

BULLETIN

OF THE INTERNATIONAL SOCIETY
OF SOIL SCIENCE

•

BULLETIN

DE L'ASSOCIATION INTERNATIONALE
DE LA SCIENCE DU SOL

•

MITTEILUNGEN

DER INTERNATIONALEN BODENKUNDLICHEN
GESELLSCHAFT

•

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

Office/Bureau: c/o Royal Tropical Institute, 63 Mauritskade, Amsterdam, Netherlands.

COUNCIL/CONSEIL/BEIRAT:

Executive Committee/Comité Exécutif/Verwaltungsausschuss:

- President : V. A. Kovda, Sub-Faculty of Pedology, Moscow State University, Moscow V-234.
- Vice-President : I. P. Guerasimov, Geography Institute of the Academy of Sciences of the USSR, Staromometni 29, Moscow.
- Past-President : E. G. Hallsworth, C.S.I.R.O. Division of Soils, Private Bag No. 1, Glen Osmond, South Australia.
- Secretary-General: F. A. van Baren, c/o Royal Tropical Institute, 63 Mauritskade, Amsterdam, Netherlands.

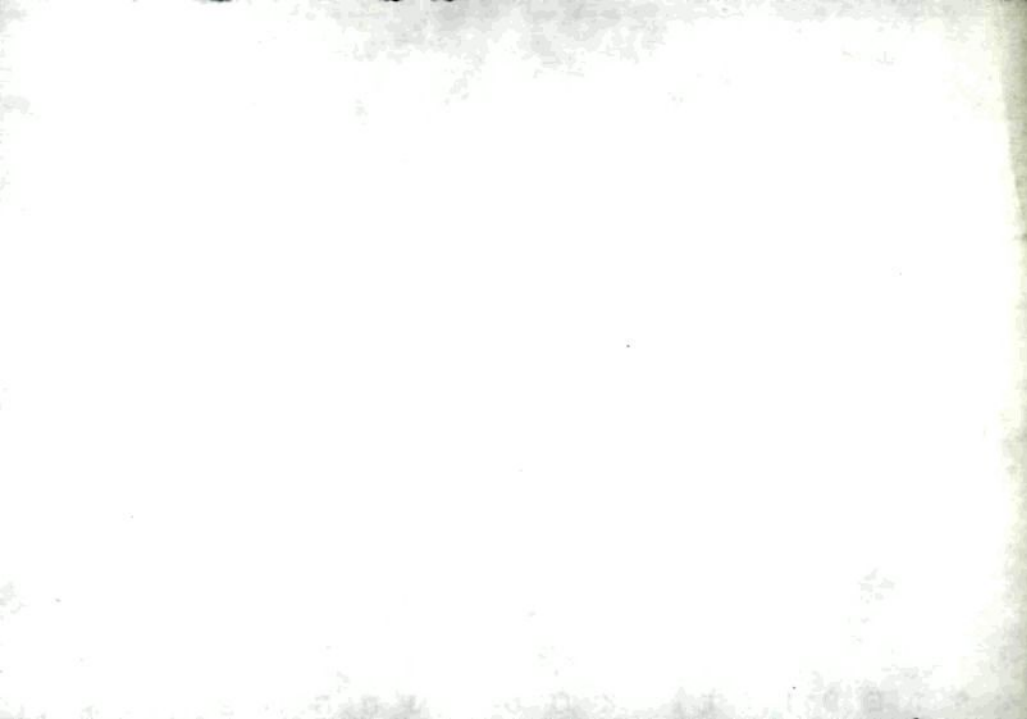
Honorary Members/Membres Honoraires/Ehrenmitglieder:

- Prof. F. Hardy, C.B.E., M.A., Dip. Agric. (Cantab), Bel Air, Circular Road, St. Augustine, Trinidad.
- Prof. Dr Dr W. L. Kubiens, Universität Hamburg, 2057 Reinbek Schloss, FRD.
- Prof. Dr Sante Mattson, Båstad, Sweden.
- Prof. Dr E. C. J. Mohr, Huize „Het Oosten", Rubenslaan 1, Bilthoven, Netherlands.
- Prof. J. A. Prescott, 82 Cross Road, Myrtle Bank, South Australia.
- Dr L. A. Richards, 4455 Fifth Street, Riverside, Cal., U.S.A.
- Prof. Dr A. A. Rode, Dokuchaev Soil Institute, Pygevski per. 7, Moscow 17, USSR.

Commissions/Commissions/Kommissionen:

- I — SOIL PHYSICS.
Chairman: W. R. Gardner, Department of Soil and Water Science, University of Wisconsin, Madison, Wisc. 53706, U.S.A.
- II — SOIL CHEMISTRY.
Chairman: H. Laudelout, Institut Agronomique, Héverlé, Belgium.
- III — SOIL BIOLOGY.
Chairman: G. Fahreus, Mikrobiologiska Institutionen, Uppsala 7, Sweden.
- IV — SOIL FERTILITY AND PLANT NUTRITION.
Chairman: O. T. Rotini, Facoltà di Chimica Agraria dell' Università degli Studi, Via S. Michele degli Scalzi 2, Pisa, Italy.
- V — SOIL GENESIS, CLASSIFICATION AND CARTOGRAPHY.
Chairman: R. Dudal, World Soil Resources Office, F.A.O., Via delle Terme Caracalla, Roma, Italy.
- VI — SOIL TECHNOLOGY.
Chairman: T. J. Marshall, C.S.I.R.O., Division of Soils, Private Mail Bag 1, Glen Osmond, S.A., Australia.
- VII — SOIL MINERALOGY.
Chairman: K. Norrish, C.S.I.R.O., Division of Soils, Private Mail Bag 1, Glen Osmond, S.A. Australia.

Š T E D I T E K O D J U G O B A N K E !



BULLETIN
OF THE INTERNATIONAL SOCIETY OF SOIL SCIENCE

BULLETIN
DE L'ASSOCIATION INTERNATIONALE DE LA SCIENCE DU SOL
MITTEILUNGEN
DER INTERNATIONALEN BODENKUNDLICHEN GESELLSCHAFT

No. 35

1969

NEWS OF THE SOCIETY

The 9th International Congress of Soil Science

Information has been received that the 9th International Soil Science Congress papers presented in French and German are now being translated into English. Copies may be obtained from the Library, C.S.I.R.O., Division of Soils, Private Bag No. 1, Glen Osmond, South Australia, 5064.

The following activities of the Society are envisaged for the coming two years.

**Joint session Commissions II and IV
Symposium on the Fertility of Tropical Soils
New Delhi, India, February 7—14, 1971**

The subjects selected are as follows:

1. Methods of evaluation of soil fertility.
2. Relation of soil test with crop response.
3. Value of soil testing kits.
4. Soil testing services.
5. Responses of various crops to fertilizers under different soils and agro-climatic conditions.
6. Residual and accumulative effect of fertilizers on soil fertility.
7. Method of evaluation of micronutrients status and responses to crops.

Pre- and after-conference tours will be organized in order to make the participants acquainted with the most urgent problems on soil fertility of the Indian Peninsula. A review of Soil and Water Research in India will be included in the programme.

At present some details are still discussed but definite information will be published in the next number of the Bulletin.

**Joint Session of Commissions I and VI
Soil-Water Physics and Technology
Rehovot, Israel, August 1971**

The Soil Science Society of Israel will host a joint session of Commissions I and VI on: "Soil-Water Physics and Technology".

The meeting will be held in Rehovot (Israel) from August 29th, 1971 to September 4th, 1971.

The topics at the meeting are:

- I. Energy relationships of water in soils.
- II. Water transport in the soil plant system.
- III. The water balance control in irrigation.

