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BULLETIN

OF THE INTERNATIONAL SOCIETY
OF SOIL SCIENCE

BULLETIN

DE L'ASSOCIATION INTERNATIONALE
DE LA SCIENCE DU SOL

MITTEILUNGEN

DER INTERNATIONALEN BODENKUNDLICHEN
GESELLSCHAFT

DRUKKERIJ SYSTEMA N.V. – AMSTERDAM (HOLLAND)

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

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NEWS OF THE SOCIETY
NOUVELLES DE L'ASSOCIATION
NEUES AUS DER GESELLSCHAFT

9th International Congress of Soil Science

Would members please note that the fee for registration and attendance at the 9th International Congress of Soil Science is

for a member	40 **Australian** dollars
and	
for an associate	10 **Australian** dollars

Approximate rates of exchange have been published in the Congress brochure and the approximate equivalents of $A40 are as follows:

Neuvième congrès international de la science du sol

Les membres sont priés de noter que le prix de régistration pour et participation au 9me congrès international de la science du sol se monte à:

pour un membre	40 dollars **australiens**
et	
pour un associé	10 dollars **australiens**

Les cotes d'échange approximatives furent publiées dans la brochure du Congrès et les équivalents approximatifs de $A40 sont les suivants:

IX. Internationaler Bodenkundlicher Kongress

Den Mitgliedern wird gebeten zu notieren, dass die Gebühr für Einschreibung und Teilnahme am 9. Internationalen Bodenkundlichen Kongress betragt:

für ein Mitglied	40 **Australischen** Dollars
und	
für ein Associé	10 **Australischen** Dollars

Die approximativen Wechselkurse wurden in der Kongressbrochure publiziert und die Gegenwerte von $A40 sind ungefähr die folgenden:

Britain	£	16	New Zealand	£	16
Burma	Kyats	213.20	Pakistan	Rupees	210.20
Cambodia	Riels	1571.20	Philippines	Pesos	173.20
Canada	$	48.00	Poland	Zlotys	180.00
Ceylon	Rupees	210.00	Singapore	$	135.60
France	Francs	218.00	South Africa	Rands	31.60
Germany	Deutsche Marks	178.40	South Vietnam	Piastres	1552.00
Hungary	Forints	520.00	Spain	Pesetas	2688.00
India	Rupees	211.20	Switzerland	Francs	192.40
Italy	Lira	27760	Thailand	Bahts	935.20
Japan	Yen	16040	The Netherlands	Guilders	160.80
Lebanon	£L	134.00	United States	$	44.80
Malaysia	$	135.60	U.S.S.R.	Roubles	40.00

NEWS OF THE COMMISSIONS

NOUVELLES DES COMMISSIONS

NEUES AUS DEN KOMMISSIONEN

Commissions V and VI

First Meeting of the Sub-Commission on Salt Affected Soils

On the initiative of UNESCO a meeting of the Sub-Commission on Salt Affected Soils was convened in Budapest from October 2—5, 1967, the Hungarian Academy of Sciences acting as a host to the following participants: G. Aubert (France), C. A. Bower (USA), V. V. Egorov (USSR), M. M. Elgabaly (UAR), S. V. Govinda Rajan (India), V. V. Kovda (USSR), J. K. Skene (Australia), I. Szabolcs (Hungary) Chairman, F. A. van Baren (I.S.S.S.) and to S. Evteev (UNESCO), J. H. V. van Baren (F.A.O.) who also attended the meeting.

The Participants in the Budapest Meeting on Salt Affected Soils.

The purpose of the meeting was to discuss the programme of future activities of sub-commissions, specifically in view of the preparation of a world map of salt affected soils. This map is to be seen as a logical extension of the Soil Map of the World, FAO/UNESCO's well known project, which now is reaching the stage that a first draft of the map is expected to be ready for presentation at the occasion of the 9th International Congress of Soil Science, Adelaide, 1968. After two days of meeting the sub-commission agreed on the main directives which should serve as a guide for those specialists in salt affected soils which will accept responsibility for the construction of the map. It was clearly stated that only through cooperation on a regional basis the ultimate goal could be achieved. Measures are now being studied that the continuation of the project be assured through support of the appropriate U.N. Agencies. It was further suggested that a second meeting be convened in the Armenian SSR in May 1969 which country gracefully offered its hospitality.

A second point of general interest was discussed viz. the need for coordinating classification and laboratory research of salt affected soils. Plans are being worked out that a special meeting of a small group of experts be convened to discuss the relative problems.

Two days of excursion in salt affected areas of Hungary concluded the meeting which thanks to the fine spirit of international understanding and the expert chairmanship of Dr. I. Szabolcs, Director of the Research Institute of Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, was very succesful indeed.

The Hungarian Institute will be the Center for the co-ordination of the overall programme of activities of the Sub-Commission.

A salty discussion on saline soils between friends who differ of opinion.
Dr. Bower (U.S.A.) *Prof. Kovda (U.S.S.R.)*

Commission V

Working Group on Soil Horizon Designations

As a follow-up of a recommendation made by the Advisory Panel on the Soil Map of the World, during its session in Moscow in 1966, and endorsed by the Meeting of Commission V held in Madrid in September 1966, the International Society of Soil Science invited a panel of experts to work out a proposal for an uniform system of soil horizon designations.

This working group met at FAO Headquarters in Rome from the 19th to the 21st of September 1967. The particpation in this meeting was as follows:

Consultants

— Prof. J. Bennema (Netherlands)
— Prof. J. Boulaine (France)
— Acad. I. P. Gerassimov (USSR)
— Prof. E. Mückenhausen (Federal Republic of Germany)
— Dr. R. W. Simonson (USA)

FAO

— D. Luis Bramao, Chief, World Soil Resources Office, Land and Water Development Division
— Mr. A. J. Smyth, Soil Correlator, Soil Survey and Fertility Branch, Land and Water Development Division

UNESCO

— Dr. S. Evteev, Programme Specialist, Natural Resources Research Division, Department of Advancement of Science

ISSS

— Prof. F. A. van Baren, Secretary-General, who acted as Chairman of the meeting
— Dr. R. Dudal, Vice-Chairman of Commission V, who served as Technical Secretary

The meeting reviewed the varicus systems of soil horizon designations which are presently used in different countries and also studied several proposals which have been made in the last few years for a revision of soil horizon designations. Recognizing the fact that the traditional ABC nomenclature is used by the great majority of soil scientists, it was decided to use these traditional designations as the basis for the proposed international system. The only major innovation proposed is the introduction of symbol E to indicate the eluvial horizon as a master horizon distinct from the A horizon which is now restricted to a horizon of accumulation of organic matter at or adjacent to the surface. It was felt that this separation would be more appropriate and would permit a more logical subdivision of the master horizons by numbers and suffixes.

The first draft proposal, which aims at levelling out differences which exist between systems used in different countries, is reproduced below. A more complete report on the deliberations of the working group will be issued jointly by FAO, UNESCO and the ISSS.

Comments on the suggested soil horizon designations would be higly welcomed and can be sent to the World Soil Resources Office, FAO, Rome. These comments will be incorporated in a second draft proposal, which will be submitted for discussion and adoption to Commission V at the forthcoming International Congress of Soil Science in Australia in 1968.

