. This is reflected in the organization of the text's 20 chapters: the basic principles of ecology are introduced in Part I and then applied to a wide variety of environmental concerns in Parts II and III.

Part I surveys the fundamental principles that govern the functioning of the environment. What is the natural flow of energy and materials through the environment? How do organisms and ecosystems respond to change? Why and how do populations grow? Readers will gain an understanding of these and other points that they can apply to their comprehension of more specific issues later in the book.

Part II explores dominant issues of environmental quality and management: water and air pollution, exploitation of the earth's rock, mineral, and fuel resources; waste disposal; endangered species; and conflicts in land use.

Part III focuses on problems at the core of most environmental issues: growing human population and shortages in food and energy resources.

This well-produced textbook has 465 illustrations.

Price: £ 29.95.

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

Agricultural Mechanization and the Evolution of Farming Systems in Sub-Saharan Africa. P. Pingali, Y. Bigot and H.P. Binswanger. Published for the World Bank by the John Hopkins University Press, Baltimore and London, 1987, viii + 216 p. ISBN 0-8018-3502-X.

The slow pace of agricultural mechanization in Africa has long been a puzzle. This book begins to solve this puzzle by looking at the conditions in Sub-Saharan Africa that have led to only sporadic use of the plow rather than the hand hoe, very limited use of tractors and even oxen, and the failure of many projects seeking to move directly from hand hoes to tractors.

The authors interviewed farmers at fifty field sites in ten countries. They found that the pace of mechanization has been slow in Africa because it often is not cost-effective.

Among the issues discussed in the book: (1) The effect on yields of substituting plows for hoes; (2) The cost-effectiveness of using draft animals as opposed to tractors; (3) Conditions under which tractors can be used more efficiently than oxen; and (4) The negative consequences of government interventions to encourage the use of tractors beyond what is economically justified.

Orders to: John Hopkins Univ. Press, Baltimore, Maryland 21211, U.S.A.

Soils, Water and Nutrients in a Forest Ecosystem in Suriname. R.L.H. Poels. Thesis Wageningen Agricultural University, 1987, 253 p. ISBN 90-9001830-1.

Water and nutrient flows were measured in catchments on strongly weathered loamy sediments of the Zanderij formation in Surinam under undisturbed forest and forest silviculturally treated whereby 40% of the biomass was killed. The topography of the two catchment areas studied (each of about 150 ha) is gently undulating. The main soil is a well drained loamy Ultic Haplorthox which covers most of the plateaus and upper slopes while sandy soils occur on lower slopes and in valley bottoms.

Measured data on rainfall, discharge, evaporation, groundwater levels and hydraulic conductivity were used in computer simulation of water flows. It was found that large amounts of water were available to the forest and that transpiration reduction in the dry seasons was only small. The average effective rooting depth was calculated to be 450 cm. The contribution of transpiration, interception and soil evaporation to total water use (1640 mm/y) was calculated, annual rainfall being 2140 mm.

Nutrient amounts and flows were determined in both the organic matter cycle and the hydrological cycle for the treated and untreated catchments. A computer simulation of organic matter flows showed that large amounts of nutrients were liberated during the 3 years after treatment. Only a very small proportion of these nutrients left the catchment area with the discharge water. The higher nutrient influx in rainwater than nutrient losses in drainage water indicates that there was a small accumulation of nutrients in both the untreated and treated catchments. Thus it is concluded that the forest treatment did not result in unacceptable losses of nutrients from the ecosystem.

Price: Dfl. 40.00, including postage.

Orders to: Dept. of Silviculture and Forest Ecology, Wageningen Agricultural University, P.O. Box 342, 6700 AH Wageningen, The Netherlands.

Problem Soils as Potential Areas for Adverse Soils-tolerant Rice Varieties in South and Southeast Asia. IRRI Research Paper Series No. 119. G. Boje-Klein. IRRI, 1986, 43 p. and twelve 35-mm colour slides.

The available data on problem soils (saline, sodic, acid sulfate, and organic soils) in South and Southeast Asia are assessed to focus rice breeding for adverse soils tolerance on areas with the greatest potential and demand. The information presented for each country consists of definitions, classification (according to national or international systems), extent, and, wherever possible, a map. The relevance of problem soil classification to rice culture is also considered. Information on general land use in the areas concerned, current and potential utilization for rice cultivation, the rice growing environment, management of the problem factor(s), and future land-use plans is given.

Recent soil maps show saline, sodic, acid sulfate, and organic soils occupying about 58 million ha in South and Southeast Asia. Those soils generally unsuitable for rice cultivation are excluded, as are soils with relatively favourable conditions where adverse soils tolerance is not essential. Furthermore, the demand for rice cultivation on problem soils is limited by various factors, so that the potential areas for adverse soils-tolerant rice varieties including areas where such rices may be grown during a land reclamation phase total roughly 23 million ha. The largest potential areas for saline and sodic soil-tolerant varieties occur in India and Pakistan, those for acid sulfate soil-tolerant varieties in Vietnam, and those for organic soil-tolerant varieties in Indonesia. The accompanying show the location of these soils in 12 countries in the region.

Price:

Slide set: US$ 4.00, including postage.

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

Proceedings of a Workshop on Farming Systems Research. Icrisat Center, Patancheru, 17-21 February 1986. ICRISAT, 1987, 153 p. ISBN 92-9066-119-4. ICR 86-0034.

Farming Systems Research (FSR) comprises a study of the agricultural systems of groups of farmers, and of the various factors – socioeconomic as well as technical – that influence farmers' decisions. The need for such studies is well understood; any proposed change to a farmer's system that involves more than a simple innovation requires careful consideration of the implications of such changes for the farmer, his production systems, and his society.

In recent years, the Consultative Group on International Agricultural Research (CGIAR) has provided strong leadership in FSR, through the establishment of research programs at several International Agricultural Research Centres (IARCs), and the sponsoring of reviews and workshops on the philosophy and concepts of FSR. Many other institutions outside the CGIAR system, in developing as well as developed countries, have also evinced interest in FSR. This interest has led to a widening in the views of what constitutes FSR, which in turn has created uncertainties about the definition of this area of agricultural research.

Differences in approach, subject matter, and terminology have recently become obvious where researchers from more than one IARC have initiated FSR from differing perspectives in a particular country, or have followed one another in country research programs. The Technical Advisory Committee of the CGIAR, and the Center Directors, therefore agreed that consultations should be arranged in order to harmonize the approaches to FSR.

The workshop objectives were (1) To develop an understanding of the relevance and approaches to Farming Systems Research (FSR) in International Agricultural Research Centers (IARCs); (2) To indicate the roles of international and national research agencies in FSR; (3) To harmonize the recommendations of previous reviews on FSR into an IARC framework; (4) To discuss the results of case studies to assist in assessing the relevance and priority of such research for creating an impact on national systems; and (5) To outline the future of FSR in the CGIAR system.

Two key papers presented at the workshop, the reviews and chairmen's summaries, are published in full texts. The other papers are published as summaries.

Price: US$ 24.00 plus postage.

Orders to: Information Services, ICRISAT, Patancheru, AP 502 324, India.

Soil Testing, Plant Analysis and Fertilizer Evaluation for Potassium. PRII Research Review Series 4. Potash Research Institute of India, Gurgaon, 1987, 206 p.

Potassium is one of the three major nutrients for crop production. Crops remove it in amounts comparable to nitrogen but unlike nitrogen, soils differ much more in the extent of available and reserve quantities of potassium. Ammonium acetate extractable potassium is commonly used as an index of its availability in soils but evidence has been accumulating that estimates of reserve potassium should be used to qualify this measure. Quantity-intensity relationships and transport rates also appear important. The rate at which crop needs potassium and can absorb it from the soil is also significant. Hence, soil testing for developing generalized recommendations should be tempered with an appreciation of soil characteristics, importance in potassium availability, as well as dynamics of potassium in soil-plant systems. Experience with long term fertilizer experiments shows that responses to potassium appear sometimes after a few years of intensive cropping and imbalanced fertilization. Thus, continuous monitoring of changes in K availability seems important in developing sound fertilizer recommendations.

The Potash Research Institute of India organized a Group Discussion on these aspects and the present publication constitutes the proceedings of the venue held in New Delhi in November 1985.

Price: US$ 10.00 plus $ 5.00 for airmail postage.

Orders to: Potash Research Institute of India, Sector 19, Dundahera Delhi, Gurgaon Road, Gurgaon 122001, Hargana, India.

Efficiency of Nitrogen Fertilizers for Rice. International Rice Research Institute (IRRI), Los Baños, 1987, 260 p. ISBN 971-104-174-X.

Since its inception in 1960 IRRI has supported work on management of the rice crop, a major part of which has been management of nitrogen fertilizers. In 1976, IRRI invited participants to work in the International Network on Soil Fertility and Fertilizer Evaluation for Rice (INSFFER). It was decided that both organic and inorganic fertilizers should be considered and long-term fertility trends should be monitored. Some 19 countries currently participate in INSFFER activities, which include common trials on fertilizer efficiency for rice and on organic manures and soil fertility maintenance, monitoring visits to observe field trials in cooperating countries and discuss common problems, and sharing of research results relating to fertilizer efficiency for rice. Training programs are also organized for staff of participating organizations.

In 1984, INSFFER cooperators decided to accept an invitation to visit Australia, where much relevant research on fertilizer efficiency for rice was being conducted, and where advanced rice production methods could be seen in the field. A meeting to present papers on Australian rice farming and recent research results related to fertilizer efficiency in rice production and future INSFFER activities was also held. This volume contains the papers given at the meeting, which was held in Griffith, NSW, in April 1985. Besides 19 papers, the publication features country reports on the situation in Bangladesh, China, Indonesia, Philippines and Thailand.

Orders to: IRRI, P.O. Box 933, Manila, Philippines.

Proceedings of the Symposium on Fertilizer Sulphur Requirements and Sources in Developing Countries of Asia and the Pacific. Bangkok, 26-30 January 1986. Fadinap, FAO, The Sulphur Institute, and ACIAR, n.y., 181 p.

Although there is a surplus of agricultural production in the world to-day, it is firmly believed that the developing countries in Asia and the Pacific need to increase their crop production per unit area, in order to provide adequate food supplies for their ever growing population. Sulphur has been recognized as an essential element for plant growth. However, agricultural intensification practices currently followed, together with the increased use of essentially sulphur free fertilizers have been responsible for the widespread incidence of sulphur deficiency in the region. There is a consensus among researchers and extension personnel that action should be taken to remedy this deficiency situation. The organization of the Symposium on Fertilizer Sulphur Requirements and Sources in Developing Countries of Asia and the Pacific by the Fertilizer Advisory, Development and Information Network for Asia and the Pacific (FADINAP), the Food and Agriculture Organization of the United Nations (FAO), the Sulphur Institute and the Australian Centre for International Agricultural Research (ACIAR) is considered to have been a step in this direction.

Twenty-two technical papers were presented at the Symposium by agricultural experts, planners, policymakers and traders in the field of plant nutrient sulphur. The topics covered included among others, the sulphur status of the soils in the various countries under review, the gradual depletion of sulphur in the soil and its implications, the sources of supply of plant nutrient sulphur, and the production and trade of sulphur containing fertilizers.

Requests to: The Sulphur Institute, 1725 K Street, N.W., Washington DC 20006, USA; *or:* Fadinap, ESCAP Agriculture Division, U.N. Bldg., Bangkok 10200, Thailand.

Agricultural Development in Drought-Prone Africa. L.J. Foster, editor. Overseas Development Institute, Tropical Agriculture Association, 1986, 88 p. ISBN 0-85003-100-1.

There is widespread public concern that large tracts of drought-prone Africa – especially in the Sahel – are becoming permanently dependent on outside food aid. Much attention has been given to the climatic and demographic pressures on fragile environments and to the failure of African governments and international donors to promote sustainable development. Yet whatever the speed and scale of environmental deterioration and whatever the scope for major changes in government policy in favour of farmers, all strategies come up against the sheer technical difficulty and complexity of improving the productivity of farmers and herders in conditions of great risk and complexity.

In the present publication authors with experience of these problems take up this issue, exploring the technical opportunities which now exist for increasing crop and livestock production throughout drought-prone Africa. Areas examined include: irrigation potential, surface water resources, conservation systems, plant breeding and seed production, crop protection and storage, livestock and range resources, simple mechanization.

Price: £ 4.95 in U.K.

Orders to: Overseas Development Institute, Regent's College, Inner Circle, Regent's Park, London NW1 4NS, United Kingdom.

Chemistry of Soil Organic Matter. Developments in Soil Science 17. K. Kumada. Japan Scientific Societies Press, Tokyo and Elsevier Science Publishers, Amsterdam, 1987, xi + 241 p. ISBN 4-7622-0534-6 (Japan ed.), 0-444-98936-6 (Elsevier ed.)

Despite the large number of papers and books published on soil organic matter (humus), our knowledge of the subject is still very limited, as is our knowledge of humic acid. The author of this book began to study humus at the end of the 1940s and continued until 1984 when he retired from Nagoya University. With the intention of establishing a systematic understanding of soil organic matter, he has compiled facts and a discussion of humus based on his extensive experimental results during the past 40 years.

In this book, humic acids are classified into four types, based on their optical properties. The elementary composition and other chemical properties of humic acid types are shown to be regularly different from each other. A new method for humus composition analysis applied to various kinds of soils in Japan and several other countries indicates that the diversity of humus compositions of soils is systematically understandable. These findings lead the author to novel theories on the chemical configuration and formation of humic acids and humic substances. Diagenesis of humus under terrestrial conditions is illustrated as to the buried humic horizons of Andosols.

This book will be useful not only to soil scientists and agronomists, but also to geochemists, oceanographers, limnologists, water scientists, biologists and chemists who are dealing with organic matter in terrestrial, aquatic, and sedimentary environments.

Price: Dfl 175.00

Orders to: In USA and Canada: Elsevier Science Publ.Co, P.O. Box 1663, Grand Central Station, New York, NY 10163, USA. In Japan: Japan Scientific Societies Press, 6-2-10 Hongo, Bunkyo-ku, Tokyo 113, Japan. Elsewhere: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, the Netherlands.

Wheat and Wheat Improvement. Second edition. Agronomy Monograph 13. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, 1987, xxvi + 765 p. ISBN 0-89118-091-5.

Wheat is the number one food grain consumed by humans. As demands upon our food supply increase, wheat will become even more important. This underscores the urgency for rapidly and continuously increasing worldwide wheat production. The second edition of *Wheat and Wheat Improvement* includes an array of topics on wheat production and reaffirms the progress being made in understanding wheat growth, development and physiology.

Advances have been made in understanding such topics as senescence, N assimilation, and kernel development. The effects of subzero temperature, high temperature, and drought stress on the physiology of the wheat plant are discussed in this book.

Management practices for wheat production are changing, and with these changes have come higher yields and improved quality. This 10-chapter book includes discussion on normal breeding programs and related breeding topics – mutation breeding, hybrid wheat, interspecific and intergeneric hybrids, and somatic tissue culture. It also includes information on how improvement in crop management techniques could maximize the expression of genetic resistance to environmental stress.