IV. Solute movement and salinity control in irrigated agriculture.

V. Microclimatic factors affecting evaporation and transpiration.

During the meeting a symposium on the subject "The control of plant physical environment for yield maximalization" will take place. The main topics of this symposium will be:

I. The optimal plant rooting environment; theory and practice.

II. Physical models for maximum crop production.

The organizers would be grateful if soil scientists, who hope to attend this meeting, would complete and return the enclosed Notice of Intent by February 15, 1970 to:

Soil Science Society of Israel
c/o Dr. S. Gairon, P.O.B. 15,
Rehovot, Israel.

Soil scientists are especially urged to indicate their willingness to contribute to the symposium.

Joint meeting of Commissions V and VI, 1971 in Germany

"Pseudogleys and Gleys - Development and Use of Hydromorphic Soils"

Stuttgart - Hohenheim, W. Germany, September 1971

The meeting will be organized by the German Society of Soil Science in September 1971 in Stuttgart - Hohenheim. It shall be focussed on soils influenced by water stagnation (impeded drainage) and ground water under humid-temperate climates. In several European countries the former are named pseudogleys and have as a diagnostic horizon a mottled or striped Bg Bo. In other countries they correspond to pseudopodzols or yellow podzolics, many planosols. In the 7th approximation these are mostly classified as aqualfs. Comparable features however appear in many other soils as well (e.g. soloths, dernopodzols, grey wooded soils, grey brown podzolics and some latosols). Amongst the ground water soils those free of salt and alkali and no longer flooded regularly are generally called gleys; diagnostic are here the oxidation and reduction horizon (Go and Gr). Ecologically the minimum factor is in both cases a temporary or permanent excess of water or air deficiency and in consequence a restricted rooting space even in soils rich in nutrients. Under the amelioration techniques therefore drainage and subsoiling are the most important ones. Under certain conditions of parent material, relief and climate it is not simple to distinguish between soils with impeded drainage and ground water soils. These differences or similarities in genesis, morphology, site conditions and amelioration are the main topics to be discussed during the conference. Since boundaries cannot be drawn sharply, contributions on processes and their consequences in similar soils are equally welcome. Though the meeting is convened by Commissions V and VI, it needs the contributions to these problems from colleagues of the Commissions I, II, III, IV and VII.

All contributions should be headable under the following topics:

1. Development of hydromorphic profile features (pedogenetical aspect).
2. Soils with impeded drainage and ground water soils as members of different soil associations (including their classification systematical-geographical aspect).
3. Soils with impeded drainage and ground water soils as historical documents (geological aspect).
4. Site properties of soils influenced by impeded drainage and ground water (ecological aspect).
5. Amelioration of soils influenced by impeded drainage and ground water (technological aspect).
6. Procedures for characterising genesis, site properties and amelioration requirements of hydromorphic soils (analytical aspect).

The conference will be completed by the following excursions:

- a) Soil associations with stagnation and ground water soils and their amelioration (special supplement to the topic of the meeting) 3 x 1 day.
- b) Soil landscapes under a humid-temperate climate (general landscape excursion), 1 week.

NOUVELLES DE L'ASSOCIATION

Session conjointe des Commissions II et IV Symposium sur la fertilité des sols tropicaux New Delhi, Indes, 7—14 février 1971

Les sujets choisis sont les suivants:

1. Méthodes d'évaluation de la fertilité des sols.
2. Relation entre analyse des sols et réponse des plantes.
3. Valeur des équipements d'analyse des sols.
4. Services d'analyse des sols.
5. Réponses des différentes cultures aux engrais appliqués sur différents sols et dans différentes conditions agro-climatiques.
6. Effet résiduel et effet d'un excès d'engrais sur la fertilité des sols.
7. Méthode d'évaluation de la situation en oligoéléments et réponse des plantes.

Des excursions seront organisées avant et après la conférence dans le but d'initier les participants aux problèmes les plus urgents concernant la fertilité des sols de la Péninsule indienne. Un compte-rendu sur la recherche sol-eau aux Indes sera inclus dans le programme.

A l'heure actuelle, certains points sont encore discutés mais une information définitive sera publiée dans le prochain numéro du Bulletin.

Session conjointe des Commissions I et VI sur „Physique de l'eau du sol et technologie” Rehovot (Israël) 9 Août—4 septembre 1971

La Société Israélienne de la Science du Sol organise une session conjointe des Commissions I et VI sur: „Physique de l'eau du sol et technologie”.

La réunion se tiendra à Rehovot (Israël) du 9 Août 1971 au 4 Septembre 1971.

Le programme de la réunion est le suivant:

1. Relations énergétiques de l'eau dans les sols.
2. Le transport de l'eau dans le système sol - plante.
3. Le maintien de l'équilibre en eau lors d'une irrigation.
4. Le mouvement des solutions et la lutte contre la salinité en agriculture irriguée.
5. Facteurs microclimatiques affectant l'évaporation et la transpiration.

Pendant la réunion, un symposium aura lieu sur le sujet suivant: „le contrôle de l'environnement physique des plantes sur la production maximale”. Les principaux sujets de ce symposium seront:

1. L'environnement optimal du système racinaire: théorie et pratique.
2. Modèles physiques pour une production maximale.

Les Organisateurs seraient très heureux si les spécialistes des sols qui espèrent assister à cette réunion voulaient bien compléter et retourner la notice de participation ci-incluse pour le 15 février 1970 à:

Société Israélienne de la Science du Sol
c/o Dr. S. Gairon
P.O.B. 15,
Rehovot, Israël

Nous demandons aux spécialistes des sols de bien vouloir montrer leur bonne volonté en contribuant à la réussite de ce symposium.

NEUES AUS DER GESELLSCHAFT

Gemeinschaftstagung der Kommissionen II und IV Symposium über „Die Fruchtbarkeit tropischer Böden“ Neu Delhi/Indien, vom 7.—14.2.1971

Folgende Tagungspunkte wurden ausgewählt:

1. Methoden der Ermittlung der Bodenfruchtbarkeit.
2. Beziehung zwischen den Bodenuntersuchungsergebnissen und den Ernteerträgen.
3. Wert der Bodenuntersuchungsverfahren.
4. Der Bodenuntersuchungs-Dienst.
5. Reaktion verschiedener Ackerkulturen auf Düngemittel bei verschiedenen Böden und bei verschiedenen agro-klimatischen Bedingungen.
6. Die Wirkung von Resten und Ansammlungen der Düngemittel auf die Bodenfruchtbarkeit.
7. Bestimmungsmethode und Wirkung von Mikro-Nährstoffen auf Ackerkulturen.

Exkursionen vor und nach der Tagung sollen dazu dienen, die Teilnehmer mit den dringendsten Problemen der Bodenfruchtbarkeit auf der indischen Halbinsel vertraut zu machen. Ein Überblick über die Forschung an Boden und Wasser in Indien soll dem Programm beigegeben werden.

Gegenwärtig werden noch einige Einzelheiten diskutiert, aber eine endgültige Mitteilung, der auch gleichzeitig die Anmeldeformulare beigelegt sind, wird in der nächsten Nummer des Bulletins erfolgen.

Gemeinschaftstagung der Kommissionen I und VI Rehovot, Israel, 29 August—4 September 1971

Die Bodenkundliche Gesellschaft von Israel beabsichtigt, eine Gemeinschaftstagung der Kommissionen I und VI abzuhalten über das Thema:

„Das Bodenwasser — Physik und Technologie“

Die Tagung soll stattfinden in Rehovot (Israel) vom 29. August bis 4. September 1971.