Proposal for a uniform system of SOIL HORIZON DESIGNATIONS

(first draft, September 1967)

Master Horizons

O: An horizon forming the upper part of the soil, consisting of fresh and/or partly decomposed organic matter accumulated under predominantly aerobic conditions, having a minimum organic matter content of 30 percent if the mineral fraction contains more than 50 percent of clay, or 20 percent organic matter if the mineral fraction has no clay. For intermediate clay contents proportional organic matter contents are required.

A: An horizon formed or forming at or adjacent to the surface, consisting of an accumulation of humified organic matter intimately associated with the mineral fraction, having an organic matter content of less than 30 percent if the mineral fraction contains more than 50 percent of clay or less than 20 percent organic matter if the mineral fraction has no clay. For intermediate clay contents proportional organic matter contents are required*.

* It will be noted that in the definitions of the O and A horizons, both the degree of decomposition and the amount of organic matter are diagnostic. In the great majority of cases a very high organic matter content is correlative with a poor degree of decomposition but this is not necessarily so. Therefore, accumulations of more than 20 or 30 percent (depending on the textural variation as specified above) of humified organic matter or accumulations of less than 20 or 30 percent (depending on the textural variation as specified above) poorly decomposed organic matter will still be grouped with the A horizon.

E: An horizon underlying the O or A horizon (if present), having a lower content of organic matter and/or sesquioxides and/or clay, than the immediately underlying horizon, usually reflected by a pale colour and a relative accumulation of quartz and/or other resistant minerals of sand or silt sizes.

B: An horizon, lying between the A or E horizons (if present) and the C, G or R horizons (if present), in which rock structure is obliterated or is but faintly evident, characterised by a concentration of silicate clay (by illuviation or alteration), sesquioxides (by illuviation or residual accumulation), or organic matter (by illuviation), alone or in combination. (The B horizon may show accumulations of calcium or magnesium carbonate, gypsum or other more soluble salts.)

C: An horizon consisting of unconsolidated material which does not show properties diagnostic of the other master horizons. (The C horizon may show accumulations of calcium or magnesium carbonate, gypsum or other more-soluble salts.)

G*: An horizon showing features of strong reduction under anaerobic conditions usually of bluish, greenish or greyish colour** showing no properties diagnostic of the A, E or B horizons.

R: Consolidated bedrock.

Transitional Horizons

Horizons which are transitional between two master horizons are indicated by both capital letters of the master horizons concerned (for instance AE, EB, BE, BC), the first letter marking the master horizon to which the transitional horizon is more alike. The order of the letters indicates the dominant properties of the transitional horizon (for instance AB or BA). Mixed horizons are indicated by both capital letters of the master horizons concerned but separated by a diagonal stroke (for instance E/B, B/C). It is to be noted that transitional horizons are no longer marked by figures as it has been done so far.

Sub-horizons

The sub-division of master and transitional horizons is noted by numerals in continuous sequence. These numerals merely indicate differences which can be observed and recorded in a profile description (for instance A1, A2, A3, EB1, EB2, B1, B2, BC1, BC2).

In addition to the numerical sub-division, an interpretative suffix letter, having a genetic implication, may be added to the horizon designation. The suffix letters should be used only if there is sufficient evidence for the implied interpretation. The suffix follows the numerical notation (for instance, A1a, A2a, B1t, B2t, B3t, C1, C2ca); if the horizon is not sub-divided by numerals the suffix letter may be used immediately following the capital letter (for instance, Aa, Bt, Cca).

Lithological Discontinuities

When it is necessary to number layers of contrasting materials, Roman numerals are pre-fixed to the horizon designations concerned (for instance, when the C horizon is different from the material in which the soil is presumed to have formed the following soil sequence could be given: A, B, IIC). The same notation can be applied when different materials are recognised within the C horizon (for instance, IC, IIC, IIIC).

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* Reservations have been expressed as to the desirability of defining a G horizon as a master horizon. As the definition now reads, G stands for an horizon in which no soil development has taken place apart from strong reduction. However strongly reduced horizons may also show properties of B horizons in which case they would be excluded from the G designation. An alternative proposal is to introduce two degrees of wetness to be marked by suffix letters: "g" for horizons marked by strong mottling reflecting wetness, and "gg" for horizons that are very wet and have colours reflecting strong reduction (for instance Cg and Cgg; Bg or Bgg; it is to be noted that Cgg would replace G as defined above).

** The colour characteristics do not apply in the case of materials which remain brown or red under reducing conditions.

Proposed suffixes

a: (from Germ. Anmoor, peaty) well decomposed organic matter accumulated under hydromorphic conditions; used with the A horizon (for instance Aa).

b: buried; applied to buried horizons (for instance, A1b; Bt, b).

ca: accumulation of calcium carbonate (for instance, Cca).

cn: accumulation of concretions or hard non-concretionary nodules enriched in sesquioxides (for instance, B2ox, cn).

cs: accumulation of calcium sulphate (for instance, Ccs).

f: fermented, partly decomposed organic matter; applied to the O horizon (for instance, Of).

fe: illuvial accumulation of iron; applied to the B horizon of Podzols (for instance, B2fe).

g: strong mottling reflecting variations in oxidation and reduction as a result of periodical wetness (for instance, B2t, g; Cg).
(See also note made with reference to the G horizon.)

h: humified, well decomposed organic matter; applied to:

1) the lower part of the O horizon (for instance, Oh).
2) an undisturbed A horizon (for instance, Ah).
3) the illuvial accumulation of organic matter in the B horizon of Podzols (for instance B1h) or in B horizons formed in peat (for instance, Bo, h).

l: litter; applied to the upper part of the O horizon (for instance O1).

m: strong cementation or induration (for instance, Bt, m).

na: high percentage of sodium in the exchange complex; applied to the B horizon of Solonetz soils (for instance, Bt, na).

o: poorly decomposed organic material accumulated under hydromorphic conditions; applied to peats (for instance, Co).

ox: residual accumulation of sesquioxides; applied to the B horizon of Latosols (or Ferralitic soils or Oxisols (for instance, Box).

p: disturbed by plowing or other tillage practices; applied to the A horizon (for instance, A1p).

r: concretionary or gravelly layers (for instance, Box, r).

sa: accumulation of salts more soluble than gypsum (for instance, Bsa, Csa).

t: (from Germ. Ton, clay) illuvial accumulation of clay; applied to B horizons (for instance Bt).

v: (from Germ. Verwitterung, weathering) accumulation of clay by alteration in situ (for instance, Bv).

x: fragipan (for instance, Bx, Bvx, Btx).

Complementary remarks.

Since the preparation of the above text the Office in Rome has received the following suggestions:

(i) to change the suffix **v** (as in Bv) into **s** (f.i.Bs). The reason for this suggestion is that the French pedologists already use the v-suffix for their vertic subgroups. The **s** refers to structure and the new definition would read:

s: (from structure) accumulation of clay by alteration in situ, generally accompanied by the development of soil structure (for instance Bs).

(ii) the possible introduction of a K horizon as a master horizon should be considered. A final decision as to its adoption is to be subjected to the comments which will be received to this proposal.

The definition of the K horizon, after I. H. Gile, F. F. Peterson and R. B. Grossman (Soil Science, Vol. 99, No. 2, 1965), would read as follows:

K: An horizon showing a prominent accumulation of fine-grained authigenic carbonates ($CaCO_3$ and $MgCO_3$ equivalents in percent) which coats or engulfs skeletal pebbles, sand and silt grains as an essentially continuous medium.