The book includes information on new developments in biochemical research, molecular genetics, chromosomal banding, pathology and insect and disease control, and refined techniques in evaluating quality.

Undoubtedly, wheat will remain a primary food source because of its adaptation throughout the world and its successful production in marginal agricultural areas. Research on wheat improvement needs to remain a precedence to meet expected demands.

Price: US$ 44.00

Orders to: see below.

Alfalfa and Alfalfa Improvement. Agronomy Monograph 29. A.A. Hanson, D.K. Barnes and R.R. Hill, editors. American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, Madison, 1988, xxvi + 1084 p. ISBN 0-89118-094-X.

This monograph is a testament to the oldest cultivated forage crop, alfalfa; a crop that has increased in importance over time as a mainstay in the production of livestock products. In many countries, including those in North America, alfalfa is the basic component in feeding programs for dairy cattle, as well as an important feed for beef cattle, horses, sheep, and other classes of livestock. Furthermore, alfalfa enhances the stability of agricultural production systems by improving soil productivity and reducing losses of soil and water.

The importance of alfalfa in world agriculture can be attributed to a number of morphological and physiological characteristics that contribute to its high yield of nutritious herbage, rapid recovery after cutting, longevity, and tolerance to environmental stress. Also, symbiotic N=2 fixation in alfalfa eliminates the need for chemical N, and adds a beneficial carryover effect in crop rotations. In spite of the recognized merits of alfalfa, the crop would not enjoy a competitive advantage in many regions and agricultural zones in the absence of research. Thus, the success of alfalfa production in many countries documents the research efforts of scientists who have adapted germplasm, improved understanding of crop requirements, developed superior cultivars resistant to major pest insects and diseases, advanced seed production technology, and increased efficiency in animal feeding. Recent history suggests that research efforts to maintain and enhance the contribution of alfalfa must be strengthened, in response to new problems and opportunities that will arise with the anticipated trend to more intensive agricultural production systems.

Many major developments have occurred since the publication in 1972 of Agronomy Monograph 15, *Alfalfa Science and Technology*. These numerous changes provide the basis for the present revision.

Some of the recent information covers areas such as interspecific hybridization, tissue culture, genetic engineering, nitrogen fixation, carbon assimilation and partitioning, pest control, crop management, crop utilization, and breeding. Some chapters include information from the previous monograph while in other chapters the authors cover recent achievements in alfalfa research with limited reference to the past. A significant strength of the new monograph is the inclusion of complete citations of the most recent literature.

Price: US$ 66.00. Advance payment and $ 0.75 per book required on orders outside the US.

Orders to: ASA, CSSA, SSSA Headquarters Office, attn. Book Order Dept., 677 South Segoe Road, Madison WI 53711, USA.

Proceedings of the International Clay Conference, Denver, 1985. L.G. Schultz, H. van Olphen and F.A. Mumpton, editors. The Clay Minerals Society, Bloomington, 1987, 456 p. ISBN 0-935868-29-1.

From the 180 oral and 75 poster papers some 60 were selected for inclusion in the present volume. They are representative of the research on clays being conducted in all parts of the world. Many of the subjects treated are controversial, and although some ideas expressed may not necessarily represent the views of the editors or referees, they deserve to be brought to the attention of the international clay community.

Papers are arranged in the following sections: structure and crystal chemistry (4 papers), mineralogy (9 papers), soils (4 papers), iron and aluminum oxides (7 papers), physical and chemical properties (8 papers), catalysis and surface chemistry (7 papers), organics on clays (6 papers), and industrial and environmental applications (10 papers). A useful comprehensive subject index is included.

Orders to: The Clay Minerals Society, P.O.Box 2295, Bloomington IN 47402, USA.

Australian Soils. The Human Impact. J.S. Russell and R.F. Isbell, editors. University of Queensland Press in association with the Australian Society of Soil Science, St. Lucia, 1986, x + 522 p. ISBN 0-7022-1968-1.

Since its inception, the Australian Society of Soil Science has sought publication as a means of promoting the advancement of soil science and the scientific standing of the Society. In 1977 the first book, *Soil Factors in Crop Production in a Semi-Arid Environment* was published to define the scientific knowledge and understanding of the importance of soil factors in the large areas of semi-arid environments on the Australian continent. The book brought together much information in fields ranging from soil physics and soil chemistry to aspects of land use and fertilizer application in areas of low rainfall.

In 1979 the Federal Council of the Australian Society of Soil Science established a subcommittee to look into the question of a second substantial publication on Australian soils. It came to the conclusion that the overall impact of human activity on Australian soils was a subject that had not yet had a balanced treatment. Changes have occurred and are still occurring in the soils with substantial degradation and loss evident in many areas. This book is the outcome of the initial moves made in 1979. It looks firstly at the four main geographic regions of Australia: the tropical north and northeast, the temperate southeast, the Mediterranean southwest and the arid interior and west. This is a broad view of the climate, geological history, soils and vegetation of these areas and their vulnerability to human impact.

The second part views soil changes historically, in relation to both Aborigines and Europeans. Next, the effects of fire, vegetation change associated with clearing of forested areas, and the introduction of exotic animals are examined. The fourth part looks at both the positive and negative effects on the soil of cultivation, fertilization, irrigation, pesticides, improved pastures and conservation practices. The fifth section discusses the significance of forestry and mining, and part six examines the impact of urbanization, in terms of erosion and pollution, and the loss of land.

This examination of human impact on Australian soils highlights the need for action at various levels: in scientific research to develop soil conserving practices; in education to increase awareness of the irreversible changes that are affecting the nation's heritage; and in legislation to confront the problems of land use in a democratic society. The ultimate aim is to develop land-use practices which will maintain our soil resources and their productivity in perpetuity.

Price: Austr. $ 50.00.

Orders to: In Europe: Ms.Beth Wilson, 24 Thornhill Square, London N1 1BQ, United Kingdom; in North America: Univ. of Queensland Press, 250 Commercial Street, Manchester, NH 03101, USA; Elsewhere: Univ. of Queensland Press, P.O. Box 42, St. Lucia, Queensland 4067, Australia.

Weather and Rice. Proceedings of the International Workshop on the Impact of Weather Parameters on Growth and Yield of Rice. 7-10 April 1986. International Rice Research Institute, Los Baños, 1987, 323 p. ISBN 971-104-178-2.

Rice is the staple food of about half of mankind. At least 1.125 billion people, comprising 225 million rural families, depend on rice as their major crop; the majority of them are subsistence farmers.

National governments have long realized the importance of agricultural development to a country's economic well-being. Because agriculture is so vulnerable to weather and climate changes, a great deal of effort is being put into studies of the influence of weather and climate on crop growth and development. An important and growing area of meteorological activity is the development of a sound and sustainable strategy for long-term agricultural planning. On the other hand, the farmer is faced with making day-to-day and week-to-week tactical decisions in which short-term weather conditions play a major role.

Explicit consideration of the weather in agricultural production, processing, storage, and distribution can optimize the output available form input. Waste of fertilizer and pesticide can be minimized if they are applied only when favorable weather is expected. Pollution of water bodies and the atmosphere by these inputs also can be minimized. The World Meteorological Organization has implemented a number of programs, including the World Climate Impact Studies (WCIP), to which the undertaking of this workshop is relevant.

Considering that the purpose of this workshop is to review the implications of studies on rice-weather relationships under irrigated conditions that have been carried out in selected rice-growing countries, the results should certainly contribute to the success of WMO programs in agricultural meteorology.

The workshop dealt also with planning strategies for future research on rice-weather relationships under rainfed conditions. Results of such studies are of value to agricultural development efforts, especially for less developed rice-growing countries that depend largely on rainfall for crop moisture requirements.

Orders to: IRRI, P.O.Box 933, Manila, Philippines.

Soil Science Simplified, 2nd edition. M.I. Harpstead, F.D. Hole and W.F. Bennett. Iowa State University Press, Ames, 1988, 204 p. ISBN 0-8138-1514-2. (Hardcover).

This book is directed toward those who desire a simplified but accurate summary of basic information about soil science and an introduction to its technical aspects. Its many illustrations, which depict important concepts about soil in a visual manner, will help to clarify many points and stimulate the reader's interest. The book is a guide to the study of soils by students and laypersons alike. It is well suited to be a textbook for high school agriculture and earth science classes and is appropriate for farmers and other land managers who want to learn more about soils. University students in many fields of natural science will find it valuable for a better understanding of soil science.

In this second edition, the authors have primarily expanded and strengthened the chapters on soil fertility and management. This was done in an effort to more thoroughly address questions faced in crop production, such as soil testing, nutrient deficiency symptoms, and tillage practices. Soil erosion control receives greater emphasis in this edition, and problems brought about by soil loss as well as sediment deposition are discussed. Soil classification has been updated to reflect the most recent revisions, and a chapter on the use of soil survey reports has been added.

Price: US$ 16.95

Orders to: Iowa State University Press, 2121 S. State Avenue, Ames Iowa 50010, USA.

Complexation Reactions in Aquatic Systems. An Analytical Approach. Ellis Horwood Series in Analytical Chemistry. J. Buffle. Ellis Horwood, Chichester, 1988, xxi + 692 p. ISBN 0-85312-557-0 (Ellis Horwood ed.), 0-470-20830-9 (Halsted Press ed.).

This book, in attempting to combine various aspects of analytical chemistry and the chemistry of natural waters, employs an approach requiring aquatic phenomena to be viewed from perspectives and in frames of mind which are different and, at times, quite removed from one another. In this regard this book has richly profited from the experience communicated by numerous persons expert in a variety of domains: geology, biology, biochemistry, electrochemistry, and colloidal, inorganic and analytical chemistry.

This book discusses the chemical reactivities (and ecological implications) of metal ions with all complexants in aquatic systems, i.e. waters, sediments and soil waters. It highlights the reactions with chemically ill-defined, complicated and heterogeneous components which play a major role in metal regulation, and gives a critical comparison of the properties of the various natural heterogeneous complexing systems, and of the analytical approaches used to study them.

The book classifies aquatic complexing agents and metals as a function of their concentration and properties, discussing their environmental role and behaviour. It compiles the properties of natural organic matter in soils, waters and sediments with particular emphasis on the nature and contents of the various complexing sites. It reviews the properties of the most important natural complexants, offering the data necessary for a critical comparison.

Theoretical models for interpreting complexation experimental data with heterogeneous systems are reviewed and compared, and a detailed discussion of the analytical methods used for complexation measurements, with a review of associated problems, is provided. There is much quantitative information, including 150 tables of natural compound data which are collected 'under one roof' for the first time.

Price: £ 69.50 in U.K.

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

Remote Sensing Applications for Consumptive Use (Evapotranspiration). AWRA Monograph 6, A.I. Johnson and A. Rango, editors. American Water Resources Association, Bethesda, 1986, 72 p.

Consumptive use (evapotranspiration) is one of the very important components of the hydrologic cycle. The subject is becoming increasingly more significant, especially in arid or semi-arid areas of the world. It is important in the planning and development of river basins, design of irrigation projects, and management of a nation's water resources.

In spite of all the research completed during the 60's and 70's, and to a somewhat lesser extent in the 80's, most studies were related to relatively small areas because comprehensive studies of large areas were too time consuming and expensive due to widely varying physical and climatic conditions. Rapid and reliable methods were needed to assist in estimating consumptive use for large areas where no measured data are available.

In recent years remote sensing from satellites, space shuttle, or aircraft have advanced to the stage where they can provide useful data for large areas. For example, the techniques for identifying soil moisture and land-use with remote sensing seem to offer great promise for extrapolating ground-truth information from small-site installations to large areas. It is the purpose of this monograph to bring the results of several studies that apply remote sensing to estimation of the consumptive use (evapotranspiration) phase of the hydrologic cycle. It contains six papers presented at a meeting in Tucson, Arizona, on 13 August 1985.

Price: US$ 7.00 + $ 1.00 for postage and handling.

Orders to: American Water Resources Association, 5410 Grosvenor Lane, Suite 220, Bethesda, MD 20814, USA.

Soil Microbial Association. Control of Structures and Functions. Developments in Agricultural and Managed-Forest Ecology 17. V.Vancura and F. Kunc, editors. Elseviers Science Publishers, Amsterdam, 1987, 498 p. ISBN 0-444-98961-7 (this volume) 0-444-41515-7 (series). Published in co-edition with Academia, Prague.

The aim of this book is to contribute to the understanding of the laws of the formation and function of microbial associations in natural and agricultural soils, and to build a scientific basis for the control of soil biological processes. The book highlights the possibility of utilizing certain microorganisms and microbial processes to increase soil fertility and protect the environment.

This book presents selected results obtained in the Institute of Microbiology and the Institute of Experimental Phytotechnics of the Czechoslovak Academy of Sciences, in cooperation with the Institute of Microbiology of the Academy of Sciences of the USSR.

The results are compared with and supplemented by those from the literature after a critical evaluation.

In the authors' opinion, soil microorganisms, processes in the soil and their regulation have to be viewed as an insufficiently and only empirically employed factor in the identification of the formation of crop yields. Application of the natural components of soil fertility and their integration into large-scale-production technology will substantially decrease the material and energetic input into the soil and, simultaneously, will improve economic results. this trend will also reflect a more considerate approach to our environment.

The book is divided into seven chapters. Following an introductory chapter, Chapter 2 gives detailed information on the nature of nutritional and energy sources for microbial associations in the soil and the proximity of the plant root system. Special attention is paid to native soil organic matter, to substances of plant, animal or microbial origin entering the soil, to seed and root exudates and to the impact of man. Chapter 3 covers special features of eutrophic and oligotrophic microorganisms, their role in mass and energy flow through the ecosystem, and the importance of microbial antagonism and microbiostasis in regulating the structure and function of microbial communities. Chapter 4 provides information on microbial communities in the proximity of root systems, especially on the root surface, and in the adhering soil, i.e. in the rhizosphere. Chapter 5 describes mechanisms controlling the production and activity of enzymes in the soil, and the role of enzymes in the adaptation of microorganisms to nutritional conditions and in the development of microbial associations in the soil. Chapter 6 deals with the metabolisms of microorganisms living in soil, interactions between metabolic processes, as well as ecological factors affecting them and a possible control of soil metabolism. The significance of the microflora for the complex mechanisms in the ecosystem is discussed in Chapter 7. It covers the cycles of carbon, nitrogen and other biogenic elements, energy flow through the ecosystem, and food chains.

Each chapter is presented independently with its own list of literature. In most an attempt is made to draw generalizations from results obtained experimentally. Some significant fields of soil microbiology, such as symbiotic relations between microorganisms and plants, Rhizobia and mycorrhizae, and some aspects of soil biochemistry, e.g. humus formation, are not included in the book, as they are reviewed in detail elsewhere.