Die Tagungspunkte sind:

- I. Energetische Beziehungen des Wassers in Böden.
- II. Wassertransport im System „Boden-Pflanze“.
- III. Die Steuerung des Wassergleichgewichts bei Bewässerung.
- IV. Die Bewegung der Bodenlösung und die Kontrolle über den Salzgehalt in bewässerten Kulturen.
- V. Die Wirksamkeit mikroklimatischer Faktoren auf die Evaporation und die Evaporation und die Transpiration.

Während der Tagung soll ein Symposium stattfinden über „Die Beeinflussung der physikalischen Umweltbedingungen der Pflanze zwecks Erzielung von Höchst-erträgen“. Die Hauptthemen dieses Symposiums werden sein:

- I. Der optimale Wurzelraum der Pflanze: Theorie und Praxis.
- II. Physikalische Modelle für maximale Höchsterträge landwirtschaftlicher Kulturpflanzen.

Die Geschäftsführung der Tagung wäre den Bodenkundlern, die die Tagung besuchen wollen, dankbar, wenn sie die dafür gedachte beigelegte Mitteilung vervollständigen und bis zum 15.2.1970 zurücksenden würden an die

Israelische Bodenkundliche Gesellschaft
c/o Dr. S. Gairon, P.O.B. 15,
Rehovot/Israel

Den Bodenkundlern wird besonders empfohlen, ihre Bereitschaft zur Teilnahme an dem Symposium bald mitzuteilen.

**Gemeinsame Konferenz der Kommissionen V und VI
der Internationalen Bodenkundlichen Gesellschaft 1971
„Pseudogleye und Gleye - Entstehung und Nutzung hydromorpher Böden“**

Die Tagung wird von der Deutschen Bodenkundlichen Gesellschaft im Spätsommer 1971 (vorgesehen ist die 2. Septemberwoche) in Stuttgart-Hohenheim ausgerichtet. Im Mittelpunkt sollen stau- und grundwasserbeeinflusste Böden feucht-gemäßigter Klimate stehen. Die ersteren werden in mehreren europäischen Ländern als Pseudogleye bezeichnet und besitzen als diagnostischen Horizont einen marmorierten Bg. Sie entsprechen in anderen Ländern den Pseudopodsolen oder yellow podzolics, vielen Planosolen und gehören nach der 7th Approximation meist zu den Aqualfs. Vergleichbare Merkmale kommen aber auch in vielen anderen Böden vor (z.B. Solods, Dernopodsole, hellgraue Waldböden, grey brown podzolics und manche Latosole). Unter den Grundwasserböden werden die salz- und alkalifreien und nicht mehr regelmäßig überfluteten allgemein als Gleye bezeichnet; diagnostisch sind hier Oxydations- und Reduktionshorizont (Go und Gr). Ökologischer Minimumfaktor ist in beiden Fällen ein temporärer oder permanenter Wasserüberschuß bzw. Luftmangel und daher ein geringer Wurzelraum selbst auf nährstoffreichen Böden. Unter den Meliorationsmaßnahmen stehen daher Drainage und Lockerung im Vordergrund. Unter bestimmten Gesteins-, Relief- und Klimabedingungen ist die Unterscheidung von Stau- und Grundwasserböden nicht ganz einfach; diese Unterschiede oder Ähnlichkeiten in Genese, Morphologie, Standortseigenschaften und Meliorationen sollen während der Konferenz in erster Linie behandelt werden. Da die Grenzen aber nicht scharf gezogen werden können, sind Beiträge über Vorgänge und Folgen in verwandten Böden willkommen. Obwohl die Tagung von den Kommissionen V und VI veranstaltet wird, bedarf sie auch der Beiträge der Kollegen aus den Kommissionen I, II, III, IV und VII zu diesen Problemen.

Alle Beiträge sollen sich unter folgende Themen einordnen lassen:

1. Entstehung hydromorpher Profilmerkmale (pedogenetischer Aspekt).
2. Stau- und Grundwasserböden als Glieder verschiedener Bodengesellschaften (einschl. deren Klassifikation, systematisch-geographischer Aspekt).
3. Stau- und Grundwasserböden als ordgeschichtliche Urkunden (geologischer Aspekt).
4. Standortseigenschaften von Stau- und Grundwasserbeeinflussten Böden (ökologischer Aspekt).
5. Melioration von stau- und grundwasserbeeinflussten Böden (technologischer Aspekt).
6. Untersuchungsmethoden zur Charakterisierung von Genese, Standortseigenschaften und Meliorationsbedarf hydromorpher Böden (analytischer Aspekt).

Die Konferenz soll durch folgende Exkursionen ergänzt werden:

- a) Bodengesellschaften mit Stau- und Grundwasserböden sowie deren Meliorationen (spezielle Ergänzung zum Tagungsthema), ca. 3 x 1 Tag.
- b) Bodenlandschaften im gemäßigt humiden Klima (allgemeine Landschaftskunde), ca. 1 Woche.

Folgende Termine sind verabsichtigt:

Exkursion Nord- bis Süddeutschland	28.8- 4.9.1971
Südwestdeutschland	6- 7.9.1971
Tagung	8-11.9.1971
Exkursion Südwestdeutschland	13-14.9.1971
Süd- bis Norddeutschland	15-22.9.1971

Commission V

Sub-Commission on Salt Affected Soils

The Sub-Commission on Salt Affected Soils held a Symposium on the Reclamation of Sodic and Soda-Saline Soils at Yerevan, Armenian S.S.R., from 26—31 of May, 1969. 149 participants attended the meeting. Outside residents of the U.S.S.R. as the host country representatives from Australia, Belgium, Bulgaria, Canada, Czechoslovakia, France, GDR, GER, Hungary, India, Iraq, Netherlands, Peru, Portugal, Rumania, Spain, Tunisia, UAR, USA and Yugoslavia participated.

The Symposium was formally opened by Mr. H. V. Organesian, Minister of Agriculture of the Armenian SSR, and Chairman of the National Organising Committee. Delegates were welcomed by representatives of the Armenian Government, USSR Ministry of Agriculture, USSR Ministry of Melioration and Water Economy, International Society of Soil Science, UNESCO and FAO, Professor Dr. I. Szabolcs, Chairman of the Subcommission on Salt Affected Soils. Professor Dr. G. B. Petrosian, Director of the Armenian Research Institute of Soil Science and Agrochemistry addressed delegates and extended a cordial welcome on behalf of the Organizing Committee of the Symposium.

Papers

Fifty papers, most of which were available prior to the Symposium, were read in either English or Russian with concurrent translation into the second language. Broadly, the papers covered the following aspects within the general theme of reclamation and utilisation of soils of high sodium carbonate content:

- | | |
|--|-----------|
| I. General concepts of soda salinity, the effects on Soil properties and the problems of reclamation | 4 papers |
| II. Methods of reclamation and utilisation of soda-saline soils in particular areas | 26 papers |
| III. Classification, genesis and geography of saline soils in different countries | 12 papers |
| IV. Laboratory experiments and techniques | 6 papers |
| V. Specific aspects of soil drainage | 2 papers |

The presentation of papers occupied most of the time available, consequently little formal discussion was possible. However, delegates took advantage of opportunities for informal discussion on many of the aspects presented in the papers.

Excursions

A visit to the Research Institute of Soil Science and Agrochemistry demonstrated the wide field of research being carried out by the Armenian Ministry of Agriculture in the fields of soil classification and mapping, soil fertility, soil testing, clay mineralogy, soil biology and plant nutrition.

Without doubt a highlight of the Symposium was the excursion to the Reclamation Experimental Station at Yeraskhahun where large tracts of land on the Ararat Plain affected by sodium carbonate are being treated with sulphuric acid. All phases of the reclamation techniques from initial preparation of the land for ponding and subsequent irrigation to the introduction of concentrated sulphuric acid into the ponding water were demonstrated. The growth of cereals, lucerne, vines and fruit trees on soils which have been reclaimed provide visual evidence of the success of the techniques.