The designation K2 for carbonate horizons of 90 percent or more by volume of K fabric and K1 and K3 for upper and lower transitional horizons containing 50 percent or more of K fabric, as proposed by the authors, could in the present outline be designated as K, for the maximal accumulation of carbonates, while the transitional horizons could be indicated by two capital letters combining K with the symbol of the adjacent master horizon, e.g. KA, KB, KC. Indurated (petrocalcic) horizons would be marked with the suffix m. Other soil horizons containing carbonate accumulations which do not have the properties of the K horizon would be noted by the ca suffix in combination with the symbol of the appropriate master horizon, e.g. Cca or Bca.

Groupe de travail sur la nomenclature des horizons du sol

Comme suite à une recommandation faite par le comité consultatif de la carte des sols du monde durant sa session de Moscou en 1966 et renouvelée par la réunion de la commission V tenue à Madrid en septembre 1966, la Société Internationale de la science du sol a invité un groupe d'experts à mettre au point une proposition pour un système international de désignation des horizons du sol.

Ce groupe de travail s'est réuni au siège de la F.A.O. à Rome du 19 au 21 septembre 1967. Les participants de cette réunion étaient les suivants:

Consultants

— *Prof. J. BENNEMA (Pays-Bas)*
— Prof. J. BOULAINE (France)
— Acad. I. P. GERASSIMOV (U.R.S.S.)
— Prof. E. MUCKENHAUSEN (Rép. Féd. Allemande)
— Dr. R. W. SIMONSON (U.S.A.)

F.A.O.

— D. Luis BRAMAO, Chef du bureau des ressources en sol du monde, division du développement des terres et des eaux.
— Mr. A. J. SMYTH, Correlateur de sols, section d'étude des sols et de la fertilité, division du développement des terres et des eaux.

U.N.E.S.C.O.

— Dr. S. EVTEEV, Spécialiste, division de la recherche sur les ressources naturelles, département de l'avancement de la Science.

I.S.S.S.

— Prof. F. A. VAN BAREN, Secrétaire Général, qui a présidé la réunion.
— Dr. R. DUDAL, Vice Président de la commission V, qui a assuré le secrétariat technique de la réunion.

Le groupe a passé en revue les différents systèmes de nomenclature des horizons des sols qui sont actuellement en usage dans différents pays. Il a aussi étudié plusieurs propositions qui ont été faites dans les dernières années pour remplacer les nomenclatures des horizons. Après avoir reconnu que la nomenclature traditionelle ABC était utilisée par la grande majorité des pédologues, il a été décidé de prendre cette nomenclature traditionnelle pour base d'une proposition d'un système international.

La seule innovation majeure proposée est l'introduction du symbole E pour désigner l'horizon éluvial. Celui-ci est conçu comme un horizon majeur distinct de l'horizon A qui est maintenant défini comme un horizon d'accumulation de matière organique et adjacent à la surface. On a pensé que cette séparation était plus logique et permettait une subdivision plus aisée des horizons majeurs par des nombres et des suffixes.

Le premier essai de proposition, qui vise à niveller les différences qui existent entre les systèmes pratiqués dans les différents pays, est reproduit ci-après. Un rapport plus complet des délibérations du groupe de travail doit être publié conjointement par la F.A.O., l'U.N.E.S.C.O., et l'I.S.S.S.

Des commentaires sur la nomenclature proposée seront accueillis avec reconnaissance et peuvent être envoyés au bureau des ressources en sols du monde, F.A.O., ROME.

Ces commentaires seront incorporés au second essai qui sera soumis pour discussion et adoption à la commission V au prochain congrès international de la Science du Sol en Australie en 1968.

Projet de nomenclature uniforme des HORIZONS DU SOL

(Premier projet, september 1967)

Horizons majeurs

O: Horizon formant la partie supérieure du sol, consistant en matière organique fraîche et/ou partiellement décomposée accumulée dans des conditions d'aérobiose prédominante, et ayant une teneur en matière organique d'au moins trente pour cent si la fraction minérale contient plus de cinquante pour cent d'argile, ou d'au moins vingt pour cent si la fraction minérale ne contient pas d'argile. Pour les teneurs en argile intermédiaires, les taux de matière organique doivent être proportionnels.

A: Horizon formé ou en voie de formation à la surface du sol ou immédiatement en dessous, consistant en une accumulation de matière organique humifiée intimement associée à la fraction minérale, et ayant une teneur en matière organique de moins de trente pour cent si la fraction minérale contient plus de cinquante pour cent d'argile: ou de moins de 20% si la fraction minérale ne contient pas d'argile. Pour les teneurs en argile intermédiaires, les taux de matière organique doivent être proportionnels (*)

E: Horizon sous-jacent aux horizons O ou A (si ceux-ci sont présents) et ayant un taux de matière organique et/ ou de sesquioxydes et/ ou d'argile plus faible que l'horizon immédiatement sous-jacent, ce qui se traduit habituellement par une couleur pâle et une accumulation relative de quartz et / ou d'autres minéraux inaltérables de la granulométrie des sables et des limons.

B: Horizon compris entre les horizons A ou E (s'ils existent) et les horizons C, G ou R (s'ils existent), dans lequel la structure de la roche n'est plus visible, et caractérisé par une concentration en argile silicatée (par illuviation ou altération), en sesquioxydes (par illuviation ou accumulation résiduelle), ou en matière organique (par illuviation), seuls ou en combinaisons. L'horizon B peut présenter des accumulations de Carbonate de Calcium ou de Magnésium, de gypse, ou de sels plus solubles).

C: Horizon formé matériaux non consolidés, et qui ne présente pas de caractères distinctifs des autres horizons majeurs. (L'horizon C peut présenter des accumulations de carbonate de Calcium ou de Magnésium, de gypse, ou de sels plus solubles).

G:** Horizon présentant des caractères de forte réduction dans des conditions d'anaérobiose, habituellement de couleur (***) verdâtre ou grisâtre, et ne présentant aucune propriété caractéristique des horizons A, E ou B.

R: Roche sous-jacente consolidée.

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* — Il faut remarquer que dans les définitions des horizons O et A la composition et la quantité de la matière organique sont tous les deux des critères. Dans la grande majorité des cas, un très fort taux de matière organique est lié à un faible degré de décomposition, mais ce n'est pas une règle générale.
Toutefois, des accumulations de plus de trente pour cent de matière organique humifiée ou de moins de trente pour cent de matière organique faiblement décomposée seront considérées comme définissant toutes deux des horizons A.

** Des réserves ont été exprimées quant à l'opportunité de distinguer un horizon G comme horizon majeur. La définition, telle qu'elle est formulée à présent, couvre un horizon dans lequel aucun développement pédologique en dehors d'une forte réduction n'a eu lieu. Par conséquent, certains horizons fortement réduits qui présentent des caractères de l'horizon B en sont exclus. Une alternative serait d'introduire deux degrés d'engorgement d'eau, désignés par le suffixe "g" pour les horizons bigarrés montrant un engorgement temporaire, et "gg" pour des horizons fortement réduits montrant un engorgement prolongé (par exemple: Cg ou Cgg; Bg ou Bgg; à noter que dans ce cas Cgg remplacerait le symbole G).

*** — Les caractéristiques de couleur ne s'appliquent pas dans le cas de matériaux qui restent bruns ou rouges dans des conditions réductrices.