Using a contemporary approach to some fields of soil microbiology, the book highlights the possibility of utilizing certain microorganisms and microbial processes to increase soil fertility and protect the environment. It will be of interest to soil scientists, plant microbiologists, phytopathologists and ecologists.

Price: Dfl 295.00

Orders to: In USA and Canada: Elsevier Science Publ. Co., P.O.Box 1663, Grand Central Station, New York NY 10163. In Eastern Europe: Academia, Publishing House of the Czechoslovak Academy of Sciences, Prague, Czechoslovakia. Elsewhere: Elsevier Science Publ., P.O.Box 211, 1000 AE Amsterdam, the Netherlands.

Sulphur in Indian Agriculture, TSI-FAI Symposium, New Delhi, 9-11 March 1988. The Sulphur Institute, Washington, and the Fertilizer Association of India, New Delhi, 1988.

Intensification of agriculture has resulted in higher demand for fertilizer because of higher crop removal of all the essential plant nutrients. Sulphur is one such essential plant nutrient with crop requirements similar to phosphorus. It is also an important constituent of common fertilizers.

Sulphur deficiencies have been reported from many countries. It is a matter of concern that while reports of S deficiency and crop response to its use are increasing, the addition of S through S containing fertilizers is decreasing. Some of the important reasons for growing incidence of this deficiency in India are: increased agricultural production with increased S removal; leaching losses; use of high analysis S free fertilizers and widespread soil erosion.

In India, deficiencies are scattered in about 90 districts located in the different states of the country. Responses of 30 crops to S have been obtained under field conditions. In general, such responses are significant and profitable. Sulphur deficiency should not be allowed to constrain the progress of Indian agriculture. Therefore, awareness of the effect of S on crop yield and quality and S requirements needs to be increased.

It is against this background that a Symposium on 'Sulphur in Indian Agriculture' was organised jointly by The Sulphur Institute (TSI) and The Fertilizer Association of India (FAI). This book contains the summary of the Proceedings, the conclusions and recommendations, the 16 papers presented, and the list of the about 250 delegates.

Requests to: The Sulphur Institute, 1725 K.Street, N.W., Washington DC 20006, USA.

Russell's Soil Conditions & Plant Growth. 11th edition. Alan Wild, editor. Longman Scientific and Technical, Harlow. Co-published in the United States with John Wiley & Sons, New York, 1988, ix + 991 p. ISBN 0-582-44677-5 (U.K. ed.); 0-470-20796-5 (USA ed.).

Fifteen years have passed since the 10th edition of this well-known textbook by E.W. Russell was published. The present new edition maintains the reputation earned by the earlier editions.

Since the beginning of the 1970s, important advances have been made in the subject, and these have required the contributions of several authors who have taken the opportunity to incorporate up-to-date information on crop growth, soil properties and processes, and the management of soil for agricultural and horticultural purposes. Many existing chapters have been rewritten an all have been updated.

The book emphasizes the quantitative effects of soil and climate on the growth of farm crops, but much of the discussion is sufficiently general to apply to forest crops and natural vegetation. The authors also take into account the current concern with heavy metal and nitrate pollution.

The first chapter on the historical development of the subject is followed by three on crop growth and development, three on the formation of soils and their general chemical properties and their management, six on soil biology, and four on the plant nutrients and toxicity problems in soils; four chapters deal with the applications of soil science and include a discussion of some general soil problems of importance in many countries. It contains a subject and author index.,

This new edition will be of value to students, research and extension workers in agriculture, horticulture, forestry and soil science, and to others concerned with the maintenance of soil fertility and appropriate use of the land.

Price: £ 39.95 in U.K.

Orders to: Longman Group, Longman House, Burnt Mill, Harlow, Essex CM20 2EJ, England; or: John Wiley & Sons, 605 Third Avenue, New York, NY 10158, USA.

Aspects Agrophysiques et Hydriques de l'Amélioration des Sols. Zeszyty Problemowe Postepow Nauk Roln., vol.132, PWN Warszawa, 1986, 481 p. ISBN 83-01-06099-9.

This volume in French, with Polish and Russian summaries, contains 36 papers of Polish and French specialists. It is devoted to the methods of measurement of soil physical properties, mainly water, heat and aeration and their characteristics for Polish and French conditions. The problems of drainage are also discussed.

Price: US$ 15.00

Orders to: see below.

Problems of Soil Acidification in Poland and Hungary. Zeszyty Problemowe Postepow Nauk Roln., vol.344, PWN Warszawa, 1987, 146 p. ISBN 83-01-07494-9.

The volume contains 10 papers in English, with Polish and Russian summaries, of Polish and Hungarian scientists and deals with problems of soil acidification in Poland and Hungary against the background of general problems of soil degradation in both countries.

Price: US$ 12.00

Orders to: see below.

Climate of the Cultivated Field. Part I: Agrophysical Problems. Zeszyty Problemowe Postepow Nauk Roln., vol.346, PWN Warszawa, 1987, 144 p. ISBN 83-01-07659-3.

The volume contains 17 papers in English, with Polish and Russian summaries, of Polish and Bulgarian specialists on selected problems of soil physics concerning the mass and energy transfers in soil environment of the cultivated field. Part II on agrometeorology and phytoactinometry will be published as volume 369 of the Zeszyty Problemowe Postepow Nauk Roln.

Price: US$ 12.00

Orders to: DHN Ltd, P.O. Box 410, Miodowa 2, 00-950 Warsaw, Poland.

J. Glinski, Lublin, Poland

Soils in the New Zealand Landscape: The Living Mantle. L. Molloy, photographs by Q. Christie. New Zealand Society of Soils Science, the Stout Trust and Mallinson Rendel Publ. 1988, 245 p., 250 colour photographs, diagrams and maps.

Following the information in Bulletin 71, pp.32-33, it can now be announced that this book will be published in October 1988. New Zealand has been described as the most compact natural soil laboratory in the world. Its islands are packed with landscapes of all types – volcanic, alluvial, glacial, mountainous, hilly and coastal. The range of soils that mantle these landscapes is enormous. The present lavishly illustrated book illustrates this diversity, and explores the environmental and human influences that have moulded New Zealand's soils and landscapes.

Pre-publication price: NZ$ 75 or US$ 50, including mailing charges to ISSS members, provided orders are received by 1 September 1988.

Orders to: Dr. T.W. Speir, New Zealand Society of Soil Science, Private Bag, Lower Hutt, New Zealand.

Potassium Research and Agricultural Production in India. H.L.S. Tandon and G.S. Sekhon. Fertilizer Development and Consultation Organization, New Delhi, 1988, 144 p. ISBN 81-85116-05-9.

Plant tissues, particularly young growing organs, are rich in potassium. It is an indispensable element for plants and it plays a major role in crop production. Although crops need considerable amounts of potassium, potash fertilizer application does not yield crop response in each and every case. Soil properties and peculiarities of crops influence the effectiveness of potash fertilizer.

Numerous research work carried out after the 2nd World War has shown that potassium dynamics in soils is much more complicated than supposed earlier. It also was found that rooting pattern of crop species may differ remarkably and that rooting pattern of crop species may differ remarkably and that rooting and root metabolism have an impact on exploiting soil potassium. Hence actual potassium availability in soils cannot be obtained by a simple soil test, but has to take into consideration the particular potassium dynamics in the soil as well as crop species and climatic conditions.

It is the objective of the present status report on potassium in India to take stock of the available research, to search for the missing links and gaps in information. This summary of a wealth of data can catalyze the practical application of proven results of research.

Price: US$ 30.00 softcover, US$ 43.00 hardcover, including airmail charges. Add. $ 2.00 per check for bank charges.

Orders to: FDCO, C110 Greater Kailash-1, New Delhi 110048, India.

Symposium on Drought in Africa. Manuscript report. Vivien J. Escott, compiler. International Development Research Centre, Ottawa, n.y., 183 p. IDRC Report MR119e.

The extreme and extensive suffering inflicted upon millions of rural African people as a consequence of the recent pervasive drought is familiar to most North Americans and Europeans whose communications media have vividly portrayed the appalling conditions in Ethiopia, the Sahel, and many other countries of Northern, Eastern and Southern Africa.

From 12-14 August 1985, an international symposium was held in Ottawa on 'Drought in Africa'. It was jointly sponsored by the International Development Research Centre (IDRC), the Canadian International Development Agency (CIDA), and the International Council of Scientific Unions (ICSU). The purpose was to review drought in Africa through the eyes and experience of Africans, together with others who have spent many years working in Africa. The invited speakers and other participants reviewed the difficulties experienced and the opportunities for improvement and future beneficial development among those African countries whose fragile ecologies and economies have been so severely devastated. Various contributors reviewed the impact of repeated drought on countries in Eastern, Western, and Southern Africa and the Middle East, particularly the Nile Valley.

Requests to: IDRC, P.O. Box 8500, Ottawa, Canada K1G 3H9.

Mineral Resources Extraction, Environmental Protection and Land-Use Planning in the Industrial and Developing Countries. P. Arndt and G.W. Lüttig, editors. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1987, x + 337 p. ISBN 3-510-65132-4. Hardbound.

In the last few decades access to the natural resources has taken on alarming proportions due to the increase in the world population and the consumption of natural resources. Although many who made prognoses and spoke about the exhaustibility of these natural resources were fortunately wrong, a number of shortages do show that we have to handle these natural goods carefully.

The concern about the future of mankind has brought together scientists involved with investigating, increasing and releasing the natural environment's potential and representatives of environmental protection who often complain about the ruthless impact on natural landscapes, biological communities and the space available for human beings. The dialogue with those responsible for land-use planning has begun. Every level of continuing and intensifying this must be taken advantage of.

Since nations characterized by their industrialization and those still developing have moved closer together economically and ethnologically, it is evident that it is necessary in all parts of this world to search for ways of eliminating conflicts between resource extraction and the utilization of soil, water and the biosphere on one hand and environmental protection on the other. In solving conflicts, the maps that translate geoscientific and other findings into recommendations regional planners can understand have proven useful.

The issues involved were discussed at an international seminar in Berlin, where geoscientific representatives of mining, environmental protection and land-use planning from industrial and developing countries got together in what one may call a kind of brainstorming. It was evident that all participants profited in many ways from the atmosphere that took place under a very cooperative and familiar framework and created an amicable group in the end.

In this volume the problems to be discussed are presented; the contributions introduce general and then specific problems before the representatives of the industrial nations and then those of the developing countries express themselves. At the end, an attempt is made to arrive at conclusions for the three professional fields represented.

Price: DM 98.00 or US$ 62.80.

Orders to: E. Schweizerbart'sche Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Fed. Rep. of Germany.

Principles & Methods of Reclamation Science, with Case Studies from the Arid Southwest. C.C. Reith and L.D. Potter, editors. The University of New Mexico Press, Albuquerque, 1986, xix + 224 p. ISBN 0-8263-0831-7 (paperback), 0-8263-0830-9 (clothbound).

Reclamation science embraces geology, ecology, biology, agronomy, and civil engineering. Until now, though, scientists have chiefly restricted themselves to conducting research within their own specialities. This study offers a synthesis of current reclamation research.

The central focus of the volume is a case study of reclamation research in the San Juan Basin, located in northwestern New Mexico and southwestern Colorado, USA. Each essay examines a particular aspect of the revegetation and stabilization of land that has been disturbed by surface mining. Each author considers the issue of what constitutes successful reclamation within a discussion of such problems as minimizing erosion, accelerating soil formation, and encouraging the germination, growth, and reproduction of vegetation.

This book is a valuable contribution to an area of scientific research and practice of vital importance to the future of the American landscape. Professional scientists, as well as students of reclamation science and its related disciplines, will find that the methodology proposed here enables them to tap a wealth of information from a variety of disciplines.

Price: US$ 17.50 (paperback); $ 30.00 (clothbound).

Orders to: The University of New Mexico Press, Albuquerque, New Mexico 87131, USA.

Berichte XIII Congress der IBG/Transaction XIII Congress of the ISSS, Compte-rendus du XIIIè Congrès de l'AISS. Hamburg 13-28.8.1986. Volumes 1-4, 1986, 1801 p.; Volumes 5-6, 1987, 1173 p..

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

The majority of the contributions is in English; papers in other languages also carry an English abstract.

Price: For all 6 volumes Dfl. 75.00 or US$ 40.00, including packing and postage.

Orders to: ISRIC, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

Hydrologic Applications of Space Technology. International Association of Hydrological Sciences Publication No. 160. A.I. Johnson, editor. IAHS Press, Wallingford, 1986, xii + 488 p. ISBN 0-947571-85-X.

This volume presents over 50 papers selected from those that were originally presented at the International Workshop on Hydrologic Applications of Space Technology, held in August 1985, at Cocoa Beach, U.S.A. In recent years, great strides have been made in the development and application of remote sensing and remote data transmission to the collection, interpretation, analysis, and near real-time communication of the huge amounts of hydrologic data being collected throughout the world. Thus, the purpose of the workshop was to bring together specialists from a variety of disciplines to:

(1) present results of research and practice in the integration of remote sensing techniques, especially as related to relatively new applications to hydrologic models and geographic information systems;

(2) to exchange the experiences of the specialists with others who need to know the capabilities and limitations of remote sensing and remote data transmission; and

(3) to define some of the directions that future research and application should take in these techniques.

The first section of this volume provides two overviews on present advances and future expectations of remote sensing and remote data transmission. Subsequent sections include six to eight papers, each discussing applications of these techniques to precipitation and runoff, soil moisture and evapotranspiration, snow hydrology, miscellaneous applications, modeling and forecasting, remote data transmission, and geographic information systems. The final section consists of a summary of a panel discussion of today's problems and of remote sensing and remote data transmission developments of the future.

Price: US$ 45.00. Price include postage by surface mail.

Orders to: Office of the treasurer, IAHS (attn. Meredith Compton), 200 Florida Ave. NW, Washington DC 20009, U.S.A.; UGGI, 140 rue de Grenelle, F-75700 Paris, France; or: IAHS Press, Institute of Hydrology, Wallingford, Oxfordshire OX10 8BB, England.

Roots, Plant Production and Nutrient Use Efficiency. P. De Willigen and M. Van Noordwijk. Thesis, Wageningen Agricultural University, 1987, 282 p.

The role of roots in obtaining high crop production levels as well as a high nutrient use efficiency is discussed. Mathematical models of diffusion and massflow of solutes towards roots are developed for a constant daily uptake requirement. Analytical solutions are given for simple and more complicated soil-root geometries. Nutrient and water availability in soils as a function of root length density is quantified, for various degrees of soil-root contact and for various root distribution patterns. Aeration requirements of root systems are described for simultaneous oxygen transport outside and inside the root.

Experiments with tomato and cucumber are discussed, which were aimed at determining the minimum root surface area required in an optimal root environment. Experiments on P-uptake by grasses on various soils were performed to test model calculations. Model calculations on the nitrogen balance of a maize crop in the humid tropics suggested practical measures to increase the nitrogen use efficiency.

Orders to: Institute for Soil Fertility, P.O. Box 30003, 9750 RA Haren (Gr), the Netherlands.