A full day excursion into the mountainous regions of Armenia and terminating at Lake Sevan provided contrasts in soils, agriculture and scenery. Delegates were shown, intermingled with the beautiful scenery, stony chestnut soils on steplands being utilised for fruit growing and afforestation, and fertile mountain chernozems under wheat and pastures.

J. K. M. Skene
Recorder-General for the Symposium

Resolutions and Recommendations

1. The participants of the Symposium on the Reclamation of Sodic and Soda-Saline Soils in the closing session in Yerevan, Armenian SSR, on Saturday, May 31, 1969, express their great appreciation and thanks to the Armenian Government,



Chairman Szabolcz, President Kovda and S.-G. Van Baren in earnest discussion.



Although the participants did not yet faint from the heat





The crowd at the solonchak-profile on the Yeraskhabun Reclamation Station.



it was a pleasure to relax in the shadow and enjoy Armenian hospitality in the form of a choice of food and drinks.

to the Minister of Agriculture of the USSR and, specifically, to the Minister of Agriculture of the Armenian SSR for their generous support which made it possible to hold the Second Symposium on Salt Affected Soils in the beautiful capital of Armenia.

Special thanks are due to Prof. Dr. G. P. Petrosian, Secretary General of the Organizing Committee, for the perfect organization of the conference and excursions. The participants further thank all those who contributed to the success of the meeting.

2. The participants of the Symposium highly appreciate the work carried out as regarding the theory of soda salinity, the practical solutions of problems relating to the reclamation of soda-saline soils and the development of new methods aimed at investigating such soils and affirm that significant research and practical experiments with various reclamation methods are being conducted in many parts of the world, for instance in Czechoslovakia, Hungary, Spain, India, Peru, Romania, U.A.R., U.S.A., U.S.S.R., Yugoslavia and in a number of African countries.

During the Symposium great attention was paid to the transportation of soda to the soil surface from subsoil waters. New facts relating to the origin of soda resulting from the dynamics of various processes have been established. Investigations on the effect of the various factors including the biological factor on the processes of soda formation in soils were found to be of considerable importance.

The technology of the amelioration of soda-saline soils by adding a number of chemical amendments has been elaborated and applied in practice. Great achievements in this field have been made in Armenia.

3. The Symposium recommends that the Subcommission on Salt Affected Soils of the ISSS initiate the development of an international programme on the study of the genesis and the reclamation of soda-saline soils including the investigation of soil processes leading to the alkalization, salinization or dealkalinization, desalinization of soils particularly with regard to irrigation.

To facilitate the successful achievement of the above purpose, it is expedient to standardize the methods used in soil investigations in the laboratory and/or in the field and in soil reclamation*.

4. The next Symposium should be convened not later than 1972 in view of the Tenth and Jubilee International Congress of Soil Science to be held in Moscow, USSR in 1974. The participants accepted with pleasure the provisional invitation of Prof. Dr. M. Elgabaly to convene this meeting in the UAR. (An official invitation by the Ministry of Agriculture and Agrarian Reform to hold the meeting in the UAR in December 1972 has been received.)

5. The Symposium requests the Ministry of Agriculture of the USSR and the Ministry of Agriculture of the Armenian SSR to publish the proceedings of the present Symposium with as little as possible delay in order to make the scientific results of the contributions available in a very near future. It is suggested that the date of publication be fixed at one year from now.

The Hungarian Academy of Sciences be requested to agree to publishing the results of the deliberations on the World Map of Salt Affected Soils as a Supplement to "Agrokémia és Talajtan". In this volume selected papers especially those dealing with related genetic and geographic aspects of salt affected soils, as well as a selection of papers submitted but not presented and the resolutions and recommendations should be included. This would ensure a bibliographic continuation of the publications. A committee consisting of Professors Van Baren, Kovda, Petrosian and Szabolcs should select the papers to be published in the Supplement**.

-
- * This is a shortened version of the rather detailed enumeration of the subjects to be studied as officially adopted. After consultation with Professors Kovda, Petrosian, Szabolcs and Van Baren the abbreviated text, reflecting more generally the consensus of the meeting, was preferred.
 - ** The papers have, in the meantime, been duly selected and it is expected that the Supplement to Agrokémia és Talajtan, containing the reports, will be available early 1970 (see the announcement at the back of this Bulletin).

World Map of Salt Affected Soils

Draft maps for each continent were presented to a meeting of representatives of the Subcommittee. The basis for each map was discussed and, as a consequence Dr. Szabolcs presented a brief working paper outlining some of the points requiring consideration as a prerequisite to the preparation of a unified legend and world map. It was decided that further chemical and morphological data relating to the different map units were required, and that these data should be forwarded by members of the Working Group to Dr. Szabolcs who will be responsible for integrating the systems of classification used in the various regions. A small correlating committee will meet in 1970 to examine the results before submitting them to the working group for agreement. This group will meet February 24—26, 1970 in Smolenice, Czechoslovakia.

NEWS OF THE NATIONAL SOCIETIES
NOUVELLES DES ASSOCIATIONS NATIONALES
NEUES DER GESELLSCHAFTEN DER EINZELNEN LÄNDERN

Argentine Society of Soil Science

The Argentine Society of Soil Science held its 5th annual reunion in Santa Fe from 14—19 July 1969. This meeting was sponsored by the Ministry of Agriculture and Life-stock and the School of Pedology of the Catholic University of Santa Fe, supported by the National Institute of Agrotechnics and Animal Husbandry, the Research Council, the National University of the Litoral, 150 technical papers and communications were presented, most of these dealing with subjects in the field of Plant Nutrition (Commission IV) and of Soil Genesis, Classification and Cartography (Commission V). Two Pedological tours took place in the province of Santa Fe. It was decided to hold the next meeting in Cordoba in 1971. A new board was elected:

President:	Ing. Agr. Leonardo Halperin
Vice-President:	Ing. Agr. Oscar J. Guedes
Secretary:	Ing. Agr. Eduardo A. Barreira
Ass. Secretary:	Dr. M. A. Servici de Rondini
Secretary "de actas":	Dr. Edgardo J. Pecora
Treasurer:	Dr. Carlos O. Scoppa
Ass. Treasurer:	Dr. Rolando Vargas Gil

Hungarian Society of Soil Science

The Soil Science Society of the Hungarian Society of Agricultural Sciences and the Research Institute of Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences organize a Symposium on: The Microbiological Transformation of Organic Matters Getting into the Soil.

The meeting will be held in Budapest as from 16—20 June 1970. The main topics are:

- a. The role of micro-organisms in the transformation of plant residues.
- b. The interrelation of soil microbes and pesticides.

English, Russian and Hungarian will be the working languages of the Symposium.

The preliminary programme is as follows:

June 16—18 Scientific Meetings.

June 19—20 Excursion to the College of Agriculture Keszthely, and to the University of Forestry and Timber Industry, Sopron.

The participation fee is \$ 8.— or the equivalent in other currencies. Participants will receive the proceedings of the Symposium free of charge. The overall costs of the tours amount to \$ 12.—. Hotel prices in Budapest are \$ 7.50 single, \$ 4.— double and \$ 3.— triple room with bath and breakfast. \$ 1.— is about 30 forints.

Summaries of papers not exceeding 400 words should be sent in by February 1, 1970, and the complete text not exceeding 1200 words by May 1, 1970.