Horizons de transition

Les horizons qui assurent une transition entre deux horizons majeurs sont indiquées par deux lettres majuscules désignant les deux horizons majeurs concernés. L'ordre des lettres indique les caractères dominants de l'horizon de transition (par exemple: AB ou BA). Les horizons de mélange sont indiqués par les deux lettres majuscules désignant les deux horizons majeurs concernés, mais séparées par un trait oblique (par exemple: A / B).

Sous — Horizons

La subdivision des horizons majeurs ou de transition est notée par des chiffres dans l'ordre numérique. Ces chiffres indiquent simplement les différences qui peuvent être observées et enregistrées dans une description de profil (par exemple: O, A1, A2, A3, AB1, AB2, B1, B3, BC).

En plus de la subdivision numérique, une lettre en indice ayant une signification génétique peut être ajoutée à la désignation de l'horizon. La lettre en indice ne doit être utilisée que si l'évidence de l'interprétation impliquée est suffisante. L'indice suit la notation numérique (par exemple: A1a, A2a, B1t, B2t, B3t, C1, C2, C3); si l'horizon n'est pas subdivisé par des chiffres, la lettre en indice peut suivre immédiatement la lettre majuscule (par exemple: Aa, Bt, Cos).

Discontinuités Lithologiques

Lorsqu'il est nécessaire de numéroter des couches de matériaux différents, des chiffres romains sont placés en avant des designations des horizons concernés (Par exemple, quand on estime que l'horizon C est différent du matériau dans lequel on présume que le sol s'est formé, on peut noter la séquence suivante: A, B, IIC. La même notation peut être appliquée lorsque des matériaux différents peuvent être distingués à l'intérieur de l'horizon C (par exemple: C, IIC, IIIC).

Lettres à utiliser en indice

a: (de l'allemand Anmoor). Matière organique bien décomposée dans des conditions d'hydromorphie; est utilisé avec l'horizon A (par exemple: Aa).

b: (de l'Anglais buried). S'applique aux horizons ensevelis (par exemple: A1b, Bt, b).

ca: accumulation de carbonate de Calcium (par exemple: Cca).

cs: accumulation de sulfate de Calcium (par exemple: Ccs).

cn: accumulation de concrétions ou de nodules durs enrichis en sesquioxydes (par exemple: B2 ox, cn).

f: matière organique fermentée; s'applique à l'horizon O (par exemple: Of).

fe: accumulation illuviale de Fer; s'applique à l'horizon B spodique (par exemple: B2 fe).

g: forte bigarrure indiquant des variations des conditions d'oxydation et de réduction dues à un engorgement d'eau temporaire (par exemple: B2t, g; Cg).

h: matière organique humifiée, bien décomposée; s'applique à:

1) le bas de l'horizon O (par exemple Oh)
2) un horizon A non perturbé (par exemple Ah)
3) l'accumulation illuviale de matière organique dans l'horizon B spodique (par exemple: B1, h), ou dans les horizons B formés dans la tourbe (par exemple: Bo, h).

l: (de l'anglais litter: litière). S'applique à la partie supérieure de l'horizon O (par exemple O1).

m: forte cimentation ou consolidation (par exemple: Bt, m).

o: débris végétaux peu décomposés accumulés dans des conditions d'hydromorphie; s'applique aux tourbes (par exemple: Co).

ox: accumulation résiduelle de sesquioxydes; s'applique à l'horizon B oxique (par exemple Box).

p: (de l'anglais plowing). Perturbé par le labour ou toute autre pratique culturale. S'applique à l'horizon A (par exemple A 1p).

pl: changement brusque de texture; s'applique à l'horizon B planique (par exemple: Bt, pl).

r: couches de concrétions ou de graviers (par exemple: Box, r pour les alignements de cailloux dans les Latosols).

sa: accumulation de sels plus solubles que le Gypse (par exemple Bsa, Csa).

sn: forte proportion de sodium échangeable dans le complexe absorbant. S'applique à l'horizon B natrique (par exemple Bt, sn).

t: (de l'Allemand Ton: argile). Accumulation illuviale d'argile. S'applique à l'horizon B argilique (par exemple Bt).

v: (de l'Allemand Verwitterung). Accumulation d'argile provenant d'une altération in situ. S'applique à l'horizon B cambique (par exemple: Bv).

x: fragipan (par exemple Bx, Bvx, Btx).

Considérations additionelles

Après la préparation du texte présenté ci-dessus le bureau de Rome a reçu les suggestions suivantes:

(i) changer le suffix **v** (comme dans cBv) en **s** (par exemple Bs). La justification de cette proposition se trouve dans l'emploi par certain pédoloques (notannemt en france) du suffix v pour les sous-horizons vertiques. La notion s rapelle le perme structure et la nouvelle définition se présenterait comme suit:

s. (de structure). Accumulation d'argile provenant d'une altération in situ, généralement accompagnée d'un développement de la structure (par exemple: Bs).

(ii) L'introduction éventuelle d'un horizon K comme horizon majeur doit être considérée. Une décision quant à son adoption sera prise à la lumière des suggestions reçues.

La définition de l'horizon K, basée sur les travaux de I. H. Gile, F. F. Peterson et R. B. Grossman (Soil Science, Vol. 99, No 2, 1965), pourrait être formulée comme suit:

K: Horizon présentant une forte accumulation de carbonates authigènes fins (exprimée en équivalent de $CaCO_3$) qui enrobe des débris caillouteux, des grains de sable ou de limon ou en imprègne la masse d'une façon pratiquement continue.

Les mêmes auteurs proposent la subdivision de cet horizon en K1, K2, K3. Dans ce cas, K2 désigne un horizon à carbonates où 90 pour cent, au moins, du volume présente un "assemblage K", tel que défini ci-dessus. K1 et K3 désignent les horizons de transition, supérieurs ou inférieurs, où ce même type d'assemblage n'affecte que 50 à 90 pour cent du volume. Dans le présent schéma, nous proposons de représenter par K l'horizon à carbonates de développement maximum et de combiner, pour les horizons de transition, la lettre K avec le symbole de l'horizon majeur adjacent (par exemple: KA, KB, KC). Les horizons K indurés (croûtes, horizons "pétrocalciques" pourraient être marqués par le suffixe m. D'autres horizons d'accumulation de carbonate, ne présentant pas les caractéres de l'horizon K, seraient indiqués par le suffixe ca combiné au symbole de l'horizon majeur approprié (par exemple Cca, Bca).

Arbeitsgruppe für Bodenhorizont-Bezeichnungen

Einer Empfehlung folgend, die der beratende Ausschuß für die Weltbodenkarte während seiner Sitzung in Moskau 1966 unterbreitet hat, und die bei der Tagung der Kommission V der I.S.S.S. in Madrid im September 1966 wiederholt wurde, hat die Internationale Bodenkundliche Gesellschaft einen Expertenausschuß eingeladen, einen Vorschlag für ein einheitliches System von Bodenhorizont-Bezeichnungen auszuarbeiten.

Diese Arbeitsgruppe tagte im FAO-Hauptquartier in Rom von 19. bis zum 21. September 1967. Die Teilnahme an dieser Tagung war wie folgt:

Berater

— Prof. J. Bennema (Niederlande)
— Prof. J. Boulaine (Frankreich)
— Acad. I. P. Gerassimov (UdSSR)
— Prof. E. Mückenhausen (Bundesrepublik Deutschland)
— Dr. R. W. Simonson (USA)

FAO

— D. Luis Bramao, Leiter, Amt für die Bodenreserven der Erde, Abteilung für Land- und Wasser-Erschließung.
— Mr. A. J. Smyth, Boden-Korrelator, Unterabteilung Bodenkartierung und -fruchtbarkeit, Abteilung Land- und Wassererschliessung.