Forest Soils and Nutrient Cycles. P.M. Attiwill and G.W. Leeper. Melbourne University Press, 1987, 202 p. ISBN 0-522-84315-8. Hardbound.

The aim of this book is to provide an Australian text on forest soils and nutrient cycles for students in the ecological sciences. The authors believe that the need for the book, for students at the undergraduate level and beyond, comes both from the differences between nutrient cycling in forests and in agriculture, and from the peculiar nature of forests and soils in Australia. This need was perceived (and the book was written) during the teaching of plant ecology to final-year students in botany and forestry.

On the one hand, we may view native forests as part of the natural order – ecosystems which have evolved to grow, to age, and to regenerate. The productivity of the forest is inherent, and is determined by the environment – by rainfall, temperature, slope, aspect, physical and chemical properties of the soil. Traditionally, we expect the native forest to look after itself; the reserves of available nutrients in the soil are often meager (by agricultural judgement) and these reserves, once acquired by the tree, are cycled from plant to soil to sustain growth. Management plays a minor role, and the forests are rarely (every 100 years or so) if ever harvested. At the other extreme from the natural order, we may place the intensively managed plantations of exotic pines.

The cycle of nutrients in forests is obviously a complex area of study – forests are large and they live for centuries. Masses of analytical figures must be collected for soils and the various components of vegetation – branches, leaves, bark, wood – in order to compile balance sheets for the various elements.

This book selects those chemical features of soil that are most concerned in cycling and thus involves the reader in some discussion of colloid chemistry of no higher than first-year standard. The authors have included more on the elements phosphorus and nitrogen than on the other elements known to be essential to plants. Phosphorous is dealt with in detail not only because of the interest of low supply in Australia, but because it is a nutrient which exemplifies the subjects of extreme in the sense that little of it has come from the parent material and its availability is primarily dependent on microbial transformations in the soil. In contrast, while there are many reports of the response of forest trees (mainly pines) to additions of micronutrients (particularly copper, zinc, and boron), there is little detailed work on these nutrients which is peculiar to forest soils and nutrient cycles.

This book may be thought of in two parts. The first deals with various aspects of soil science which are an essential introduction to an understanding of nutrient cycling. The second deals with the various ecological processes in forests which determine how nutrients are cycled. In each part there is room for what is often characteristic of a textbook – namely a statement of widely accepted ideas, together with points of view on theories which are still in a fluid state.

Orders to: In U.S.A. and Canada: International Specialized Book Services, P.O.Box 1632, Beaverton, OR 97075, U.S.A. In Australia: Melbourne Univ. Press, Carlton, Vic. 3053, Australia. Elsewhere: HB Sales, Littleton Road, Ashford, Middlesex TW15 1UQ, England.

Grazing Management for Food Production. ICARDA Technical Manual 15 En. A. Smith. ICARDA, Aleppo, 1987, 96 p.

This is the first manual on Grazing Management produced by the International Centre for Agricultural Research in the Dry Areas (ICARDA). Research and training on grazing has been conducted at ICARDA for a number of years. It has already published manuals on other aspects of pasture and forage i.e. 'Rangelands and Their Use in the Near East Region','Forage Production under Irrigation', 'Introduction to Forage Crops', and 'Introduction to Range Management'.

The purpose of the present manual is to summarize the most important aspects of grazing for scientists and technologists who visit ICARDA to participate in the research programme or to attend a training course. The manual examines the main principles of grazing: how this relates to other methods of food production, and the interactions between the grazing animal and plants which are being consumed. Many of the concepts can be usefully considered for application to virtually all environments, stock, and types of vegetation.

The manual will be of interest to scientists working on pastoral systems. It has a unique characteristic of the extensive use of diagrams in order to impart a reasonable degree of language neutrality to the subjects.

Orders to: ICARDA, Box 5466, Aleppo, Syria.

Land Use, Watersheds, and Planning in the Asia-Pacific Region. RAPA Report 1986/3. Regional Office for Asia and the Pacific (RAPA), FAO, Bangkok, 1986, 230 p.

A seminar-Workshop on Watershed Land-use was held in Gympie, Queensland, Australia, in May 1985. The present publication contains invited papers on various aspects of land-use change, concentrating on the use and conversion of forest to other land uses, in Australia, Indonesia, Malaysia, Nepal, New Zealand and Philippines. Also included are two overview papers on social and institutional aspects of land-use change and land-use planning, two papers on planning and economic evaluation of watershed management projects, and guidelines and related documents developed during meetings of seven working groups.

Requests to: Regional Forestry Officer, FAO Regional Office, Maliwan Mansion, Phra Atit Road, Bangkok, Thailand.

Land Development and Management of Acid Soils in Africa II. IBSRAM Proceedings No. 7. M. Latham, P. Ahn and C.R. Elliott, editors. IBSRAM, Bangkok, 1987, 339 p. ISBN 974-7614-86-3.

This publication contains the proceedings of a seminar organized by the International Board for Soil Research and Management (IBSRAM) and the Ministry of Agriculture and Water Development of Zambia, April 1987.

During the first two days, the experiences of various countries in managing acid soils in Africa and Latin America were presented, as well as papers on sustainability, on the design of experiments and data processing, on characterization and management practices, and on the implementation aspects of the network on acid soils. Later, the meeting focussed on the Subnetwork on the Management of Acid Soils and the Subnetwork on Tropical Land Clearing for Sustainable Agriculture. Appendices contain reports of working groups, and the Workshop resolutions.

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

Desertification Control and Renewable Resource Management in the Sahelian and Sudanian Zones of West Africa. World Bank Technical Paper 70. F. Falloux and A. Mukendi, editors. The World Bank, Washington, 1988, 119 p. ISBN 0-8213-0948-X (this volume) ISSN 0253-7494 (series).

This volume is a compendium of papers presented at a workshop in Oslo, in June 1986. The main objective was to develop workable guidelines for addressing the problem of resource depletion in the Sahelian and Sudanian zones of West Africa.

Major policy areas covered include land tenure, water management, household energy use, production systems and migration. The contributors have attempted to describe how existing control and incentive schemes can be modified to encourage the establishment of sustainable resource management in those areas, and to define the political, institutional and economic responsibilities involved.

The section on land tenure advocates simplified land laws, enhanced security of tenure, and greater popular participation in land administration. The prescription for the household energy sector is aimed at reducing urban demand for fuelwood. Traditional production systems are discussed from sociological and economic standpoints, with emphasis on more autonomous local organizations (such as pastoral associations). The migration strategy outlined attempts to strike a balance between spontaneous migration and state-sponsored migration schemes.

A recurring theme is that smaller organizational units (e.g., village or pastoral associations), for which a tradition exists in Africa, are better equipped – psychologically, physically and legally – to manage their own resources. This belief is shared by all the authors and underlies the strategies for improving production systems and land use.

Orders to: Distributors of World Bank publications around the world, or, in case of difficulties: The World Bank Headquarters, 1818 H Street N.W., Washington DC 20443, U.S.A.; or: 66 avenue d'Iéna, F-75116 Paris, France.

Soil-Water Interactions: Mechanisms and Applications. Books in Soils and the Environment. S. Iwata, T. Tabuchi with B.P. Warkentin. Marcel Dekker, Inc., New York and Basel. 1988, x + 380 p. ISBN 0-8247-7767-0. Hardbound.

This book gives a survey of the latest international research results on topics dealing with interactions of soil and water. Among these are: energy concepts and Thermodynamics of water in soil; interaction between soil particles and soil solution; interaction between particles through water; capillarity; water flow through soil; unsaturated water movement; field water regimes. Some particular topics may be mentioned such as the mechanism of soil freezing, the heat of immersion of clays in water and the colloid chemical aspects of interfering double layers with regard to repulsion and attraction. Throughout the book reference is made to extensive literature including often less accessible Japanese and Russian sources. The text is well-integrated with many figures and tables partly schematical, partly based on actual research. The SI system has not been used consequently throughout the book and a glossary of used symbols with their dimensions is lacking. This work will be a valuable advance aid to scientists of various disciplines working in this field.

Price: US$ 99.75 in U.S.A. and Canada; US$ 119.50 elsewhere.

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

Multilingual translation of the terminology used in the 'Handbook for Soil Thin Section Description'. Pédologie, 1986, 3, pp.337-348. G. Stoops, editor.

In 1985, the Working Group on Soil Micromorphology of the ISSS published its 'Handbook for Soil Thin Section Description'. This Working Group has now prepared translations of the terminology used for the Handbook in Dutch, French, German, Portuguese, Spanish and Russian.

The Handbook was published by Waine Research Publications, Albrighton, U.K. (ISBN 0905184-09-2) and is available from the publisher or from the ISSS Secretariat, P.O. Box 353, 6700 AJ Wageningen, the Netherlands. Orders for the issue of Pédologie should be sent to: Belgian Society of Soil Science, Krijgslaan 281, B-9000 Gent, Belgium.

The Potential of Agroforestry for Soil Conservation. Part II Maintenance of Fertility. ICRAF Working Paper 43. Anthony Young. ICRAF, Nairobi, 1987, 135 p.

Soil erosion in its broader sense covers erosion control, the maintenance of soil fertility, and thus sustainable land use. This Working Paper, which forms Part II of the review as a whole ,covers agroforestry in maintenance of fertility. Relations between fertility, soil degradation and sustainability are discussed. Processes by which trees improve soils are considered, including the cycling of organic matter, nitrogen and other nutrients, other soil properties, and the role of roots. Tree and shrub species with a soil-improving potential are identified. Evidence for soil changes under agroforestry practices is summarized. Direct and indirect evidence indicates that there is a high apparent potential of agroforestry for maintenance of soil fertility, under a wide range of environmental conditions. This high potential coupled with sparse experimental data, indicates a clear need for further research. Specialized soils research needs and soil aspects of general agroforestry research are outlined.

Price: US$ 3.00, plus mailing charges.

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

Soil Moisture and Temperature Regimes of Central America, Caribbean, Mexico. SMSS Technical Monograph No. 16, A. Van Wambeke.

This monograph is the fourth is a series on soil moisture and temperature regimes. The previous publications dealt with Africa, Asia, and Latin America. *Soil Moisture and Temperature Regimes of Central America, Caribbean, Mexico* is a compilation of soil moisture regimes (SMR) and temperatures regimes (STR), and includes tables and maps that show the distribution of SMR and STR in countries or regions of Central America. The regimes have been calculated using a simulation model developed by F. Newhall with atmospheric data as inputs. The publication also provides current definitions of SMR and STR, a key for the identification of the SMT subdivision, and explains the rationale for the use of the Newhall model.

Included in the monograph are: *Country tables:* these list, alphabetically, the weather stations of each country, as well as the soil climatic classifications and the major soil climatic parameters; *Moisture regime tables:* these group all the stations having the same moisture regimes, sorted by temperature regime, country, and alphabetically. They permit soil climatic conditions throughout Central America to be checked and compared with SMRs in other parts of the world.

Price: US$ 14.00

Orders to: International Soils Agronomy Dept., Bradfield Hall, Cornell University, Ithaca NY 14853, USA. Persons in developing countries may request free copies through their country USAID Missions.

Glossary of Geology, third edition. R.L. Bates and J.A. Jackson, editors. Elsevier Science Publishers, Amsterdam and New York, 1987, xii + 788 p. ISBN 0-913312-89-4.

The Glossary contains some 37,000 terms (1,000 more than the second edition), 650 emendations and corrections, and – for the first time – the division of terms into syllables with accents to aid pronunciation. About 150 references have been added to the 2,000 in the second edition. Literature cited ranges from the early 1790s to 1986. New entries are especially numerous in the fields of carbonate sedimentology, hydrogeology, marine geology, mineralogy, ore deposits, plate tectonics, snow and ice, and stratigraphic nomenclature.

The authority of this new edition – like that of its predecessors – rests on the expertise of geoscientists from many specialities, who have reviewed definitions, added new terms and cited references.

Price: Dfl. 165.00 (outside North America)

Orders to: in USA and Canada: The American Geological Institute. Elsewhere: Elsevier Science Publishers, P.O.Box 211, 1000 AE Amsterdam, The Netherlands.

Reactions with Variable-Charge Soils. N.J. Barrow. Martinus Nijhoff Publishers, Dordrecht, Boston, Lancaster, 1987, 200 p. ISBN 90-247-3289-0. Hardbound

Soil chemistry has for many years been divided into two areas: an area rich in research results and popularity dealing with the reactions of alkali and alkaline earth cations with clay minerals and other charged particles; and the larger, relatively-speaking less well known, complex, and less well understood reactions of almost all other anions and cations that are added to the soil as fertilizers or deposited in it as pollutants. This book is devoted to a systematization of the latter class, and starts with the premise that the oxides of iron and aluminum which form the variable-charge components of soils can form the basis of a model of soil behaviour, based on this fundamental premise, which can describe the behaviour of many diverse ions in soil both quantitatively and qualitatively. Part A of the book presents the models themselves, leading from simple systems to soils themselves, and part B gives the mathematical equations and the computer programs. The latter are presented in Microsoft Basic, being the most common dialect for most personal computers. A compiler is recommended for actually running the programs.

Price: Dfl 110.00, US$ 54.50, £ 34.00.

Orders to: Kluwer Academic Publishers, Distribution Centre, P.O. Box 322, 3300 AH Dordrecht, the Netherlands.

Semi-arid Soil and Water Conservation. H.J. Finkel. CRC Press, Boca Raton, 1986, 136 p. ISBN 0-8493-6112-6. Hardbound.

This comprehensive overview of soil and water conservation emphasizes practical control measures useful to middle level technicians. It includes chapters on surface hydrology, analysis of the erosion process, and more importantly, practical control measures through: correct land use; crop rotations; shifting cultivation; contour farming; strip cropping; etc., plus some engineering measures involving waterways, diversions, terrace systems, and gully control. Along with covering the authors' own workings in semi-arid regions, special chapters review latest trends in water harvesting, recently developed systems now in use, and range-land management for soil and water conservation.

Price:

Orders to: see below.

Soil Physical Chemistry. D.L. Sparks, editor. CRC Press, Boca Raton, 1986, 308 p. ISBN 0-8493-5448-X. Hardbound.

In six chapters, written as monographs, a number of the most important aspects of soil physical chemistry are comprehensively treated. These chapters are: 1. Electrochemistry of the double-layer: principles and applications to soils; 2. Charge properties of soil colloids; 3. Kinetics of reaction in pure and mixed systems; 4. Thermodynamics of the soil solution; 5. Soil redox behaviour; 6. Hydrostatics of water in porous media. The book is well-illustrated, has a large bibliography and a pleasant (large) page size. It will certainly find its way to students, teachers and research workers alike. The second printing appeared within a year.

Price: £101.50

Orders to: Wolfe Medical Publ. Ltd., Brook House, 2-16 Torrington Place, London WC1E 7LT, England; or: CRC Press, 2000 Corporate Blvd. N.W., Boca Raton, FL 33431, U.S.A.