Members are urgently requested to inform the Organizing Committee at their very earliest convenience of their intention to participate in this meeting. The address is:

Dr. J. Szegi
Research Institute of Soil Science
Herman Ottó-ut 15
BUDAPEST II, Hungary

Israel Society of Soil Science

At the meeting of the Association for the Advancement of Science in Israel, on April 7, 1969, the following members were elected to the new Executive Council of the Israel Society of Soil Science:

Chairman: Dr. Amos Banin

Treasurer: Dr. Bruno Yaron

Secretary: Dr. Shabtai Gairon

Members: Dr. Martin Giskin and Dr. Gideon Yaari Cohen

Portuguese Society of Soil Science

At the last meeting of the Society the following officers were elected for 1969—1972:

President: Prof. Eng^o. Rui Pinto Ricardo

Secretary: Eng^o. Manuel Rodrigues Teixeira Bessa

Treasurer: Eng^a. Maria Amélia Cândia Fragoso

Delegate to I.S.S.S.: Dr. Eng^o. J. V. J. Carvalho Cardoso

Besides other activities, in 1968 the Society held in Lisbon a Symposium on Mineral Fertilization in which 16 main topics were discussed. The final conclusions were the following:

1. It is absolutely necessary to rise crop yields to fit the increasing national needs of consumption as it is one of the main objectives of the National Plan of Development. Taking into account that the area of arable land has to be reduced due to many soil limitations, higher yields can only be reached by using better soil management techniques, including higher quantities of mineral fertilizers.
2. *One of the principal reasons why yields of cereals are comparatively low is the low rates of fertilizers used by many farmers. Fertility studies made for those crops on the main soil units of the Country have shown that it is quite possible to increase substantially such yields.*
3. Soil testing methods already devised by Portuguese Laboratories permit to advise farmers about the rational use of fertilizers on such crops and for most soil units.
4. Field and laboratory studies made for wheat, barley, rye, oats, and maize, under dry-farming conditions, furnished enough data to enable the Society to propose to official and private organizations the rules to be adopted for rational mineral fertilization.
5. In respect to irrigated crops, it was concluded that it is necessary to enlarge and intensify the studies on application of macro- and micro-nutrients, as those made until now are not sufficient.
6. Due to the morosity of the experiments with perennial crops, such as vines, fruit-trees, and forest-trees, there is not yet enough knowledge about mineral fertilization of these species. Nevertheless, some interesting results were already obtained for olive-trees, vines, eucalyptus and pine-trees.
7. Besides mineral fertilization advice, farmers are very much in need of more reliable information about crop rotations, better crop varieties, liming, organic fertilization, good tilth, control of weeds, plant diseases and insect pests, and other soil management requirements.

Soil Science Society of Ceylon

This new Society which was founded on June 28, 1969 is gladly welcomed in the International Society of Soil Science.

The following members were elected to serve on the General Committee:

President:	Dr. A. W. R. Joachim
Vice-President:	Mr. S. Kandiah
Gen. Secretary:	Prof. Dr. F. S. C. P. Kalpagé, Faculty of Agriculture, University of Ceylon, Peradeniya
Treasurer:	Dr. M. W. Thenabadu
Editor:	Dr. C. R. Panabokke
Members:	Dr. M. L. M. Salgado; Mr. C. G. Siva; Mr. D. M. Rodrigo; Dr. V. P. Bhavanandan; Mr. K. Kathirgaman; Mr. T. S. Balakrishnamurti

Soil Science Society of the German Democratic Republic

The Society held its 3rd scientific meeting on April 8 and 9, 1969 in Kühlungsborn near Rostock, DDR. The main topic was:

The foundation of most-effective agriculture and amelioration systems. Next to 4 major lectures, 33 papers were read in commission sessions. The main contributions were:

Agriculture and amelioration systems by Professor Eich and Dr. Koepke.

Part-Systems for amelioration by Professors Schwarz, Eich and Dr. Leue.

Part-Systems for fertilization by Professors Kundler, Rauhe and Drs. Ansorge and Koriath.

Part-Systems for land cultivation by Drs. Kunze and Krupp.

228 Scientists participated in the meeting.

Venezuelan Society of Soil Science

In their meeting of July 19th, the Society decided to hold a „National Congress of Soil Science” in Maracaibo, in November 1970. End 1971 or early 1972 the Sociedad Venezolana de la Ciencia del Suelo plans to organize the 4th Latin American Congress of Soil Science. As a liaison officer to I.S.S.S. was appointed:

Dr. Rafael Pinto
Instituto de Edafología
Facultad de Agronomía
Maracay, Venezuela

Any questions regarding these future activities should be addressed to Dr. Pinto. In the meantime our Venezuelan colleagues issued the first number of their own Bulletin serving as means of contact and source of information.

Yugoslav Society of Soil Science

The Yugoslav Society of Soil Science elected the following members to serve on the board:

President and Representative in ISSS:	Prof. Dr. Z. Tesic, Fac. of Agriculture, Beograd-Zemun
Vice-Presidents:	Prof. Dr. A. Konjajev, Fac. of Agriculture, Ljubljana Prof. Dr. V. Mihalic, Fac. of Agriculture, Zagreb Prof. Dr. M. Ciric, Fac. of Agriculture, Sarajevo Prof. Dr. G. Filipovski, Fac. of Agriculture, Skopje
Secretary Gen.:	Prof. Dr. D. Aleksandrovic, Fac. of Agriculture, Beograd-Zemun
Treasurer:	Dr. A. Vanjberger, Fac. of Agriculture, Beograd-Zemun

MISCELLANEOUS NEWS
INFORMATIONS DIVERSES
VERMISCHTE MITTEILUNGEN



Professor Josef Pelisek sixty years old

On August 20, 1969 Professor Josef Pelisek (M. Sc. et Dr. Techn. Sc. (Forestry), DrSc.), at present Head of the Department of Pedology and Geology, School of Forestry, Brno University of Agriculture, Brno, Czechoslovakia, celebrated his 60th birthday.

Professor Josef Pelisek ranks among our foremost pedagogues and scientists in his field. His achievements in science have gained him quite a reputation, both at home and abroad. During the period of 35 years of his pedagogical activity he has educated a number of forestry engineers — graduates from the School of Forestry and scientific workers now active either in forestry practice or in research institutes, or even as university teachers in Czechoslovakia and in some foreign countries.

Professor J. Pelisek's scientific activity has been fairly large in the fields of pedology and quarternary geology; concerning the former, he has been busy mainly with the genesis and typology of forest soils and with the dynamics of the soil-forming processes. The copious data and results of his studies on the vertical soil zonality have been summed up and published in his "Vertical Soil Zonality of Central Europe". He is the author of a national textbook for forestry students, called "The Forest Soil Science" (second edition 1964). In 1955, together with Professor J. Stejskal (Dr. Techn. Sc. et DrSc.), he compiled another national textbook for forestry students, "The Forest Geology".

Within the typological research programme for Czechoslovak forests Professor J. Pelisek cooperated for a number of years with Professor Alois Zlatník (M. Sc. et Dr. Techn. Sci., DrSc.), conducting and supervising therein the entire research relative to soil conditions. His research activities and the results obtained therefrom were utilized for lecturing in a number of universities and research institutes abroad. Moreover, Professor J. Pelisek was elected and entrusted to represent Czechoslovak science on two Soil Science Congresses organized in France and Roumania.

Concerning the sector of quarternary geology, Professor J. Pelisek devoted his interests mainly to studies on the Czechoslovak Quarternary; in this connection he was the first to publish works dealing with the Quarternary Paleopedology of Czechoslovakia.

To date, his scientific and research activities have resulted in 551 scientific communications, books and script for university students; a number of scientific reports and studies required by different authorities and agencies; further, using the results of his own research, he compiled 32 pedological maps.