UNESCO

— Dr. S. Evteev, Programmspezialist, Abteilung zur Erforschung der natürlichen Hilfsquellen, Department für die Fortschritte der Wissenschaft.

ISSS

— Prof. F. A. van Baren, Generalsekretär, der als Vorsitzender der Tagung wirkte.
— Dr. R. Dudal, stellvertretender Vorsitzender der Kommission V, der als technischer Sekretär fungierte.

Die Tagungsteilnehmer prüften die verschiedenen Systeme von Bodenhorizont-Bezeichnungen, die gegenwärtig in verschiedenen Ländern gebraucht werden und diskutierten auch verschiedene Vorschläge, die in den letzten Jahren für eine Revision der Bodenhorizont-Bezeichnungen gemacht wurden. Die Tatsache anerkennend, daß die traditionelle ABC-Nomenklatur von der großen Mehrheit der Bodenkundler benutzt wird, wurde entschieden, diese traditionellen Bezeichnungen als Grundlage für das vorzuschlagende internationale System zu benutzen. Die einzige größere vorgeschlagene Neuerung ist die Einführung des Symbols E zur Kennzeichnung des Eluvial-Horizontes als eines vom A-Horizont zu unterscheidenden Haupthorizontes, wobei nun jener mehr eingeschränkt ist auf einen Horizont mit Ansammlung organischer Substanz, an der Oberfläche liegend oder an diese grenzend. Es bestand der Eindruck, daß diese Trennung passender wäre und eine logischere Unterteilung der Haupthorizonte durch Nummern und Zusatz-Buchstaben erlauben würde.

Der erste Entwurf des Vorschlages, der auf das Ausgleichen der Unterschiede abzielte, die zwischen den in verschiedenen Ländern gebräuchlichen Systemen bestehen, ist unten wiedergegeben. Ein vollständigerer Bericht von den Beratungen der Arbeitsgruppe wird gemeinsam von der FAO, UNESCO und der ISSS herausgebracht werden.

Stellungnahmen zu den vorgeschlagenen Bodenhorizont-Bezeichnungen sind sehr willkommen und können an das World Soil Resources Office, FAO, Rom, gesandt werden. Diese Stellungnahmen sollen in einen zweiten Entwurf des Vorschlages eingearbeitet werden, welcher der Kommission V auf dem bevorstehenden Internationalen Bodenkundlichen Kongreß in Australien 1968 zur Diskussion und Annahme vorgelegt werden soll.

Vorschlag für ein einheitliches System der BODENHORIZONT — BEZEICHNUNGEN

(Erster Entwurf, September 1967)

Haupthorizonte

O: Ein Horizont, der den obersten Teil des Bodens bildet, bestehend aus frischer und/oder teilweise zersetzter organischer Substanz, die sich unter vorwiegend aeroben Bedingungen angesammelt hat, mit einem Mindestgehalt organischer Substanz von 30 Prozent, wenn die Mineral-Fraktion mehr als 50 Prozent Ton enthält, oder 20 Prozent organischer Substanz, wenn die Mineral-Fraktion keinen Ton führt. Für dazwischen liegende Tongehalte sind proportionale Gehalte an organischer Substanz anzusetzen.

A: Ein Horizont, der sich an der Oberfläche oder an diese grenzend gebildet hat oder bildet, bestehend aus einer Ansammlung humifizierter, mit der Mineralfraktion innig verbunden organischer Substanz, mit weniger als 30% org. Substanz, wenn die Mineralfraktion mehr als 50% Ton enthält, oder unter 20 Prozent organischer Substanz, wenn die Mineralfraction keinen Ton führt. Für dazwischen liegende Tongehalte sind proportionale Gehalte an organischer Substanz anzusetzen. *

E: Ein unter dem O- oder A-Horizont (wenn vorhanden) liegender Horizont mit einem geringeren Gehalt an organischer Substanz und/oder Sesquioxiden und/oder Ton, als der unmittelbar darunter liegende Horizont, was sich gewöhnlich ausdrückt in einer fahlen Farbe und einer relativen Ansammlung von Quarz und/oder anderen widerstandsfähigen Mineralen von Sand- oder Schluff-Größe.

B: Ein Horizont zwischen den A- oder E-Horizonten (wenn vorhanden) und den C-, G- oder R-Horizonten (wenn vorhanden), in dem die Gesteinsstruktur zerstört oder nur undeutlich ist, gekennzeichnet durch eine Anreicherung von Silikat-Ton (durch Einwaschung oder Umwandlung), Sesquioxiden (durch Einwaschung oder Rückstands-Anhäufung) oder organischer Substanz (durch Einwaschung), allein oder kombiniert. (Der B-Horizont kann Ansammlungen von Calcium- oder Magnesiumcarbonat, Gips oder anderen, löslicheren Salzen besitzen).

C: Ein Horizont, bestehend aus unverfestigtem Material, der keine diagnostischen Eigenschaften anderer Haupthorizonte zeigt. (Der C-Horizont kann Ansammlungen von Calcium- oder Magnesiumcarbonat, Gips oder anderen, löslicheren Salzen besitzen.

G:** Ein Horizont, der Merkmale starker Reduktion unter anaeroben Bedingungen zeigt, gewöhnlich von bläulicher, grünlicher oder nach grau gehender Farbe***, keine diagnostischen Eigenschaften der A-, E- oder B-Horizonte zeigend.

R: Festes Muttergestein.

Übergangshorizonte

Horizonte, die einen Übergang zwischen zwei Haupthorizonten bilden, werden bezeichnet durch die beiden großen Buchstaben der betreffenden Haupthorizonte (z.B. AE, EB, BE, BC), wobei der erste Buchstabe den Haupthorizont angibt, dem der Übergangshorizont ähnlicher ist. Die Anordnung der Buchstaben kennzeichnet die vorwiegenden Eigenschaften des Übergangshorizontes (z.B. AB oder BA).

Mischhorizonte werden bezeichnet mit den beiden großen Buchstaben der betreffenden Haupthorizonte, aber getrennt durch einen diagonalen Strich (z.B. E/B, B/C). Es wird darauf hingewiesen, daß Übergangshorizonte nicht weiterhin durch Symbole gekennzeichnet werden, wie es bisher getan wurde.

Unterhorizonte

Die Unterteilung von Haupt- und Übergangshorizonten erfolgt durch Nummern in fortlaufender Folge. Diese Nummern zeigen ausschließlich Unterschiede an, die

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* Es ist anzumerken, daß in den Definitionen der O- und A-Horizonte sowohl der Zersetzungsgrad, als auch der Gehalt an organischer Substanz bestimmend sind. In der großen Mehrheit der Fälle ist ein sehr hoher Gehalt an organischer Substanz mit einem geringen Zersetzungsgrad verbunden, aber das ist nicht unbedingt so. Daher werden Ansammlungen von über 20 oder 30% (abhängig von der Textur-Variation wie oben spezifiziert) humifizierter organischer Substanz oder Ansammlungen von unter 20 oder 30% (abhängig von der Textur-Variation, wie oben spezifiziert) wenig zersetzter organischer Substanz noch in den A-Horizont einbezogen).