L.P. van Reeuwijk, Wageningen

The Value of Groundwater Models for Planners and Decision-makers. Technical Documents in Hydrology, K.H. Jensen. Unesco, Paris, 1987, 34 p.

Mathematical models based on physical laws provide powerful tools for reliable analyses of groundwater systems. By utilizing the available data in a consistent manner parameter-distributed groundwater models cannot only scrutinize the current state of the systems; they are also capable of predicting the future states under unchanged or changed external conditions. The effects of planned operations ofthe system can effectively be evaluated by applying the model with input data representing the new conditions. This is possible, because the input data has a physical meaning, and any operation option can easily be translated into the mathematical model by appropriate adjustments in parameters, stresses and boundary conditions. By utilizing the predictive capabilities of a groundwater model the effects of alternative options can be evaluated, and hence provide the basis for management decisions.

Mathematical models can support the management of both groundwater resources and groundwater quality problems. Applications range from planning the development of groundwater resources including prediction ofthe effects of pumping wells to contamination problems related to point and diffuse pollutant sources.

The document also emphasizes the data problem. Groundwater is not directly observable, andthe geological environment in which the flow occurs can never be inferred in all details. If the users of the model results recognize that a mathematical model of a groundwater system is an approximation to the complex conditions existing in the field, and that some portion ofthe parameter values are estimated, groundwater models represent valuable tools, which can support the management of almost any field problem.

Requests to: see below.

Role of Groundwater in the Hydrological Cycle and in Continental Water Balance. Technical Documents in Hydrology. I.S. Zektser and R.G. Dzhamalov. Unesco, Paris, 1988, 133 p.

The objectives of the present Technical Report are the generalization and analysis of the experiences of specialists from different countries in the study of quantitative assessment of ground-water runoff and its role in the hydrological cycle, making recommendations on further development of research in this area and broad introduction of research into the practice of hydrological and hydrogeological investigations.

The Report discusses the principles of the methodology of regional assessment of ground-water runoff, its mapping on medium and small scales, main results of studies, carried out in the different countries on ground-water runoff and its role in the hydrological cycle, and principal laws of formation and distribution of ground-water discharge to rivers, seas and oceans under various natural conditions. Based on the fact that the quantitative values of ground-water runoff are one of the main characteristics of fresh ground-water resources, great attention is given to the possibilities of practical application of recommended techniques and results of regional studies of ground-water runoff to evaluation of ground-water resources and reserves and to substantiation of the perspectives of ground-water use for various purposes.

Requests to: International Hydrological Programme Secretariat, Division of Water Sciences, Unesco, 7 place de Fontenoy, F-75700 Paris, France.

Bodenkunde. Vierte Auflage. Uni-Taschenbücher 1106. H. Kuntze, G. Roeschmann und G. Schwerdtfeger. Verlag Eugen Ulmer, Stuttgart, 1988, 156 S., 156 Tab. und 151 Abb. ISBN 3-8001-2563-3.

In diesem Taschenbuch ist der gegenwärtige Stand des bodenkundlicher Wissens und seine Anwendung dargestellt. Aufbauend auf einer gerafften Darstellung der geowissenschaftlichen Grundlagen und der Bodenphysik, -chemie und -biologie sind die Entstehung und Entwicklung der Böden sowie ihre Eigenschaften beschrieben. In der vierten Auflage wurde die in bewährter Form dargestellte regionale Bodenkunde durch Beispiele für die Bodementwicklung auf unterschiedlichen Ausgangsgesteinen ergänzt. Im neu bearbeiteten Abschnitt Bodentechnologie steht der Bodenschutz als wichtiger Teil des Umweltschutzes im Mittelpunkt.
Preis: DM 39.80.
Bestellungen an: Verlag Eugen Ulmer, Postfach 700561, D-7000 Stuttgart 70, Bundesrepublik Deutschland.

Drainage Design and Management. American Society of Agricultural Engineers Publication 07-87. ASAE, St. Joseph, 1987, viii + 439 p. ISBN 0-916150-88-7.

This volume contains the proceedings of the Fifth National Drainage Symposium, held in Chicago, December 1987. This Symposium continues the tradition of the American Society of Agricultural Engineers of promoting communication between science, industry and practice in agricultural drainage. This series of symposia began in 1965, and they have been held at 5 or 6 year intervals since that time. These symposia have been extremely popular and have attracted significant attendance and participation from both North America and Europe with a slow but continual growth of attenders from other part of the world.

The session topics of this symposium reflect both continuing issues and emerging issues in drainage and water management. Subjects such as drainage envelopes, drainage design and water quality have been addressed in previous symposia, but appear again because of their continuing importance. Issues surrounding drainage as a part of total water management systems such as outlet control, crop response and water quality are on the cutting edge of this new technological development. topics of special international interest include mole drainage systems and water movement through soils.

The volume has the texts of the three keynote addresses and papers in the following sections: drainage design (6 papers); water movement through soil (6 papers); crop response to water management 95 papers); drainage impact on water quality (7 papers); drainage/irrigation control, management and evaluation (4 papers); evaluating water management effects, practices and installations (5 papers); limitations, performance, and machinery development for mole drainage (4 papers); and drainage envelopes investigations and specifications (10 papers).
Price: US$ 43.00, plus $ 1.50 postage, and 10% for orders shipped outside North America.
Orders to: see below.

Optimum Erosion Control at Least Cost. American Society of Agricultural Engineers Publication 08-87. ASAE, St. Joseph, 1987, vii + 418 p. ISBN 0-916150-89-5.

Wise use of natural resources has been and will continue to be a major goal in managing a sustainable agriculture. Development and conservation of soil, water, plant and animal resources will require comprehensive and efficient conservation management systems. Information on various aspects of conservation systems has generally been fragmented in single publications or reports.

To address the issues involved, a National Symposium on Conservation Systems was held in Chicago, December 1987. The goal of this symposium has been to bring together state-of-the-art information on components of conservation systems and to present this in a relatively comprehensive context. A conservation system includes more than a single component, such as conservation tillage. It involves land capability and related cropping management and may require some or all of the following practices: contouring, land forming, conservation structures, and conservation tillage. To be functional, the system must be manageable and economically viable.

Erosion control must be an integral part of conservation system, and a major concern is 'Optimum Erosion Control at Least Cost'. Erosion control practices can provide multiple benefits. For example, in relatively dry climates, plant residues managed on the soil surface for erosion protection can reduce evaporation losses and increase soil water storage for future crop use.

The present proceedings of the symposium has papers in the following fields: public policy and conservation systems (8 papers); promotion, planning and installation of conservation system (13 papers); economic considerations in conservation systems (6 papers); effects of conservation systems (14 papers); operation and maintenance of conservation systems (3 papers); and papers on the conservation of farmed landscapes and on an integrated perspective on conservation systems.
Price: US$ 39.00, plus $ 1.50 postage, and 10% for orders shipped outside North America.
Orders to: ASAE, 2950 Niles Road, St. Joseph MI 49085-9659, USA.

Land Transformation in Agriculture. SCOPE 32. M.G. Wolman and F.G.A. Fournier, editors. John Wiley & Sons, Chichester, New York, 1987, xix + 531 p. ISBN 0-471-91288-3. Hardback.

Individuals all over the world express their concern for the adequacy of land resources for agriculture in the future. These concerns relate to the availability of land for agriculture and to the quality of the land that will be needed to produce food and fibre. Increasing numbers of people, and the encroachment of urban, industrial and transportation activities on the agricultural landscape, and the modern techniques of agriculture, are all properly viewed as exerting real or potential pressure on the availability of good land required for future agricultural production. Trends which shoe increasing pressures on agricultural land can be projected to demonstrate that the potential to provide food for future world populations is imperiled.

The present volume was stimulated by this worldwide concern for the way in which land used in agriculture is being transformed throughout the world. This concern is a response to increasing reports of damage to the environment and to the ecosystems which comprise it as a result of the changing nature and intensity of a number of human activities. The emphasis in the present publication is upon the land itself, not upon the complex web of social, economic and political factors which may determine what happens to land. Rather, an attempt is made to focus upon how such factors influence or transform the land. The approach is not exhaustive, but illustrative. The intent is to illustrate the kinds of changes taking place on the land, some impacts of significant factors affecting the land, and the nature of the scientific evidence which might permit us to evaluate such impacts, or to determine their extent and potential influence.

It opens with a historical review of the way in which land transformation has been affected since cultivation began. Separate chapters are devoted to the impact of specific factors on the transformation of land, such as irrigation, mechanization, soil erosion, wetland reclamation and the use of fertilizers and pest control. Scientific criteria for observing and measuring changes are proposed. A collection of case studies supplements the text and strengthens the broader observations of the way in which agriculture itself is changing, not only through agricultural practice, but also through pressure from forces external to the landscape.

The breadth of coverage provides an unique review of the current state of agricultural lands all over the world, which will be of interest to agriculturalists, soil scientists, planners, agronomists and geographers.
Price: £ 72.50 or US$ 150.
Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England; *or:* John Wiley & Sons, 605 Third Avenue, New York NY 10158, U.S.A.

Abrégé de Pédologie, 2ème édition revue et complétée. P. Duchaufour. Masson éditeur, Paris, 1988, 232 p. ISBN 2-225-81366-3.

Depuis quelques années, la pédologie a pris un grand développement et ses applications se sont multipliées: cette conception nouvelle de la Science du Sol, envisage le sol sous son aspect dynamique: le sol se forme et il évolue sous l'influence des facteurs du milieu, dont les principaux sont le climat, le substratum géologique, la végétation et le temps. Le sol apparaît donc comme le point de rencontre du monde vivant et du monde minéral, reflétant ainsi intégralement l'environnement. Ceci explique que l'étude du sol ne puisse être indifférente à des scientifiques ou des praticiens, de préoccupations très diverses: elle intéresse aussi bien les biologistes que les spécialistes en 'Sciences de la Terre'; par ses applications pratiques elle est aussi indispensable aux agronomes qu'aux écologistes et aux sylviculteurs.

C'est à ce public très large et très diversifié que s'adresse le présent ouvrage: sans entrer dans l'étude détaillée des données scientifiques, ni des techniques très élaborées utilisées par les chercheurs en matière de science du sol, son objectif est de présenter une synthèse complète et cohérente, rédigée en termes simples et concis, donc accessible à tous; elle vise à mettre en relief les données fondamentales de la Science du sol en insistant sur ses aspects pratiques, en particulier sur les relations existant entre le sol et la plante, qu'il s'agisse de végétation naturelle ou de plante cultivée.
Prix: FF 113.00
Commandes à: Masson, 120 bd. Saint-Germain, F-75280 Paris Cedex 06, France.

Soil Physics. B.P. Ghildyal and R.P. Tripathi. John Wiley & Sons, New York, Chichester, 1987, viii + 656 p. ISBN 0-470-21025-8.

Several books on soil physics have been published during the last five years. The authors of this book claim it to be the first comprehensive university-level text book on soil physics which is rather too ambitious. Still, it provides a thorough discussion of soil solids, soil water, soil gases and soil heat, while some attention is paid to coupled transport processes. The presented material, gives a good, extensive and useful overview of basic theories, calculating procedures and practical field and laboratory methods. All of the cited references predate 1980 so that the most modern literature has not been assimilated. This is expressed in inclusion of some procedures and methods that do not reflect current capabilities of workers in soil physics.
Price: £ 36.95 in the U.K.
Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY10158, U.S.A.

J. Bouma and L.P. van Reeuwijk
Wageningen, the Netherlands

Acid Soil and Acid Rain. The Impact on the Environment of Nitrogen and Sulphur Cycling. I.R. Kennedy. Research Studies Press, Letchworth and John Wiley & Sons, New York, Chichester, 1986, xv + 234 p. ISBN 0-86380-043-2 (RSP) and 0-471-91253-4 (John Wiley).

The problems of acid soil and acid rain have much in common. Similar chemistry is involved in each and similar remedies can be prescribed for each. In one integrated volume, this book provides detailed explanations and mechanisms for acidification, both in soil and in the atmosphere. It describes the effects of acidity and how these can be prevented. Essentially a problem of the chemistry and biochemistry of various forms of nitrogen and sulphur, acidification is shown to be particularly associated with oxidative processes involving atmospheric oxygen.

The book is written for researchers and senior students in environmental and agricultural sciences who require an overall appreciation of the theory of acidification. The reader is helped by the clear presentation of all the significant chemical and biochemical reactions so that a highly specialist knowledge of the chemistry is not essential.

Price: £ 26.50 or US$ 52.

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

Hydrological Aspects of Drought. Studies and Reports in Hydrology 39. M.A. Beran and J.A. Rodier, rapporteurs. Unesco, Paris and WMO, Geneva, 1985, 149 p. ISBN 92-3-102288-1.

A series of studies on droughts were undertaken during the International Hydrological Decade launched by Unesco in 1964.

From 1968 to 1973, during the severe drought which affected the Sahel and other tropical regions, the interested governments and international organizations did their best to ameliorate the direct consequences of this catastrophe, to study the conditions and causes of the drought, and to recommend measures which could, in the future, mitigate the effects of such droughts.

Drought is generally viewed as a sustained and regionally extensive occurrence of below average natural water availability, either in the form of precipitation, river runoff or groundwater. Drought should not be confused with aridity which applies to those persistently dry regions where, even in normal circumstances, water is in short supply. The consequences of droughts are felt most keenly in areas which are in any case arid. however it is manifested, drought adversely affects the economy by reducing, or even eliminating, agricultural production, herds of cattle, energy generation, and domestic and industrial water supply.

Drought may be so severe that famine may ensue, and in some cases the situation may be such that, despite international cooperation, it could cause the death of millions of human beings.

As has been implied, the essential feature of drought is that it is tied to the idea of a deficit in the supply of moisture for some specific purpose. The study of drought concerns the description of rainfall, river flow, soil moisture and groundwater over a season, year or several years and also of the spatial extent of the phenomenon.

Of the numerous aspects of drought, the present report concentrates on the single aspect of hydrological drought, i.e. the deficit in the runoff of rivers, with some attention to the deficit in precipitation and the deficit in groundwater.

Price: FF 75.00 (édition française FF 90.00).

Orders to: Unesco Commercial Services, Unesco, 7 place de Fontenoy, F-75700 Paris, France.

Soil Testing: Sampling, Correlation, Calibration, and Interpretation. SSSA Special Publication Number 21. J.R. Brown, editor. Soil Science Society of America, Madison, 1987, 144 p. ISBN 0-89118-784-7.

Developing the concepts of and formulating the scientific basis for soil testing has been one of the most important contributions made by soil scientists to the production of food and fiber. The value of soil testing continues to be enhance through analytical tools, refined experimental techniques, and new statistical equipment.

The present publication reports on progress of many aspects of related research. This 12-chapter book includes discussion on lowering costs and time of soil samples for fertilizer recommendations. It also includes mathematical models and statistical procedures for soil test calibrations.