Professor J. Pelisek has also been active as a member of numerous scientific societies and associations. From among these be mentioned here the International Soil Science Society, the International Commission for the Classification and Research of European Soils, the International Society for Peat Research, the International Association of Forest Research Institutes. His membership also involves numerous national scientific societies, editorial boards, etc.

For the term 1956-58 Professor J. Pelisek was elected Head (called "Dean" here) of the School of Forestry; from 1955 until cancelling the Czechoslovak Academy of Agricultural Science he was a Corresponding Member to that scientific institution.

At the age of sixty Professor J. Pelisek has maintained his mental and physical powers; you can find him fully engaged in his usual scientific and pedagogical work. On behalf of all his co-workers and pupils, both past and present, we wish him full health and much success in his further scientific activity for the years to come.

Compiled by Boris Hruska
Brno, Czechoslovakia

Irrigation Course for Scandinavian Water Specialists

A course on irrigation has been organized this summer for primarily Swedish, but also open to other Scandinavian water specialists. Scandinavian engineers, agronomists and hydrologists are becoming more and more engaged in water projects in arid regions of the world, where water for irrigation purposes plays an important role. To better prepare them for such tasks, an irrigation course of one month has been organized in Sweden, Israel and Cyprus. The course has been organized by The Institute of Technology in Stockholm in collaboration with The Volcani Institute of Agricultural Research in Israel and The Ministry of Agriculture and Natural Resources in Cyprus, and took place from 13th June to 12th July 1969. Twenty-eight persons participated. Half of the course program was composed of lectures and classroom exercises and discussions and half the program of field trips and case studies. The subjects covered were hydrometeorology, soil and crop science, irrigation technology and water resource development and management.

Working Group on Soil Micromorphology

During the Third International Working-Meeting on Soil Micromorphology held in Poland, September 22—28, 1969, it was decided to set up a Working Group to establish a generally acceptable system of classification of soil micromorphological units and features; the classification should include both the mineral and the organic constituents of soil.

The Working Group is composed as follows:

Dr. H.-J. Altemüller (Germany), Dr. R. Brewer (Australia), Dr. N. Federoff (France), Dr. A. Jongerius (the Netherlands), Prof. Dr. St. Kowalinski (Poland), Dr. G. Paneque (Spain), Prof. Dr. G. K. Rutherford (Canada) and Dr. G. Stoops (Belgium). Dr. Jongerius is in charge of the secretariat. Dr. Brewer was absent; he is invited as a member by letter.

The Group has to produce a first approximation of the new classification as soon as possible, but by the next International Working-Meeting on Soil Micromorphology at the latest. The results will be presented to the next Congress of the ISSS. The Working Group will assemble once or twice a year, every time in another of the participating countries.

The members of the Working Group sit continuously for the period between each International Working-Meeting; if a member should have to leave the Group the remaining members have to elect a new member or members. The Group has the authority to elect further members to the Group or to enlist the advise of those persons they deem necessary.

The secretary of the Working Group was instructed to discuss with the Secretary-General of the ISSS, possible future affiliations of this International Working Group to the ISSS.

Secretary of the Working Group
A. Jongerius,

A. FINCK. Pflanzenernährung in Stichworten. Verlag Ferdinand Hirt, Kiel, Germany. DM 11.80.

In this little 200 pages comprising paper-back volume 683 terms have been listed and exemplified. The material is grouped into 9 chapters. 1: General; 2: Plant nutrients in soil and plant; 3: Plant biochemistry; 4: Climatic factors and water; 5: Mineral compounds as growth factors; 6: Organic compounds as growth factors; 7: Fertilizers and the basis of fertilization; 8: Determination of plant nutrient deficiency; 9: Plant nutrient application and yield. Numerous tables and graphs illustrate the items. Proteins, minor elements, soil analysis, isotopes in agriculture, as just 4 of the 683 catch-words are dealt with. The booklet indeed offers a compact source of information on the german terminology in the wide field of plant nutrition.

D. SCHROEDER. Bodenkunde in Stichworten. Verlag Ferdinand Hirt, Kiel, Germany. DM 11.80.

This volume in the Hirt-series deals with soil science. 744 items are dealt with in 6 chapters. 1: General; 2: Soil components; 3: Soil structure elements; 4: Soil development; 5: Soil types; 6: Soil fertility. The explanations and selected examples, illustrated with graphs, drawings or tables, provide the reader with concise information re such topics as clay mineralogy, pF, classification systems, including the 7th Approximation, soil productivity evaluation etc. Undergraduate and even graduate students may find this small lexicon a very handy companion to refresh or enlarge their knowledge of german terminology and conceptions in soil science.

CH. BONNIER AND J. BRAKEL. Lutte biologique contre la faim. Editions Duculot, Gembloux, Belgique. 1969. pp. 148, graphs, tables, coloured pictures. Price: Fr. Belg. 250.—.

In this very neatly edited volume the function of leguminous plants in symbiosis with Rhizobium, to increase food production and conserving the production potentiality of the soil is very clearly exposed. It is a synthesis of problems relative to the Nitrogen-cycle in the biosphere, and more specifically in the soil, pertaining to the ecology in different biotopes notably in tropical ecosystems. It presents a thorough account on the technical part of using leguminous plants, their inoculation, the microscopic control of characteristic bacterial colonies, the conservation of selected inoculates, etc. Students in this particular field, who are familiar with the french language, will find it an easily comprehensible account of a fascinating aspect of the biological warfare against hunger.

KEILABURA KAWAGUCHI AND KAZUTAKE KYUMA. Lowland Rice Soils in Thailand. Center for Southeast Asian Studies, Kyoto University, Kyoto, Japan. 1969. Tables, coloured plates, litt. pp. 270.

The authors, who completed field studies in Thailand, Malaya, Ceylon, Cambodia, East Pakistan and the eastern part of India, present in this volume a detailed report on the rice soils of Thailand. Chapter I dealing with the physiography of the country gives climatic data, information on the nature of the soils, on the yields of rice etc. Chapter II records the general characteristics of the soils and their environments. Chapter III presents complete information on the methods of study both in the field and in the laboratory, whereas in chapter IV the locations of the sampling sites are indicated. The morphology of "Paddy Soils" is discussed in chapter V and chapters VI and VII contain data on chemical, physical and clay mineralogical characteristics. A discussion on nitrogen, phosphorus, available potassium, exchangeable calcium and magnesium, available silica and the free iron and manganese oxides is given in chapter VIII. The microbiological characteristics find treatment in chapter IX. The final chapter X deals with the rice yields as they are related to soil characteristics, with Northern Thailand as an example in case. In Appendices A - E inclusive methods, profile descriptions and detailed results of the analytical research are enumerated. All in all an excellent monograph, written by two japanese experts, which is an indispensable source of factual information for any one interested in nature and productivity of lowland paddy soils.

P. M. DRIESSEN AND T. DE MEESTER. Soils of the Çumra Area, Turkey. Agric. Res. Report No. 720. Centre for Agric. Publ. and Documentation, Wageningen, 1969. pp. 105. Photogr. Coloured Soil Map. Price Dfl. 15.—.

This report is the first of a series of five, which results from a joint dutch-turkish survey project. The area is part of the Great Konya Basin, 300 km south of Ankara, which has been an important wheat-producing region for several thousands of years. Salinity, alkalinity and fertility got special attention. Very clear photographs of profiles, classified according to the 7th Approximation of the U.S. Soil Classification illustrate the volume, whereas the equally well drawn coloured soil map 1:100,000 presents the distribution of the soils. The area is composed of different physiographic units and it was found that salinity and alkalinity were closely related to the landscape features. Here, as elsewhere salt-affection is directly connected with irrigation practices and (lack of) drainage.