** Es sind Vorbehalte ausgedrückt worden gegenüber dem Wunsch, einen G-Horizont als einen Haupthorizont zu definieren. Wie man die Definition jetzt liest,steht G für einen Horizont, in dem keine Bodenentwicklung stattgefunden hat außer einer strengen Reduktion. Jedoch können stark reduzierte Horizonte auch Eigenschaften von B-Horizonten zeigen, in welchem Fall sie von der G-Bezeichnung auszuschließen wären. Ein Alternativ-Vorschlag ist der, zwei Grade der Vernässung einzuführen, die durch Zusatz-Buchstaben zu bezeichnen sind: "g" für Horizonte, die durch starke Fleckung erzeugende Vernässung gekennzeichnet sind, und "gg" für Horizonte, die sehr naß sind und Farben haben, die starke Reduktion widerspiegeln (zum Beispiel Cg und Cgg; Bg oder Bgg; es ist anzumerken, daß Cgg das G, wie dieses oben festgelegt ist, ersetzen würde).

*** Die Farb-Kennzeichnungen treffen nicht zu im Falle von Material, das auch unter reduzierenden Bedingungen lange Zeit braun oder rot bleibt.

beobachtet und in einer Profilbeschreibung festgehalten werden können (z.B. A1, A2, A3, EB1, EB2, B1, B2, BC1, BC2).

Zusätzlich zur numerischen Unterteilung kann ein Zusatz-Buchstabe, der eine genetische Aussage machen soll, der Horizontbezeichnung angefügt werden. Die Zusatz-Buchstaben sollen nur gebraucht werden, wenn es einen hinreichenden Beweis für die damit ausgedrückte genetische Deutung gibt. Die Zusatz-Buchstaben folgen der numerischen Bezeichnung (z.B. A1a, A2a, B1t, B2t, B3t, C1, C2ca); wenn der Horizont nicht durch Nummern unterteilt ist, können die Zusatz-Buchstaben unmittelbar den großen Buchstaben folgen (z.B. Aa, Bt, Cca).

Gesteinswechsel im Profil

Wenn es nötig ist, Lagen unterschiedlichen Materials zu numerieren, sind römische Zahlen vor die betreffenden Horizont-Bezeichnungen zu setzen (ist z.B. der C-Horizont verschieden von dem Material, aus dem sich mutmaßlich der Boden gebildet hat, kann nachstehende Horizontfolge gegeben sein: A, B, IIC). Dieselbe Bezeichnung kann angewendet werden, wenn unterschiedliche Materialien innerhalb des C-Horizontes festgestellt worden sind (z.B. IC, IIC, IIIC).

Vorgeschlagene Zusatz-Buchstaben

a: (von Anmoor) gut zersetzte organische Substanz, angesammelt unter hydromorphen Bedingungen; gebraucht mit dem A-Horizont (z.B. Aa).

b: (vom englischen buried, begraben) gebraucht für begrabene Horizonte (z.B. A1b; Bt, b).

ca: Anreicherung von Calciumcarbonat (z.B. Cca).

cn: Ansammlung von Konkretionen oder harten, nicht-konkretionären Knötchen, angereichert mit Sesquioxiden (z.B. B2ox, cn).

cs: Anreicherung von Calciumsulfat (z.B. Ccs).

f: fermentierte, teilweise zersetzte organische Substanz; angewandt bei dem O-Horizont (z.B. Of).

fe: Illuviale Anreicherung von Eisen; angewandt bei dem B-Horizont von Podsolen (z.B. B2fe).

g: starke Fleckung erzeugende Abwechslung von Oxidation und Reduktion infolge periodischer Vernässung (z.B. B2t, g; Cg). (Siehe auch die bezüglich des G-Horizontes gemachte Anmerkung.)

h: humifizierte, gut zersetzte organische Substanz; angewandt bei:

1) dem tieferen Teil des O-Horizontes (z.B. Oh).
2) einem ungestörten A-Horizont (z.B. Ah).
3) der illuvialen Anreicherung von organischer Substanz im B-Horizont von Podsolen (z.B. B1h) oder in B-Horizonten, gebildet aus Torf (z.B. Bo, h.).

l: (vom englischen litter, Streu) angewandt bei dem oberen Teil des O-Horizontes (z.B. O1).

m: starke Verkittung oder Verhärtung (z.B. Bt, m).

na: hoher Prozentsatz von Natrium im Austauschkomplex; angewandt bei dem B-Horizont von Solonetz-Böden (z.B. Bt, na).

o: wenig zersetztes organisches Material, angesammelt unter hydromorphen Bedingungen; angewandt bei Torfen (z.B. Co).

ox: residuale Ansammlung von Sesquioxiden; angewandt bei dem B-Horizont von Latosolen (oder ferralitischen Böden oder Oxisolen) (z.B. Box).

p: gestört durch Pflügen oder andere Feldbau-Maßnahmen; angewandt bei dem A-Horizont (z.B. A1p).

r: konkretionäre oder kiesige Lagen (z.B. Box, r).

sa: Anreicherung von Salzen, die löslicher als Gips sind (z.B. Bsa, Csa).

t: (von Ton) illuviale Anreicherung von Ton; angewandt bei dem B-Horizont (z.B. Bt).

v: (von Verwitterung) Anreicherung von Ton durch Umbildung in situ (z.B. Bv).

x: fragipan (z.B. Bx, Bvx, Btx).

Nachträgliche Bemerkungen

Nach dem Abschluss des obigen Berichtes wurden vom Büro in Rom noch folgende Vorschläge empfangen:

(i) Der Zusatz-Buchstabe v (wie in Bv) sollte durch s (zB. Bs) ersetzt werden. Dieser Vorschlag hat seinen Grund darin, dass der Buchstabe v in der französischen Nomenklatur zur Angabe der vertisolischen Untergruppe gebraucht wird. Der Buchstabe s hat Bezug auf den Begriff Struktur und die neue Definition würde lauten:

s: (von Struktur). Anreicherung von Ton durch Umbildung in situ; häufig begleitet von der Entwicklung von Bodenstrukturaggregaten (zB. Bs).

(ii) Die mögliche Einführung eines K-Horizontes als ein Haupthorizont sollte berücksichtigt werden. Eine endgültige Entscheidung bezüglich der Aufnahme wurde den Stellungnahmen, die zu diesem Vorschlag eingehen, vorbehalten.

Die Definition des K-Horizontes nach I. H. Gile, F. F. Peterson und R. B. Grossman (Soil Science, Vol. 99, No 2, 1965) würde sich wie folgt lesen:

K: Ein Horizont, der eine hervortretende Ansammlung feinkörniger, autogener Carbonate ($CaCO_3$ und $MgCO_3$-Äquivalente in Prozent) zeigt, die die skelettbildenden Kiese, Sand- und Schluffkörner wie ein im Grunde genommen zusammenhängendes Medium umhüllen oder vollkommen einschließen.

Die Bezeichnung K2 für Carbonathorizonte mit 90 Vol. % und mehr K-Gefüge und K1 und K3 für die oberen und unteren Übergangshorizonte mit 50% oder mehr K-Gefüge, wie von den Autoren vorgeschlagen, könnte in dem vorliegenden Entwurf geändert werden in die Bezeichnung K für die maximale Ansammlung von Carbonaten, während die Übergangshorizonte durch zwei Großbuchstaben gekennzeichnet werden könnten, wobei K mit dem Symbol des angrenzenden Haupthorizontes verbunden wird, z.B. KA, KB, KC. Verhärtete (petrocalcische) Horizonte sollen mit dem Zusatz m versehen werden. Andere Bodenhorizonte, die Carbonatansammlungen enthalten, die nicht die Eigenschaften des K-Horizontes besitzen, würden durch den ca-Zusatz in Verbindung mit dem Symbol des entsprechenden Haupthorizontes gekennzeichnet werden, z.B. Cca oder Bca.