Soil testing offers a key role in the efficient use of fertilizer and its economic benefit. It also plays a role in the prevention of environmental degradation through providing guidelines to protect both surface, groundwater, and water quality. Soil testing is constantly being challenged with changes in farm management practices.

Soil test interpretation leads to confusion when the recommendation of different laboratories for samples from the same field are compared. This book should reduce confusion surrounding interpretations of soil tests. Efforts need to continue in sampling soils and calibration of soil tests to ensure the efficient use of fertilizers in crop production.

Price: US$ 20.00. Add $ 0.75 per book on all orders outside the U.S.A.

Orders to: SSSA Headquarters Office, Attn. Book Order Dept., 677 South Segoe Road, Madison WI 53711-1086, U.S.A.

Soil and Vegetation Systems. Second Edition. S.T. Trudgill. Clarendon Press, Oxford, 1988, xii + 211 p. ISBN 0-19-874138-3 (paperback); 0-19-874139-1 (hardback).

This book deals with the potential value and the difficulties of adopting an integrated approach to soil and vegetation systems. The factual material is focused on inputs, outputs,l and cycling of numeral nutrients, but the purpose of the book is to explore concepts and approaches, not to provide a comprehensive factual review.

All the material has been revised where necessary in the light of new information and ideas. The most significant changes are the addition of new major sections on acid rain and nutrient cycling ,and a rewriting of a chapter to simplify the models and to update the ideas and testing of models against available data.

Price: £ 8.95 (paperback) or £ 25.00 (hardback).

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

Remote Sensing for Resources Development and Environmental Management. In 3 volumes. M.C.J. Damen, G. Sicco Smit and H.Th. Verstappen, editors. A.A. Balkema, Rotterdam, Boston/Brookfield, 1986/88. Vol.1, 1986, xv + 547 p. ISBN 90-6191-675-5; Vol.2, 1986, ix + 407 p. ISBN 90-61-91-676-3; Vol.3, 1988, vi + 117 p. ISBN 90-6191-677-1. Set of 3 volumes, 1074 p. ISBN 90-6191-674-7.

This three-volume set constitutes the proceedings of the Symposium on Remote Sensing for Resources Development and Environmental Management, the 7th International Symposium of Commission VII of the International Symposium of Commission VII of the International Society of Photogrammetry and Remote Sensing. The symposium took place in Enschede, August 1986. Almost 200 papers on resources development and environmental management were presented and are enclosed in the three volumes.

Resources development is a pressing need in the first place in the developing world with rapidly growing populations: especially in Africa where food production and distribution problems are reaching dramatic proportions. The process of land development in the tropics includes an uncontrolled destruction of tropical forests at an imprecedented rate. The resulting land degradation is posing a global threat to our environment.

In the developed countries quite a different situation is now emerging, here the production of agriculture commodities is reaching the point of market saturation, new technologies continue to increase the productivity per hectare. Thus remote sensing is expected to support processes of reallocation of land from agriculture to other uses. Furthermore the social cost of the environmental pollution caused by industry and modern farming has reached levels which are no longer acceptable to the community.

Papers were presented in the following fields: Volume 1: visible and infrared data, microwave data, spectral signatures of objects, and renewable resources in rural areas. Volume 2: non-renewable resources, hydrology, human settlements, and geo-information systems. Volume 3 contains the keynote addresses, invited papers, and the conclusions and recommendations of seven working groups.

In all, the information contained in these papers gives an up-to-date picture of the state-of-affairs of the application of remote sensing for a wise development of the world's resources. The publisher succeeded in making the volumes available for a very reasonable price.

Price: Dfl 265.00 for the set.

Orders to: In the U.S.A. and Canada: A.A. Balkema Publishers, Old Post Road, Brookfield, VT 05036, U.S.A. Elsewhere: A.A. Balkema, P.O.Box 1675, 3000 BR Rotterdam, the Netherlands.

Horticultural Science, Fourth edition. J. Janick. W.H. Freeman, New York, 1986, 746 p. and 478 ill. ISBN 0-7167-1742-5. Hardbound.

Horticulture is concerned with those plants whose cultivation brings rewards, whether in the form of profits or personal pleasure, sufficient to warrant the expenditure of intensive effort. This art – which entails great skill and timing – has an ancient tradition. But modern horticulture integrates many natural phenomena with advanced technology, and so becomes a scientific discipline in its own right. The primary purpose of this textbook is to examine the scientific concepts on which horticulture is based. A comprehension of the science gives meaning and scope to the art and makes possible the improvement of centuries-old practices.

After an introductory chapter, the biology of horticulture is presented in Part I. Although horticulture is concerned with the interaction of humans and plants, plants must first be considered as part of their natural community. Part II considers the environment of the growing plant. Each chapter discusses a major component of the environment: soil, water, radiant energy in the form of light and heat, and air. Part III deals with the technology of horticulture. The progress and survival of humanity depends on our skill in managing the productivity of the plants that sustain us. Techniques will be presented as general horticultural practices, but their relation to individual crops will also be stressed. Part IV describes the industry of horticulture, analyzing individual crops and their locations. The distinguishing characteristics and special problems of the industry are emphasized. Horticultural crop species are discussed in traditional groupings, such as fruits, vegetables, and ornamentals. This well-illustrated book concludes with a discussion of the esthetics of horticulture, and a useful index.

Price: £ 34.95 in U.K.

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

Volcanic Ash and Soil. R. Hamada, K. Sakagami, a.o. editors. Hakuyusha Publ. Comp., Tokyo, 1983, 310 p.

This commemorative publication of the retirement of Prof. T. Kurobe consists of three parts: I. volcanic ash and soil; II. soil science and its interdisciplinary area; and III. reviews and literature on volcanic ash soils. The first part contains articles on engineering properties, forms of phosphorus, soil fertility, organic-inorganic complex, clay minerals, and buried humic horizons. In the second part problems in soil science of non-volcanic ash soils and interdisciplinary areas to soil science are discussed. The third part consists of reviews on six districts within Japan with volcanic ash soils and a listing of 656 references of publications on these soils, mainly since 1960. Papers are in Japanese, with extensive abstracts in English. The reference list is in English.

Price: Yen 7000.

Orders to: Hakuyusha Publ. Comp., 9, Ageba-cho, Shinjuku, Tokyo 162, Japan.

Proceedings of the First Sino-American workshop on Mountain Meteorology. E.R. Reiter, Zhu Baozhen and Qian Yongfu, editors. Science Press, Beijing and American Meteorological Society, Boston, 1984, 699 p.

The mountains of various scales on the earth can not only exert an important effect on the regional weather and climate, but also can have a significant and far-reaching effect on the weather events and general circulation on the large-scale basis. Over the years, this subject has been attacked by many meteorologists in the world. Owing to the common interest and concern, the Chinese Academy of Sciences (CAS) and National Academy of Sciences of U.S. (NAS) jointly organised a workshop on mountain meteorology which was held in Beijing.

The 31 papers in this volume highlight three important aspects involved in mountain meteorology: (1) the dynamic and thermal effects of the Tibetan Plateau and Rocky Mountains on the general circulation in the Northern Hemisphere: (2) the effects of the varied-scale topography on the occurrence and development of heavy rainfalls and local storms; and (3) the mountain valley circulation and their effects on some meteorological fields.

This volume will not only be of value to meteorologists in China and the U.S.A., but it is also useful to research workers, students, and weather forecasters, but also to those working in the fields of hydrology and geography.

Orders to: Science Press, Beijing, People's Rep. of China; *or:* American Meteorological Society, Boston, Massachusetts, U.S.A.

The Analysis of Agricultural Materials. Third edition. Min. of Agriculture, Fisheries and Food, Reference Book 427. Her Majesty's Stationary Office, London, 1986, 248 p. ISBN 0-11-242762-6. Spiral binding.

It is twelve years since the first edition of this manual was published and over this period analytical techniques have improved whilst the demand for certain analyses has changed. The second edition published four years ago reflected this change when more atomic absorption spectroscopic techniques were introduced and other methods were revised. The third edition continues this trend. Two methods have been discarded, seven new methods have been introduced and many have been modified. Most methods have been published in full. Following the trend towards multiple analyses, eighteen determinations described individually in the second edition have been condensed into four.

The manual continues the tradition established by the first edition of providing organizations involved in agricultural analysis with a standard reference book of methods. The manual brings together 78 standard methods for the analysis of soils, plants, and other agricultural materials. The described procedures are used extensively and are of proven reliability in routine operation. Analytical chemists in all organizations engaged in agricultural analysis should find this manual invaluable in their work.

Price: £ 13.00 in U.K.

Orders to: see below.

Laboratory Methods for Work with Plant and Soil Nematodes. Sixth edition. Min. of Agriculture, Fisheries and Food, Reference Book 402. J.F. Southey, editor. Her Majesty's Stationary Office, London, 1986, 202 p. ISBN 0-11-242754-5. Spiral binding.

The first edition of this book was primarily intended to meet the needs of U.K. scientists, who have to work with plant-parasitic nematodes, but it quickly became a standard work of reference for nematologist world-wide. The present sixth edition indicates the growth of the subject and development of relevant techniques since the first edition was published in 1949. Particularly new techniques, such as electron microscopy and laboratory culturing, are discussed.

Chapters on sampling for nematodes, their extraction from soil and plants, their handling, processing, mounting and measuring are followed by chapters dealing with optical microscopy, sectioning, preparation of nematodes for electron microscopy and techniques for culturing nematodes and predacious fungi. An updated bibliography of nearly 750 references and a comprehensive index are provided.

This edition has a format designed for laboratory bench use. It provides practical guide for research and extension nematologists, those operating sampling and diagnostic services for plant-infesting nematodes, and applied entomologists and plant pathologists whose work includes this group of pests.

Price: £ 12.50 in U.K.

Orders to: HMSO Publications Centre, P.O. Box 276, London SW8 5DT, England.

Glossary of Soil Science Terms. Soil Science of America, Madison, July 1987, 44 p. ISBN 0-089118-785-5.

This revision replaces the August 1984 edition and includes revisions for about 320 of the acceptable terms listed before, the addition of some 250 new terms, transfer of 50 terms to the obsolete list, and deletion of 20 terms. The present glossary has 1350 acceptable terms.

None of the terms are considered official by the SSSA. They are published in an effort to provide a foundation for common understanding in communications covering soil science.

Price: US$ 5.00 each for 1-5 copies, $ 4.75 each for 6 or more copies. Add $ 0.75 per book on all orders outside the U.S.A.

Orders to: SSSA Headquarters Office, attn. Book Order Dept., 677 South Segoe Road, Madison WI 53711, U.S.A.

A Handbook of Determinative Methods in Clay Mineralogy. M.J. Wilson, editor. Blackie, Glasgow and London, Chapman and Hall, New York, 1987, viii + 308 p. ISBN 0-216-91801-4 (UK edition), 0-412-00901-3 (USA edition). Hardbound.

This introductory yet comprehensive book on clay mineral analysis generated from the scientifically fertile grounds of the Macaulay Institute. It fills the need that all of us working in this field or its periphery feel so offer: to have at hand a practical overview of methods and techniques of mineral analysis of the clay fraction of soils, sediments and other materials. Particularly for lectures, instruction or other educational and reference purposes this book will prove to be very useful and time-saving. In addition to the description of the various techniques (including sample handling, pretreatment and detailed procedure) the interpretative value for individual mineral species occurring in the clay is given as well. The book is divided into the following chapters: 1. Introduction on clays; 2. X-ray powder diffraction methods; 3. Thermal analysis; 4. Infrared methods; 5. Scanning electron microscopy; 6. Transmission electron microscopy; 7. Chemical analysis; 8. Characterization of poorly ordered minerals by selective chemical methods; 9. Brief overview of determinative methods.

Price: £ 40.00 in U.K.

Orders to: Blackie & Son Ltd., Bishopbriggs, Glasgow G64 2NZ, U.K.; *or:* Chapman and Hall, 29 West 35th Street, New York, NY 10001-2291, U.S.A.

L.P. van Reeuwijk, Wageningen, the Netherlands.

Erosion Budgets and their Hydrological Basis. Zeitschrift für Geomorphologie/Annals of Geomorphology/ Annales de Géomorphologie Supplementband 60. H. Vogt and O. Staymaker, editors. Gebr. Borntraeger, Berlin, Stuttgart, 1986, 263 p. ISBN 3-443-21060-X (this volume. ISSN 0044-2798 (series).

This collection of papers is subdivided into the following sections: (1) theoretical and experimental design considerations (5 papers); (2) techniques of observations and measurement (5 papers); (3) sediment and erosion budget measurements programmes (8 papers); and (4) geomorphic case studies.

Price: DM 144.00

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

Antarctica: Soils, Weathering Processes and Environment. Developments in Soil Science 16. I.B. Campbell and G.G.C. Claridge. Elsevier Science Publishers, Amsterdam, Oxford, 1987, xxxviii + 368 p. ISBN 0-444-42784-8 (this volume), 0-444-40882-7 (series). Hardbound.

Antarctica is the world's fifth largest continent, with an area of approximately 14 million km. It is completely surrounded by the Southern Ocean which extends from about the 40th parallel to the Antarctic Circle at 66°, and is almost completely covered by ice to an average thickness of about 2100 m giving a volume of approximately 30 million km^3.

Since the 1950's, when soil studies were starting in Antarctica, interest in these soils has grown considerably, and New Zealand soil scientists have been particularly involved. Since 1964, the authors of the present book have worked together, investigating soils and soil processes in as many parts of Antarctica as they have been able to get to, by one means or another. they have shown how Antarctic soils vary with differing environmental conditions, how soil processes in Antarctica compare with those in other parts of the world, and how the soil provide valuable information for reconstruction of the history of Antarctica.

At the same time, many other workers have taken up studies of a pedological nature in Antarctica, and a great deal of information is now available. With the current world-wide interest in Antarctica because of its supposed potential for minerals, or alternatively, because of its very high aesthetic and environmental values, it seems timely to review the current state of soil science in Antarctica, for, as is found elsewhere in the world, land management needs to be in accordance with soil attributes.

In this book the authors have assumed that the reader has little previous knowledge of Antarctica, and sufficient background information is given to allow the Antarctic environment as it is related to soil formation to be understood. Only those features which are relevant from a soil point of view are discussed. The book is well-illustrated with black and white and colour photographs.

Price: Dfl. 220.00

Orders to: In U.S.A. and Canada: Elsevier Science Publ. Comp., P.O. Box 1663, Grand Central Station, New York, NY 10163, U.S.A. Elsewhere: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

The Ecology and Management and Management of Wetlands. Vol.1. Ecology of Wetlands, Vol.2. Management, Use and Value of Wetlands. D.D. Hook a.o., editors. Croom Helm, London and Sydney, and Timber Press, Portland, 1988. Vol.1, 592 p., ISBN 0-7099-4766-6. Vol.2, 394 p., ISBN 0-7099-4767-4. Set: ISBN 0-709904771-2. Hardbound.