J. B. HUTCHINSON. Population and food supply. Essays on human needs and agricultural prospects. Cambridge (England), University Press, 1969. VIII, 144 p. Tables. Graphs. Figs. Maps. Index. 35 refs. Price 30s net in U.K., \$ 4.95 in the U.S.A.

This book has been prepared on the basis of a course of lectures on population and food supply, given in 1966 and 1967 at the University of Cambridge. The material presented is meant to introduce the reader to the biological needs of human communities, to the biological resources by which they must be met, and to the problems of balancing the one against the other. It contains the following chapters: The problem (Thoday, J.M.); Human fertility and population growth (Parkes, A.S.); Population, food supplies and economic growth (King, R.T.F.); Catastrophes and restraints (Banks, A.L.); Man's dietary needs (Carpenter, K.J.); Available food supplies (Farmer, B.H.); Land tenure and productivity (Allan, W.); and The resources of agriculture (Hutchinson, J.B.). The population increase is considered to be the most important problem. Distribution of other countries' surpluses is an insufficient answer; the only solution will be birth control and an increase in agricultural productivity in the developing countries. The necessary leadership for the implementation of such policies must come from within the developing countries. Science may prove useful mainly in providing cheaper foods as alternatives to milk and meat which are likely to remain out of reach of the poorer people.

The number of tables is limited, giving figures on only the most important matters. The overall view is pessimistic, e.g. "it is not easy to see how even the rates of production increase achieved so far can be maintained". However, the conclusion of the last chapter referring to the production figures in 1968 and 1969 sounds more optimistic.

UNESCO. Soil Biology - Reviews of Research. Unesco's Natural Resources Research No. IX. Vaillant-Carmanne S.A., Liège, Belgium. 240 p. Price \$ 8.

This ninth volume in Unesco's Natural Resources Research Series contains reviews on 5 main topics of interest in the sphere of Soil Biology. The authors are specialists of long standing and world-reknown who have won their spurs in the domains discussed.

J. Pochon, P. Tardieux and J. d'Aguilar deal with: *Methodological problems in soil biology* (51 p.). They present an excellent, well-organized review of modern technics for sampling, isolation, counting, cultivating, observing and measuring of the activities of bacteria, moulds, algae and other members of the soil fauna. Special attention receive the N-cycle, break-down of cellulose, hemi-cellulose, amylose, pectine and chitine. Further also the functional groupings of the sulphur-, iron- and phosphorus-cycles.

E. N. Mishustin and V. K. Shilnikova contribute with the chapter: *The biological fixation of atmospheric nitrogen by free-living bacteria* (59 p.). Notwithstanding the extensive use of N-fertilizers, the supply of nitrogen by free-living and symbiotic N-fixers is of great significance, the last ones being more important than the first named. These can stabilize the yield but the level is unsatisfactory, whereas symbiotic micro-organisms do increase crop-production. This explains that even in countries with a highly developed agriculture 20—25% of the arable land is under leguminosae. Aerob Azotobacter and anaerob Clostridium get special attention. Rhizobium is treated in the next chapter.

F. E. Clark is the author of: *Ecological associations among soil micro-organisms* (37 p.). The associations are to be divided in "injurious" and "beneficial". Concepts on exploitation (predation, parasitism and lysis); suppression (antibiosis and competition); symbiosis; metabiosis; rhizosphere and rhizoplane are adequately dealt with. The dynamism of these processes is very clearly explained and illustrated with excellent photographs. Equally well treated are the methods of studying the Rhizosphere and Rhizoplane as e.g. by direct microscopic observation, it being well-known that "root-associated micro-organisms affect plant welfare".

E. G. Mulder, T. A. Lie and J. W. Woldendorp assumed responsibility for the chapter: *Biology and soil fertility* (25 p.). These authors discuss amongst others the role of micro-organisms in the N-cycle and the effect of the intern and extern factors with regard to free-living and symbiotic nitrogen-fixers. Paying due attention to possibilities of increasing N-supply, they state: "Nitrogen-fixing blue green algae may supply considerable amounts of available nitrogen to the plants especially in sawahs". Phosphorus and trace element supply, as well as the relationship soil fauna and soil structure are briefly dealt with.

M. Alexander finally treats: *Microbial degradation and biological effects of pesticides in soil* (31 p.). This chapter deals with the effect of pesticides in the soil, their break-down and their influence on micro-organisms, an aspect of modern agriculture to which up till now insufficient attention has been paid. This is an attempt to fill the gap in our knowledge and understanding of the consequences of man's intervention in microbiological life.

J. HERVIEU. Contribution à l'étude de l'alluvionnement en milieu tropical. Mémoires de l'O.R.S.T.O.M., No. 24, Paris, 1968, 465 p., fig., tabl., fotogr., bibl. Price Fr. Fr. 110 (about \$ 20).

Continental sedimentation, both recent and current, is often of geological, ecological and agronomical importance in tropical countries, which is unusual in temperate countries.

In this study, the author has researched the climatic and pedogenetic significance of the alluviation of river hydrographical basins in Madagascar. The occidental basin of the isle was particularly apt to this study both in relief and in geological variety. The force of the morphoclimatic medium in these regions, the seasonal characteristic of the floods, the relatively slight slope of the low vallies into the sedimentary coating, the extension of the continental plateau, are factors favouring as much the intensity of deposits, as the amplitude of the phenomena of accumulation and the extension of the planes at base level, which cover almost one and a half million hectares.

After introducing the natural surroundings, the factors of continental sedimentation are studied in detail: climate, hydrographical system and speed, alterations and pedogenesis, variations in the marine base level. Pedogenesis is an essential factor in the preparation of future alluvial material.

The third part studies the different sedimentation media, the characteristics of sediments and their pedogenetic evolution. The fluvio-marine medium is particularly interesting.

In the last part the author presents a qualitative balance and to some extent a quantitative survey of the alluviation, with an estimation of the potential erosion. The inheritance of detritus of the river hydrographical basins plays a fundamental role. The evolutionary tendencies of recent deposits are narrowly linked with the geomorphological site and the action of fluvio-marine layers.

The general conclusion puts this study into the form of the sedimentary history of Madagascar and shows the interest of the "alluvial question" for base and applied research.

This work opens the way for synthetical research, so useful and fruitful for neighbouring sciences such as Geology, Hydrology, Geomorphology, Pedology, Sedimentology. The sediments and soils are studied in their natural environment and the results are applicable in a vast geographical field.

This is another original French study which merits a place in the library of any one interested in the integrated approach to tropical soil science.

A. RUELLAN et J. DELETANG. Les phénomènes d'échange de cations et d'anions dans les sols. Collection „Initiations-Documentations Techniques” no. 5 O.R.S.T.O.M., Paris, 1967, 123 p., fig., tabl., bibl. Price: Fr. Fr. 30 (about \$ 5.50).

This is another valuable contribution in the ORSTOM-series Technical Initiation and Documentation.

The essential points treated in this study are the following:

- In the first part, the exchange capacity of cations is defined and the factors affecting the importance of this exchange capacity are studied. (The role of clays, organic materials, of the pH, etc.).
- In the second part, the exchangeable cations and their capacity for exchange are studied. The problems concerning the factors which govern the exchangeability of cations, the behavior of some particular ions (Al⁺⁺⁺, Fe⁺⁺⁺, Mg^{**}) are taken up in detail.

The qualitative laws and especially the quantitative ones — offered by some authors, but often, hardly applicable — are handled in the third part.

- In the fourth part the anions are studied: causes and factors determining the adsorption and the fixation of anions.
- Lastly in the fifth part, the much discussed subject of the methods of analysis is dealt with; a great number of methods proposed for the determining of S and T are presented and discussed here, methods for classic type soils but also for "hardly" soils what are calcareous soils, salty soils or soils with gypsum.