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

Bulgarian Society of Soil Science

The Bulgarian Society of Soil Science will hold its 1st National Congress from June 3 untill June 5, 1968 in Sofia.

Six days of excursion will be arranged from May 27 untill June 1st, 1968. At the Congress mainly achievements of Bulgarian soil science will be discussed. Reports on the most expedient use of the soil resources of the country, the application of chemistry, main directions for raising soil fertility, the struggle with soil erosion, etc., will be presented at plenary sessions. At the conferences of the commissions, divided into three groups, more detailed scientific informations will be given. Speakers are limited for presenting their papers to 20 min. They will refer to the fields of their activities. Requests for making reports have to be received not later than the 1st of March, 1968. Summaries, limited to 300 words, have to be sent before the same date. During the excursion the participants will get acquainted with anti-erosion experiments; fertilizer field trials; the features of some of the most important soils of the country, such as: smolnitsa, cinnamon forest soil, grey forest soil, pseudo-podsolized soil. The route of the excursion includes North and South Bulgaria, and the Balkan, Sofia, Pleven, Shuman, Varna, Stara Zagora, Plovdiv, Sofia.

Foreign soil scientists may take part in the excursion and sessions, if registered in time (not later than the 1st of March, 1968). Congress languages are Bulgarian, English and Russian.

Additional information can be received from

The Organizing Committee of the 1ste National Congress of Soil Science Society
136 "9 September" Boul.,
Sofia, Bulgaria

Columbian Soil Science Society

A new branch has been added to the tree of International Soil Science. We welcome our Latin-American colleagues in this new national society which is being governed by the following board:

President: Servio T. Benavides, A. I., M. Sci.
Secretary: Leonidas Mejfa, Agr. Chem.
Treasurer: Hernán Chaverra, A. I., Ph. D.
Fiscal : Fictor Vega, A. I., M. Sci.

Israeli Soil Science Society

The new board nominated on May 2, 1967 is composed of the following members:

Prof. J. Hagin	- Chairman
Dr. D. Karmeli	- Secretary
Dr. M. Giskin	- Treasurer
Dr. A. Banin	- Member
Mr. G. Yaari-Cohen	- Member

The Society of Soil Science of South Africa

The Society of Soil Science of South Africa held its Second Soils Conference in Pietermaritzburg, Natal, from 17th to 21st July, 1967. Twenty seven papers were read and two day-excursions were undertaken to study soil classification at series level.

At its General Meeting the following office bearers were elected to serve in the Executive Committee for the ensueing two years:

President : Dr. J. van Garderen
Vice-President: Dr. R. F. Loxton
Hon. Secretary: Mr. J. van Woerkom
Member : Dr. H. van der Walt
Member : Prof. E. R. Orchard

The recent conference proved a great stimulus particularly to younger soil scientists. Twenty new members were enrolled and of the total of 136 members, nearly 90% are also members of the International Society of Soil Science.

Soil Science Society of Turkey

The following officers serve on the board of the Turkish Society:

President : Prof. Dr. Kerim Ö. Çaglar (Agricultural Faculty)
Vice-President: Mr. Mesut Özuygur (Soil and Fertilizer Research Inst.)
Secretary : Prof. Dr. Ilhan Akalan (Agricultural Faculty)
Treasurer : Doç. Dr. Hüseyin Sahinkaya (Soil and Fertilizer Research Inst.)
Member : Prof. Dr. Necmi Sönmez (Agricultural Faculty)
Member : Dr. Ali Çorlu (Sugarbeet Research Institute)
Member : Mr. Ruhi Aytekin (Soil Conservation and Farm Irrigation Organization)

At a meeting held in Ankara from 22—24 June 1967 one invitational and 12 research papers on various branches of soil science were read. On the last day of the meeting an excursion was made to the fertilizer experiments of the Sugarbeet Experiment Station and to the Soil and Water Conservation Station in the vicinity of Ankara.

The Meeting met with strong enthusiasm and was followed by a lively discussion. Among the contributions there was also one dealing with nutritional disturbances in a pine tree plantation.

The Meeting, in the opinion of participants, has been a great stimulus especially to young soil scientists to present more papers next year.

Société Yougoslave de la Science du Sol

Les nouveaux membres du Bureau de la S.Y.S.S. élus sont les suivants:

Président: Prof. Dr. M. Ciric, Faculté d'Agronomie, Sarajevo.
Vice-présidents: Prof. Dr. P. Drezgic, Faculté d'Agronomie, Novi Sad.
Prof. Dr. V. Mihalic, Faculté d'Agronomie, Zagreb.
Prof. Dr. G. Filipovski, Faculté d'Agronomie, Skopje.
Dr. M. Leskosek, Faculté d'Agronomie, Ljubljana.
Secrétaire Général: Prof. Dr. M. Todorovic, Faculté d'Agronomie, Beograd-Zemun.
Trésorier: Ing. C. Burlica, Faculté d'Agronomie, Sarajevo.
Représentant dans le Conseil de l'A.I.S.S.: Prof. Dr. M. Ciric, Faculté d'Agronomie, Sarajevo.

INTERNATIONAL CONFERENCES OF ALLIED SCIENCES
CONGRES INTERNATIONAUX DE SCIENCES CONNEXES
INTERNATIONALE KONGRESSE VON VERWANDTEN WISSENSCHAFTEN

International Symposium on "The Effects of Temperature and Heat on the Engineering Behavior of Soils"

The Highway Research Board of the U.S. National Research Council organizes an international Symposium on the above mentioned subject, in Washington, D.C., in January 1969.

The areas to be covered are:

(1) The physical nature of thermal energy; capacity and intensity factors; the states of matter as functions of thermal energy content; basic thermodynamic concepts; activation energy and reaction rates.

(2) Thermal characteristics of the main solid components of soils. Thermal characteristics of the water substance and the normal gaseous components of soils.

(3) The effect of temperature on the interaction of soil components including lessons from ceramics.

(4) Thermally induced moisture flow in soils and accompanying electric phenomena.

(5) The influence of temperature on consistency, strength, and compressibility of soils.

(6) Effect of temperature on hardening and curing rates of soil-cement, soil-lime, and other chemically stabilized soil systems.

(7) Thermal stabilization of soils.

(8) Other engineering applications.

Interested members of I.S.S.S. who whis to contribute a paper on one or more of the items mentioned shoud send in an informative abstract not later than March 15, 1968, to

Professor James K. Mitchell, Chairman
HRB Committee on Physico-Chemical Phenomena in Soils Department of Civil Engineering
University of California
Berkeley, California 94720 U.S.A.

Symposium on the Use of Isotopes and Radiation in Soil Organic Matter Studies organized by the Food and Agriculture Organization of the United Nations and the International Atomic Energy Agency in cooperation with the International Society of Soil Science

The Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture is sponsoring a symposium on "The use of isotopes and radiation in soil organic matter studies" to be held in Vienna from 15 to 19 July 1968. The meeting will be of interest to all organic matter specialists, whether or not they are at present using isotopes in their research.