Wetlands occupy an estimated 6 per cent of the world's land surface. Detailed inventories of types and location, however, are substantially incomplete and information on functions, values and status is extremely limited at the global scale.

Tropical wetlands, in particular are on the whole poorly understood and yet collectively they represent some of the most important areas of the world's remaining wetlands. Optimum utilization strategies for the wide range of global wetlands – including such diverse systems as fresh, brackish and saltwater marshes, inland and coastal swamps, floodplains, mires (all peatland types) and shallow water bodies – are generally at the earliest stages of research and development. Yet the coupling of sound management policy to the scientific understanding of how wetlands work and what goods they provide and services they perform is essential if rapidly diminishing ecosystems are to be maintained for the future.

These volumes contain the proceedings of a symposium held in Charleston in June 1986 and give a global view of wetland resources. There are stark contrasts between the developed and developing worlds in terms of the ecology and management priorities of their wetland resources. It is imperative to recognize this distinction in any assessment of the current demands on the scientific community.

Volume one covers the general ecology of wetlands. Principal subject areas addressed include how plants are adapted to waterlogged soils, plant-animal interactions, soils and geology of wetlands, hydrology and estuarine ecosystems. Volume two covers more applied topics such as agricultural use, restoration and regulation ,use for forestry, fisheries and wildlife, the development of wetlands for agriculture and evaluation methods. The volumes represent a definitive statement of the current subject and almost everyone who works with wetlands will find topics of interest in each volume. More specifically, ecologists, botanists and soil scientists as well as workers in forestry, fisheries and wildlife management will find much of value in these volumes.

Price: Set: £ 95.00 in U.K.

Orders to: Croom Helm Ltd., Provident House, Burrell Row, Beckenham, Kent BR3 1AT, England; *or:* Timber Press, 9999 SW Wilshire, Portland, OR 97225, U.S.A.

Impact of Water and External Forces on Soil Structure. Catena Supplement 11. J. Drescher, R. Horn and M. de Boodt, editors. Catena Verlag, Cremlingen, 1988, 171 p. ISBN 3-923381-11-5 (this volume). ISSN 0722-0723 (series). Hardbound.

An international group of soil scientists and civil engineers specialized in soil mechanics met in Hannover in August 1986, to discuss the working methods and experiences made by the two disciplines in research on soil fabric and soil compaction so that ways may be found for closer interdisciplinary cooperation in these important fields.

The main topics were (1) soil erosion; (2) soil compaction; and (3) reactions of the soil to loads. Eight papers and thirteen poster presentations demonstrated the present state of knowledge. It was concluded that a sufficiently broad basis exists for cooperation between soil scientists and engineers specialized in soil mechanics.

Price:

Orders to: In U.S.A. and Canada: Catena Verlag, P.O. Box 368, Lawrence, KS 66044, U.S.A. Elsewhere: Catena Verlag, Brockenblick 8, D-3302 Cremlingen, Fed. Rep. of Germany.

Groundwater Quality and Agricultural Practices. D.M. Fairchild, editor. Lewis Publishers, Chelsea, 1987. xxviii + 402 p. ISBN 0-87371-036-3.

Ground water has become a more important resource over the past decade due to increases in ground water usage and the realization that once contaminated it is difficult, expensive, and sometimes impossible to clean up. The most prevalent sources of ground water contamination are (1) waste disposal, (2) storage, transportation, and handling of commercial materials, (3) mining operations, and (4) nonpoint sources such as highway deicing and agricultural activities. The relationships between agricultural practices and ground water quality have been gaining increased attention and have not been addressed as extensively as other pollution sources. Irrigation return-flow, use of pesticides, fertilizers, and manure, changes in vegetative cover through conservation tillage, and application of waste effluents have all been known to cause changes in ground water quality.

The Environmental and Ground Water Institute (EGWI) of the U.S. recognized the need for information exchange among professional dealing with this emerging problem and a national conference was held in May 1986.

This book contains twenty-seven chapters resulting from the presentations made at the two-day conference. The meeting addressed ground water usage, agricultural chemical usage, ground water pollution sources and evaluation, and protection and management.

Price: £ 41.05 in U.K.

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

Le Manteau Kaolinitique des Plaines du Centre-sud de la Haute Volta. Dynamique et révélation avec le manteau smectitique. ORSTOM Collection Etudes et Thèses. B. Kaloga. ORSTOM, Paris, 1987, 344 p. ISBN 2-7099-0772-0 (ce volume). ISSN 0767-2888 (série).

Si les sols des régions tropicales humides ont fait l'objet de nombreuses études, on est par contre relativement moins informé sur ceux des régions semi-humides, du moins dans le domaine des recherches fondamentales, alors qu'ils ont fait l'objet de nombreux relevés cartographiques.

Le travail présenté ici a été entrepris après treize années de caractérisation et de cartographie des sols au service du développement. Il se propose, avant tout, de répondre aux préoccupations du pédologue de terrain. Sa motivation est née à la suite de l'étude pédologique au 1/200 000 des bassins versants des Voltas Blanche et Rouge en Haute Volta, de celle du Sénégal Oriental au 1/200 000 et de celle de l'ensemble de la Haute-Volta au 1/500 000, dans laquelle l'auteur s'est occupé de la Région Centre-sud.

La cartographie de ces régions s'est révélée d'une extrême complexité, et elle n'a abouti, même au 1/200 000 qu'à la différentiation d'unités cartographiques complexes (associations de deux ou plusieurs sols). Les liens entre les différentiations pédologiques apparaissent souvent mal dans ces associations qui semblemt être de simples juxtapositions de sols.

Le but de cette étude est de tenter de mieux préciser ces différentiations pour une meilleure compréhension et une meilleure utilisation de la carte pédologique: sa motivation part donc de cette dernière et ses résultats doivent y revenir. Pour cela, des toposéquences de sols ont été réalisées dans un bassin versant représentatif des problèmes qui se posent dans ces régions, le bassin versant de Basséko, également étudié par le Service Hydrologique de l'ORSTOM. Les caractéristiques morphologiques des régions étudiées imposent aux toposéquences des longueurs inhabituelles pour des études détaillées.

Le plan du mémoire est le suivant:

La première partie est consacrée au cadre de l'étude. La deuxième partie est consacrée à l'étude des toposéquences de sols dans le bassin versant de Basséko et de la toposéquence de Sakoula. La troisième partie donne les interprétations générales et tente une explication de la carte pédologique de la Région Centre-sud à partie des résultats de l'étude, ainsi qu'une comparaison de cette carte avec celles d'autres régions de Haute-Volta et d'autres pays d'Afrique Occidentale.

Commandes à: Editions de l'ORSTOM, 70 route d'Aulnay, F-93140 Bondy, France.

Micro-organisms in Action: Concepts and Applications in Microbial Ecology. J.M. Lynch and J.E. Hobbie, editors. Blackwell Scientific Publishers, Oxford, London, 1988, x + 363 p. ISBN 0-632-01653-1 (paperback); 0-632-01652-3 (hardback).

This volume si a sequel to Microbial Ecology: a Conceptual Approach, published by Blackwell in 1979, and edited by Lynch and Poole. It is an advanced undergraduate or graduate text in microbial ecology; it is selective in its subject matter, but each subject is comprehensively covered at the chosen level. The following parts are included: principles of microbial behaviour in ecosystems; micro-organisms in their natural environments; and economic microbial ecology.

The book is well-illustrated with many photographs and diagrams.

Price: £ 19.95 in U.K. (paperback)

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

Gene Banks and the World's Food. D.L. Plucknett, N.J.H. Smith, J.T. Williams and N.M. Anishetty. Princeton University Press, Princeton, 1987, 248 p. ISBN 0-691-08438-6. Hardbound.

By 2000, the world will require 60 percent more food than today. Looking to this not-so-distant future, four experts urgently point out that we must not take our supply of seeds and other planting material for granted.

Gene banks have arrived on the center stage of scientific and public-policy debates. Intense public interest in genetic engineering has raised expectations that biotechnology will unveil dramatic improvements in crop plants and domestic animals. While breakthroughs in genetic engineering are occurring with increasing speed, options for the future are being foreclosed by the erosion of one of the world's most important heritages, the genetic diversity of our crop plants and their wild relatives. On every continent and even on small island nations, crop gene banks, where seeds are kept at reduced temperature and moisture and where other plant materials are kept in test tubes or in field collections, have emerged as linchpins in the global effort to conserve as much of the gene pool of crop plants as possible and to tap this reservoir for the benefit of mankind.

This book provides a history of germplasm preservation and exchange, from botanical gardens to modern cold-storage units, and a highly readable assessment of the scientific and political ramifications of gene bank programs. Plant genetic diversity is not evenly distributed over our planet. The tropics contain the richest reservoir of plant resources, while the bulk of the capital and technology to develop these resources exists in industrial countries. This book contributes to the debate on how best to preserve some of society's most valuable raw material. Includes an up-to-date report on the stocks and locations of gene banks.

Price: US$ 35.00

Orders to: Princeton University Press, Princeton, NJ 08540, U.S.A.

Iron in Soils and Clay Minerals. NATO ASI Series C: Mathematical and Physical Sciences Vol.217. J.W. Stucki, B.A. Goodman and U. Schwertmann, editors. D. Reidel Publ. Comp., Dordrecht, Boston, 1988, xviii + 893 p. ISBN 90-277-2613-2.

Iron in soils and clay minerals was the topic of a two-weeks Nato Advanced Study Institute in 1985 in Bad Windsheim, Fed. Rep. of Germany. The present volume (and voluminous it is) is a collection of the 25 invitation authoritative papers presented at this meeting. It gives an excellent and most comprehensive account of the state of the art, dealing with the occurrence of Fe in the earth and its chemistry, both generally and in mineral environments, followed by identification and characterization methods.The properties and behaviour of Fe-oxides, Fe-bearing clay minerals, and other Fe-minerals are then described, as well as the character of Fe-organic complexes. The final part deals with the role of Fe in soil-forming processes. The monographs are well-documented: several of them with over a hundred references. A subject index is provided. Since the meeting was held, during the reviewing and editing stage, most papers have been updated with references that appeared after the meeting.

Realizing that iron compounds belong to the most prominent and influential components of soils and sediments this book will be a valuable instructive asset to anyone dealing with iron in natural environments.
Price: Dfl 325.00, US$ 149.00, £ 99.00
Orders to: In U.S.A. and Canada: Kluwer Academic Publ., 101 Philip Drive, Assinippi Park, Norwell, MA 02061, U.S.A. Elsewhere: Kluwer Academic Publ. Group, P.O. Box 322, 3300 AH Dordrecht, the Netherlands.

L.P. van Reeuwijk, Wageningen, the Netherlands

Soil Erosion & Conservation. R.P.C. Morgan. D.A. Davidson, editor. Longman Scientific and Technical, 1986, 298 p. ISBN 0-582-30158-0. Co-published in the U.S.A. with John Wiley & Sons. ISBN 0-470-20671-3.

Soil erosion is a hazard traditionally associated with agriculture in tropical and semi-arid areas, but the problem occurs in other forms of land use and in other areas of the world. Erosion control is vital if the growing demand to feed the world's population is to be met, but it is also required to minimise the pollution of rivers and lakes and to prevent the silting-up of reservoirs, irrigation canals and harbors. Clearly, the design of soil conservation strategies must be based on a thorough understanding of soil erosion processes.

In this wide-ranging text the author aims to provide that understanding. The first part of the book deals with the frequency of erosion events and the distribution of erosion; the mechanics of water and wind erosion; the processes of erosion; how erosion hazard may be assessed; the techniques used to predict erosion rates; and the methods employed to measure erosion both in the field and in laboratory experiments. In the second part, the author discusses the strategies for erosion control and examines the wide range of conservation practices under crop and vegetation management, soil management and mechanical methods. The approach he adopts is a global and interdisciplinary one: results of American research are compared with those of research conducted in Europe, Australia, South Africa and many tropical countries, and every opportunity is taken to integrate the work of agricultural engineers with that of geomorphologists and soil scientists.

This guide will be essential for undergraduate and postgraduate students studying soil erosion and conservation as part of their courses in geography, environmental science, agriculture, agricultural engineering, hydrology, soil science and civil engineering. It will also provide an introduction to the subject for those working in resources survey, soil conservation planning and rural planning, both in extension services and on research stations.
Orders to: Longman Scientific and Technical, Longman House, Burnt Mill, Harlow, Essex CM20 2EJ, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY 10158, U.S.A.

Soils. An Introduction. M.J. Singer and D.N. Nunns. Macmillan Publishing Comp., New York and Collier Macmillan Publishers, London, 1987, xix + 492 p. ISBN 0-02-410860-X. Hardbound.

This new soil science text is primarily written for those students whose major subject is not soil science, but it has sufficient depth to be a supplementary text for soil science majors and a reference for anyone interested in soil.

Soil science is changing, and the authors wanted a text that would make the current concepts easy to understand. Unnecessary jargon and obsolete concepts have been excluded.

This book is organized differently from other soil science texts. The authors begin by naming parts – mineral particles, organic matter, organisms, pores, water – and explain how they relate to one another to form soil and with plants and microbes to form an ecosystem. This complex soil body is then related to its larger environment by discussing soil origins, classification, and interpretation.

Each chapter begins with an outline and a synopsis. Further summaries of the main point appear in chapter conclusions, in summary diagrams and tables, or at the ends of sections within the chapter. Finally, each chapter has questions to encourage thought on the main points. The text has many original diagrams and pictures.
Orders to: Macmillan Publ. Comp., 866 Third Avenue, New York, NY 10022, U.S.A.; *or:* Macmillan Distribution, Houndmills, Basingstoke, Hamps RG21 2X5, U.K.

Statistics for Geoscientists. D. Marsal. Pergamon Press, Oxford, New York, 1987, x + 176 p. ISBN 0-08-026260-0 (flexicover), 0-08-026268-6 (hardcover). Translation editor D.F. Merriam.

The use of statistics is becoming more evident in geology and related earth sciences. Witness the many texts and references on the subject as well as the research papers and special meetings. Because of the importance in understanding the background of such things as sampling, distributions, significance, correlation, classification, etc., geologists need to be introduced to the subject early in their careers. This little book is intended for just that purpose.

Simple, straightforward, and concise, this book is ideal as an introduction to the subject. The first edition was published in 1967 in German and it was revised in 1979. Although there are many examples, the book is not a step-by-step cookbook on how to use statistics. Subject matter covers everything from sampling, distributions, and central tendencies through significance tests, time series, Markov chains, correlation and regression, and Fourier analysis to discriminant analysis, splines, and the analysis of variance.

The book can be used as a first approach to a difficult subject, for clarification of particular subjects, or for new ideas in applications. Although the book was published first 20 years ago, the basic tenets and mathematics have not changed, only the adaptations to the computer which have improved during this time, especially in the presentation of output.

Price: £ 15.50 or US$ 25.00 flexicover, £ 23.50 or $ 38 hardcover.