This work attempts to deal with all points of the question. It has been written to enable all specialists in soil sciences to see more clearly on this fundamental subject.

A review of all aspects pertaining to exchange phenomena in which no less than 334 references contributed to a very profound study which merits the attention of all French reading specialists.

J. BREBURDA. Kleines Lehrbuch der Bodenkunde, DLG Verlag-GmbH., Frankfurt, 112 p. Price DM 12.80.

In this little volume soil science is concisely but adequately dealt with. The pedo-ecological factors as they influence soil distribution are treated in the first part. In the second part the soil as a site for plantgrowth is discussed. This includes physical, chemical and biological properties and conditions. A great number of tables are instructive means in support of the text. The booklet is meant to be an introduction and a guide to more specialized textbooks of wider scope. It makes excellent reading for undergraduate students in soil science.

HIGHWAY RESEARCH BOARD. Effects of Temperature and Heat on Engineering Behavior of Soils, Report No. 103, 300 p. Price \$ 8 (paper cover), \$ 10 (hard cover).

One of the highlights of the Highway Research Board's 48th Annual Meeting held in Washington, D. C. last January was the International Conference on the Effects of Temperature and Heat on Engineering Behavior of Soils.

The conference, held with the support of the National Science Foundation, was convened to help make soils and foundations engineers more fully aware of the existence and importance of thermodynamics, not as a collection of equations, but as a working philosophy that can be practically applied.

The proceedings of that conference have just been published by the Highway Research Board as SPECIAL REPORT NO. 103. The new book features the 22 papers that made up the parley. Half of them were written by authors representing seven foreign countries.

SPECIAL REPORT NO. 103 is divided into three sections. Part I, "Introduction and Summaries", includes the Keynote Address and General Report. Part II, "Thermal Characteristics of Soils, Thermodynamics of Soil Systems, Fluid Flows, and Frost Action", includes the papers covered by the general reporter, moderator.

and panelists in the first session of the conference. Part III, "Temperature Effects on the Engineering Properties of Soils", includes the papers covered by the general reporter, moderator, and panelists in the second session. Descriptive forewords precede each part.

All orders and requests for information should be addressed to:

**Highway Research Board
National Academy of Sciences
2101 Constitution Avenue
Washington, D. C., U.S.A., 20418**

L. SUKLJA. Rheological Aspects of Soil Mechanics. Wiley - Interscience. London. pp. 590. Price: sh. 240.

For the agricultural engineer, the civil engineer, as well as the geologist, knowledge about the rheological behaviour of soil is indispensable for a good judgement relating to the application of soil mechanics to foundations and earth constructions.

The fundamentals of rheological properties have been studied for several decades.

In a large amount of publications, the results of these studies carried out by physicists, mathematicians, agriculturists, geologists and those dealing with theoretical soil mechanics are at one's disposal.

In the present book Professor L. Suklja of the University of Ljubljana, Yugoslavia, has given an excellent general review regarding the results of the rheological aspects of soil mechanics. Based on an experience in this field for more than three decades the author introduces in a clear and mathematical way the reader into this discipline. Attention is paid to viscosity properties of soil originating from certain rheological schemes and corresponding relations between stress, strain and time compared with experimental observations. Moreover, stress-strain-time relations are described directly from experimentally established consolidation curves.

The book is divided into six chapters viz.: A. Fundamentals given by Mechanics of Continua. B. Experimental and theoretical lateral strain. C. Experimental and theoretical fundamentals of three dimensional Consolidation Analyses. D. Application of Consolidation Analyses in the half-space and in earth structures. E. Long term stability of Slopes. F. Creep and relaxation effects on earth pressures.

For those engaged in problems relating to practical applications of soil in structures etc. the last three chapters are important.

Every one of the groups mentioned above will meet subjects on various disciplines e.g. calculation of settlements to be expected, whereby stress-strain relations of soil are taken into account, stability of slopes whereby attention is paid to long term stability, creep of natural slopes, including case-records, kinematic conditions of the magnitude of earth pressure against retaining walls, etc. The results of the tests executed in the writer's laboratory are examined. The apparatus used by these tests are not described.

Since the manuscript of the text was presented to the Editor in November 1955, publications after that date are dealt with in an appendix. An extensive list of references is inserted and a special list of publications recommended for further studies is added. The reviewer expresses his respect to the author for his efforts and perseverance to produce this book. It is hoped that many engineers interested in these fields will study it.

Ir. W. C. van Mierlo
Laboratory for Soil Mechanics, Delft

A new Journal "Soil Biology and Biochemistry"

In April 1969 Pergamon Press started a new Journal entitled Soil Biology and Biochemistry.

The editorial Committee is composed of E. W. Russell (Editor-in-Chief), J. S. Waid (Executive Editor) and the members C. A. Edwards, S. D. Garrett, F. C. W. Jones, A. Macfadyen, J. E. Satchell, D. M. Webley and R. K. S. Wood.

It is seen from the composition of this Editorial Committee that Soil Science, Soil Microbiology and Soil Zoology are represented by well known scientists and this is the case too in the Board of Regional Editors with thirteen members.

The new Journal is presented as an organ of research on soil organisms, their biochemical activities and their influence on the soil environment and plant growth. It will embrace accounts of original research on the biology, ecology and biochemistry of all forms of life that exist in the soil environment. Subjects which would be expected prominent are the biological transformations of plant nutrients in soil, soil-borne phases of plant parasites, the ecological control of soil-borne pathogens, the influence of pesticides on soil organisms, the biochemistry of pesticide decomposition in soil, microbial aspects of soil pollution, the composition of soil populations, the biochemical activities of soil organisms and the interactions of soil organisms with one another and with plants.

It may be asked whether there is need for a new soil biological Journal beside the existing ones as *Plant and Soil*, *Pedobiologia* and *Revue d'Ecologie et de Biologie du Sol*. I think this question must be answered affirmatively. The steadily increasing interest in soil biological problems gives rise to an increasing flow of publications. Of course there will be an overlap with the mentioned journals but each of them emphasizes a different topic. In *Plant and Soil* plant nutrition is specially focussed. *Pedobiologia* is mainly directed to soil zoological objects including interactions between soil fauna and soil micro-organisms. *Revue d'Ecologie et de Biologie du Sol* is specially concerned with systematics, biology and ecology of all forms of soil animals.

From the subjects summed up by the editors, it is clear that the new Journal will cover a wide field. The title promises that biochemical research will be an important subject and the first two issues prove this to be true. It is just this field of activity which is represented somewhat scarcely in the other journals. *Soil Biology and Biochemistry* is open for papers in English, French or German with a summary in English. It is well printed as may be expected from this publisher. In this Journal soil biologists will have a new source of important information.

J. van der Drift

SPECIAL OFFER TO MEMBERS ONLY

Standard Soil Color Chart

published by
Fujihira Industry Co. Ltd.
Tokyo, Japan

Official price \$ 8.— f.o.b. Tokyo

SPECIAL PRICE FOR MEMBERS ONLY
7 US-DOLLARS, POST FREE

Send your order to:
Office of the Secretary-General of the I.S.S.S.
63 Mauritskade, Amsterdam, Netherlands
Advance payment is required

**Selected Papers
of the Symposium**

ON

RECLAMATION OF SODIC AND SODA-SALINE SOILS

Yerevan, Armenian S.S.R., 1969



These papers will appear as Volume 18, Supplement to AGROKÉMIA ÉS TALATJAN, published by the Institute of Soil Science and Agrochemistry of the Hungarian Academy of Sciences, Budapest, Hungary.

Price for Members of the Society will be approximately US \$ 5.—.