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

CWFS Crop Growth Simulation Model WOFOST. Version 4.1. C.A. Van Diepen, C. Rappoldt, J. Wolf and H. Van Keulen. Centre for World Food Studies, Amsterdam, Wageningen, 1988, 299 p. 2 floppy disks 5 1/8'.

The WOFOST model is a member of the family of crop growth simulation models based on the description of the growth process, originally developed by a research group lead by Professor C.T. de Wit in Wageningen. The WOFOST model (acronym for World Food Studies) is designed as a tool for the systematic analysis of growth and production of field crops under a wide range of weather and soil conditions. The purpose of this analysis is to assess to what extent crop production is limited by the factors light, temperature, moisture and macro-nutrients. For this purpose, three theoretical production situations are distinguished, which are hierarchically ordered as potential, water-limited and nutrient-limited crop production. The methodological aspects of the approach, as applied in the WOFOST model are comprehensively described in the textbook by Van Keulen and Wolf, published by PUDOC, Wageningen 'Modelling of agricultural production: weather, soils and crops' Simulation Monograph, 479 p. (announced in ISSS Bulletin 70, p.77).

The present documentation of WOFOST Version 4.1 describes the model in three levels of detail tuned to the interest of three types of users. Chapter I gives a short description of the program structure, the data files and auxiliary programs, with a list of variables, used in the data files. Chapter II gives a general program description for the interested user, and Chapter III a detailed program description on the basis of the FORTRAN text. In the text many references are given to other sections and literature. These chapters are followed by a list of variables used throughout the program, and listings of the FORTRAN source, and of the standard dat files. The source program and the documentation have been divided into section and subsections, resulting in an accessible, modular set up, easy for learning and referencing. Some subprograms may be suitable for inclusion in other models.

The model can be implemented on most microcomputers with a MS-DOS operating system and on VAX microcomputers.

Price: Dfl 250.00 or US$ 150.00

Orders to: Centre for World Food Studies, c/o CABO, P.O. Box 14, 6700 AA Wageningen, the Netherlands.

Sulphur in Agricultural Soils. Proceedings of the International Symposium, Dhaka, April 1986. S. Portch and Sk.G. Hussain, editors. The Bangladesh Agricultural Research Council and the Sulphur Institute, Dhaka, n.y., 519 p.

Sulphur deficiency has been recognized in Bangladesh for about ten years, but action to reduce this problem has been lagging behind need. To further knowledge in Bangladesh on the role, importance and status of sulphur in agricultural soils, a symposium was held in Dhaka, April 1986.

The present publication contains the papers given, the discussions and recommendations. The main purpose of the meeting was to highlight the importance of sulphur in Bangladesh agriculture for policy makers, researchers, extensionists, fertilizer distributors and farmers; to bring national and international scientists working in sulphur research together to discuss the present status of their research information, and to exchange findings and methodology; to use the foreign expertise to help develop recommendations for improvements in the programme in Bangladesh; and finally, to disseminate all of this information throughout the country.

Fifteen international papers covered such topics as (a) the importance of sulphur in agriculture, (b) sulphur cycling, (c) analytical methods for plant and soils, (d) fertilizer sources, (e) sulphur fertilizer marketing, (f) sulphur interactions with other nutrients, (g) soil properties that affect sulphur status, and (h) several others on sulphur research and use in various neighboring countries. National papers deal with sulphur research on specific crops on soils of Bangladesh.

Requests to: Bangladesh Agricultural Research Council, Farm Gate, Dhaka 16, Bangladesh.

The Handbook of Ecological Monitoring. R. Clarke, editor. Clarendon Press, Oxford, 1986, 298 p. ISBN 0-19-854590-8. Hardbound.

Ecological monitoring is a combination of techniques which enables data to be collected, relatively cheaply, on the life-support capacities of large areas of land. As a technique, it dates from the late 1960s when widespread concern was first expressed about many of today's current environmental problems. The United Nations Conference on the Human Environment, held in Stockholm in 1972, later recommended that the United Nations set up a global environmental monitoring system designed to provide the world's nations with the information they needed about the state of the environment.

The Global Environment Monitoring System (GEMS) has now been in existence for nearly a decade. Over the past two decades, GEMS has provided much valuable information about the state of the environment: observation networks have been set up to measure many of the parameters with which environmental scientists are today most concerned: carbon dioxide levels in the atmosphere, heavy metal pollution in rivers and oceans, ozone concentrations in the upper atmosphere, and acid rain precipitation, for example. However, the relationship between human beings and their environments extends far beyond pollution. GEMS is also involved in monitoring the climate, the marine environment, renewable resources in arid and semi-arid lands, forest cover and soil degradation; it will soon be concerned with monitoring genetic resources and food production as well.

The data assembled concern people, animals, plants and the Earth itself. They are collected in one of three main ways, each treated in one chapter of this handbook: (1) on the ground, either from fixed stations or by mobile teams of observers; (2) from the air, by human observers flying in light aircraft at very low altitude (augmented by aerial photography); and (3) from space, using information and visual images supplied by orbiting satellites such as Landsat and Spot.

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

A Farmer's Primer on Growing Cowpea on Rice Land. R.K. Pandey. International Rice Research Institute, Los Baños, 1987, 218 p. ISBN 971-104-169-3.

Cowpea can be grown either before or after a rice crop to increase food production from a land area. Cowpea enriches the soil, helps break the pest and disease cycle that occurs in continuous rice cropping, and adds to farm income. Nutritionally, cowpea complements rice, adding protein to largely starchy subsistence diets.

Grown for centuries in the tropics, cowpea is well-adapted to prevailing environmental stresses. THe corp tolerates drought and can grow on poor, even acid soils. Improved short- or medium-duration varieties from the International Institute of Tropical Agriculture (IITA) can be profitably fitted into a wide range of cropping systems as a food, fodder, or green manure crop that requires minimum inputs.

The present book explains the 'hows' and 'whys' of cowpea culture to farmers, extension worker, students, and technicians. The Primer is patterned after *A Farmer's Primer on Growing Rice*, which had been published in 33 languages by mid-1987.

Price and ordering addresses: see below.

A Farmer's Primer on Growing Soybean on Rice Land. R.K. Pandey. International Rice Research Institute, Los Baños, and International Institute of Tropical Agriculture, Ibadan. IRRI, Los Baños, 1987, 216 p. ISBN 971-104-168-5.

Soybean is a high-value, widely grown crop in temperate zones, but has been little exploited in the tropics. Yet soybean has great potential – even for small farmers with limited resources – to fit into the rice-based cropping systems that dominate so much of the agricultural area in the tropics.

To realize the full yield potential of soybean, farmers must know how the plant grows, what its critical growth stages are, and how to prevent stress at each stage. Much literature is available on soybean farming in temperate zones, but little has been published on growing soybean in the tropics.

This book is specifically written for farmers in the tropics whose productivity and income could be increased by raising soybean. The book has simple language and is highly illustrated to facilitate use by persons of low literacy.

Price: US$ 7.30 (developing countries $ 2.20), plus $ 5.00 for airmail or $ 1.00 for surface mail. Prepayment required.

Orders to: In U.S.A. and Canada: Agribookstore, 1611 North Kent Street, Arlington, VA 22209, U.S.A. Elsewhere: Communication and Publications Dept., IRRI, P.O. Box 933, Manila, the Philippines.

Physikalische Eigenschaften von Böden der Schweiz/Propriétés Physiques de quelques Sols Suisses. Band 4. F. Richard (†) and P. Lüscher. Eidg. Anstalt für das forstliche Versuchswesen, Birmensdorf, Eidg. Techn. Hochschule Zürich, 1987, 374 p. In binder.

This is the fourth volume of an interesting series on the physical characteristics of series on benchmark soil profiles in Switzerland. Six soils have been selected. The description and analyses of locality types aims at facilitating the assessment of sites for forestry purposes from the point of view of soil characteristics. Especially in the forest, where the natural deposition of both humus and mineral horizons is still largely undisturbed, the diagnostic value of such assessment for the identification and deduction of soil characteristic – decisive for plant growth – cannot be overestimated.

To date, the application of knowledge on our particular locality types to sites with similar condition of soil formation, for instance such as are typified in the various classes of the soil suitability map of Switzerland, has proved very useful. This map (1:200,000) with its detailed legend is at present the only existing large-scale soil map of Switzerland.

With the planned revised edition of Vol.1, the authors propose to present principles for the application of knowledge on particular locality types to other sites with the aid of typograms and the soil suitability map.

The determination of water balance relationships in the partially saturated root zone is important not only from the viewpoint of ecology but also from that of environmental studies. With regard to the active filtering function of root-permeated soils and also the increasing deposition and decay of anthropogenic foreign and harmful substances, the study of water retention and percolation acquires central importance. Consequently, for each locality form, the fourth section focuses on soil physical parameters.

Price: SFr. 58.00

Orders to: F. Flück-Wirth, Int. Buchhandlung für Botanik und Naturwissenschaften, CH-9053 Teufen, Switzerland.

Podzols et Podzolisation. D. Righi et A. Chauvel, éditeurs. Association Française pour l'Etude du Sol et Institut National de la Recherche Agronomique, 1987, 231 p. ISBN 2-7380-0005-3.

Ce volume contient les textes des communications présentées au cours d'une table Ronde Internationale qui s'est tenue à Poitiers les 10 et 11 avril 1986. Les articles sont essentiellement des synthèses et font le point des connaissances actuelles ayant trait aux différents aspects du processus de podzolisation: podzolisation dans le domaine intertropical, nature et dynamique des matières organiques, migrations minérales ou organo-minérales de l'aluminium, évolution des phyllosilicates, micro-structures, approches thermodynamique et expérimentale de la podzolisation, fonctionnement biogéochimique. Chacun des 16 articles est rédigé par des spécialistes français ou étrangers.

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Rationalising Research on Hedgerow Intercropping. An Overview. International Council for Research in Agroforestry, Working Paper No.40. P.A. Huxley, ICRAF, Nairobi, 1986, 151 p.

The paper discusses some of the background issues to the plant-environment interactions that affect hedgerow intercropping (alley cropping) in particular, and agroforestry in general. Putting forward various sets of conclusions that indicate where critical research problems lie.

Hedgerow intercropping is one form of zonal agroforestry in which plant residues (from the hedge) are utilized to sustain crop production. Some comparative examples from tropical agriculture research are given of the effect on crop yields of applying organic matter to the soil. The need to main a *balance* of soil available nutrients is emphasised. In many systems this has involved using some fertilizers. Relatively large and consistently-applied amounts of plant residues are usually needed in order to improve the normally-measured soil chemical and physical parameters.

A summary of three extensive reviews of tree planting in the tropics is given. These highlight the fact that continuous cropping on most tropical soils brings about 'long term' soil deterioration. Tree clearing can cause major problems, but even in the 'maximum production phase' nutrients are lost from the system. *Any* kind of cropping which removes a high proportion of the plant biomass can degrade soils. However, hedgerow intercropping in high rainfall areas (>1000 mm p.a.) and in reasonably fertile soils does, so far, appear to maintain crop yields. It is suggested that we need to know more about the 'short-term' environmental effects of using plant residues that can help bring this about if we are to be able to extend the practice to other environments. In dry regions, hedgerow intercropping may have an important function in preventing soil erosion and rainfall run-off.

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

New Journals/Nouveaux Périodiques/ Neue Zeitschrifte

Information Technology for Development. An International Journal. Published by Oxford University Press in association with Unesco and the U.K. Council for Computing Development. J. Bogod and J. Howlett, editors. ISSN 0268-1102.

This new international quarterly journal is intended to provide a medium for the presentation of practical and relevant information about the use of information technology in developing countries. The primary objective of the journal is to provide a forum in which management and information technology practitioners can share their experience in the application of information technology in developing country environments. Additionally, papers which deal with the social, political or industrial implications of IT development, or which are concerned with training issues, are welcome.

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Journal of Agricultural Ethics. Taylor & Francis, New York, Philadelphia, London. F. Hurnik and H. Lehman, editors. ISSN 0893-4282.

There is increasing concern about ethical and value issues associated with agriculture. This new journal provides a forum for discussion of the wide range of questions rising from ethical concerns in modern and future agriculture. Thoughtful work relating to ethical responsibilities of agricultural producers and professionals, moral and social assessment of technological changes influencing farmers, costs and benefits of intensive agriculture, agro-ecology, ethical concerns regarding biotechnology and gene manipulation, government intervention, professional codes of ethics, etc., would all fit within the scope.

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Soil Technology. A cooperating journal of Catena. Catena Verlag, Cremlingen. D. Gabriels, Coordinator Editorial Office. ISSN 0933-3630.

This quarterly journal is concerned with applied research and field applications on soil physics, soil mechanics, soil erosion and conservation, soil pollution and soil restoration. The majority of the articles will be published in English but original contributions in French, German or Spanish, with extended summaries in English will occasionally be considered according to the basic principles of the publisher CATENA whose name not only represents the link between different disciplines of soil science but also symbolizes the connection between scientists and technologists of different nations, different thoughts and different languages.

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ILEIA Newsletter. Information Centre for Low External Input Agriculture, Leusden. B. Haverkort, W. Hiemstra and C. Reijntjes, editors.

The March 1988 issue of the ILEIA Newsletter deals with Mountain Agriculture. The mountains are among the parts in the world which are ecologically most endangered. Most of these regions are isolated and their inhabitants are generally very poor. Cultural traditions adapted to the local environment and production for self-sufficiency strongly influence farming practices. The effects of population growth, socio-economic changes and politics in many places are forcing farmers to act in a self-destructive way. Sources of woodfuel, fodder and soil fertility are increasingly being depleted. The loss of vegetative cover from the land is provoking high rates of erosion in the mountains and destructive floods on the plains.

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Orders to: ILEIA, P.O. Box 64, 3830 AB Leusden, the Netherlands.

Journal of Production Agriculture. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison. R.G. Hoeft, editor. ISSN 0890-8524.

This new quarterly serves as a journal of interactive agriculture with an emphasis on defining and solving interdisciplinary and applied agricultural production problems. In addition to covering the agronomic sciences, the journal will report on economics, forages, pastures, animal science, range management, weed science, entomology, plant pathology, horticulture, and forestry.

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Plant Protection Quarterly. Inkata Press, North Clayton. J.J. and K.J. Lenaghan, editors. ISSN 0815-2195.

This professional covers all aspects of the protection of economic plants from weeds, pests and diseases, whether during production stages or post-harvest storage. Articles concerning the protection and ecology of vegetation on public land – railways, roadsides, parks, gardens, reserves, waterways etc. – are also included.

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Water Resources Management. An International Journal. Published for the European Committee for Water Resources Management by D. Reidel Publ. Comp., Dordrecht and Boston. G. Tsakiris, editor. ISSN 0920-4741.

This new quarterly aims to become an international multidisciplinary forum for the presentation of originations on the following areas are welcome: (1) Water resources assessment, development, conservation, and control (with emphasis on the policies and strategies); (2) Planning and design of water resource systems, and (3) Operation, maintenance, and administration of water resource systems.

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