List of topics

(a) The importance of soil organic matter in world food production;

(b) The influence of organic matter on nutrient availability in soils:
  (i) macronutrients (N, P, S, K)
  (ii) micronutients (Cu, Zn, Fe, Mn);

(c) The influence of organic matter on the physical and physico-chemical properties of soils and clay minerals;

(d) Effects of different organic matter constituents on soil microflora and on plant growth;

(e) The synthesis and degradation of organic materials in soils:
  (i) plant material decay;
  (ii) the role of micro-organisms;
  (iii) external factors influencing these processes;
(f) The physical and chemical properties of humic substances;
(g) Phytotoxic and phytostimulating substances in soils resulting from the addition or transformation of organic matter;
(h) Management and cultivation practices in relation to soil organic matter;
(i) Experimental techniques for using isotopes and radiation in studies of soil organic matter;
(j) Isotopes and radiation in future organic matter research.

Further details can be obtained from:

The Scientific Secretary of the Symposium, Mr. J. Hanway, Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture, International Atomic Energy Agency, Kaerntner Ring 11, 1010 Vienna, Austria.

Third International Peat Congress
Quebec, Canada, 1968

Preliminary Notice

The National Research Council/Associate Committee on Geotechnical Research, and the Department of Energy, Mines and Resources/Mines Branch, have pleasure in announcing that the Third International Peat Congress will be held in Quebec City, Canada, in August 1968. The meetings, the first to be held in North America, will begin on Monday, 19 August, and will conclude on Friday, 23 August. Time is being allowed in the programme for technical tours. The emphasis of the Congress programme will be on the utilization of peat and peatlands, and will reflect progress in industrial development, in scientific research, and in technology.

A general outline of the proposed programme has been given in the First Bulletin which was published in the Spring of 1967. This Bulletin did contain information regarding the submission of papers to the Congress.

Some Tentative Dates

Publication of First Bulletin	1 May 1967
Publication of Second Bulletin	1 February 1968
Last Date for Early Registration	1 July 1968
Mailing of Papers	1 July 1968

Enquiries regarding the Congress should be addressed to:

The Secretary,
Third International Peat Congress,
c/o National Research Council,
Ottawa, Ontario, Canada.

The New International Clay Society

In June 1966 the former Comité International Pour l'Étude des Argiles (CIPEA), founded in 1948, has been changed to

Association Internationale pour l'Etude des Argiles (AIPEA)

Aim of AIPEA:

The aim of AIPEA is to promote international cooperation in clay research and technology. To this end the activities of AIPEA include the organization of meetings — such as the International Clay Conference — of field excursions, and of visits to centers of clay research and technology; the publication of the results of clay research and technology and international discussions thereon, and cooperation with other international organizations having an interest in clay research and technology.

Officers and Council, elected for the period of 1966 to 1969:

President: Dr. P. Graff-Petersen, Denmark
Institute of Mineralogy and Geology
Ostervold 7, Copenhagen K

Vice President: Prof. F. V. Chukhrov, USSR

Secretary General: Prof. U. Schwertmann, Germany

Treasurer: Prof. J. L. White, USA

Editor-in-Chief: Dr. L. Heller, Israel

Immediate Past President: Prof. I. Th. Rosenqvist, Norway

Council: Prof. Y. K. Bentor, Israel; Prof. G. W. Brindley, USA; Prof. J. J. Fripiat, Belgium; Dr. R. C. Mackenzie, Great Britain; Prof. E. Nemecz, Hungary; Prof. Y. Shiraki, Japan; Prof. T. Sudo, Japan; Dr. G. Walker, Australia

Membership:

The Association accepts as members clay scientists, institutions, and companies. The annual membership fee for individuals is 5 Swiss francs (or the equivalent in other currencies).

Meetings (International Clay Conference):

International Clay Conferences will be held every 3 years. The first was held in Stockholm, Sweden, in 1963 and the second in Jerusalem, Israel, in 1966. Papers and discussions presented at these conferences have been published in several volumes of the Proceedings of the International Clay Conferences.

The 1969 International Clay Conference will be held in September 1969 in Tokyo, Japan, in co-operation with the Clay Science Society of Japan, the Science Council of Japan and the Geological Survey of Japan. The program of the conference will include scientific sessions for presentation and discussions of papers on clay mineral structures, clay mineral genesis, claywater systems, clay organic compounds, and industrial application of clays. This wide range of clay research will be related to the ceramic, chemical and petroleum industries, to crystallography, mineralogy, geology and ore deposits as well as to soil science. Special field excursions will be prepared to clay localities, companies and institutes active in clay production and clay research related to the ceramic and petroleum industries, companies manufacturing scientific instruments for clay research, quarternary volcanic ash beds, and sub-surface recent marine clays in relation to soil mechanics of weak ground.

All correspondence on general matters of AIPEA including membership application should be addressed to the Secretary General

Prof. Dr. U. Schwertmann
Institut für Bodenkunde der Techn. Universität
Engler-Allee 19—21
1 Berlin 33, West Germany

All correspondence related to the International Clay Conference in Japan 1969 should be adressed to

1969 INTERNATIONAL CLAY CONFERENCE
The Organizing Committee
c/o The Geological and Mineralogical Institute,
Faculty of Science,
Tokyo University of Education,
Otsuka, Bunkyo-ku
Tokyo, Japan

Une Nouvelle Société Internationale pour les Argiles

En juin dernier, le précédent Comité International pour l'Etude des Argiles (C.I.P.E.A.) fondé en 1948 s'est transformé en:

Association Internationale pour l'Etude des Argiles (A.I.P.E.A.)

But de l'A.I.P.E.A.

Le but de l'A.I.P.E.A. est de promouvoir une coopération internationale en ce qui concerne les recherches sur les argiles et l'étude de leur technologie. A cet effet, l'activité de l'A.I.P.E.A. inclut:

— l'organisation de réunions comme les Conférences Internationales sur les Argiles, d'excursions scientifiques et de visites de Centres consacrés à la recherche et à l'étude technologique des argiles;
— la publication des résultats des recherches et des discussions internationales;
— enfin, la coopération avec les autres organismes s'interessant aux argiles.

Composition du Bureau et du Conseil (élus pour la période 1966—1969):

Président: Dr. P. Graff-Petersen, Danemark
Institut de Minéralogie et Géologie
Ostervold 7, Copenhague K 7

Vice-Président: Prof. F. V. Chukhrov, U.R.S.S.

Secrétaire Général: Prof. U. Schwertmann, Allemagne

Trésorier: Prof. J. L. White, U.S.A.

Editeur: Dr. L. Heller, Israël

Ancien Président: Prof. I. Th. Rosenqvist, Norvège

Conseil: Prof. Y. K. Bentor, Israël; Prof. G. W. Brindley, U.S.A.; Prof. J. J. Fripiat, Belgique; Dr. R. C. Mackenzie, Grande-Bretagne; Prof. E. Nemecz, Hongrie; Prof. Y. Shiraki, Japon; Prof. T. Sudo, Japon; Dr. G. Walker, Australie.

Cotisation:

L'association comprend des membres individuels, des institutions et des sociétés. La cotisation annuelle à titre individuel est de 5 Francs suisses (ou son équivalent).

Réunions (Conférence Internationale sur les argiles):

Les Conférences Internationales sur les Argiles se tiennent tous les 3 ans, la 1ère a eu lieu à Stockholm (Suède) en 1965 et la seconde à Jerusalem (Israël) en 1966. Les communications et discussions présentées à ces conférences ont été publiées dans plusieurs volumes de Comptes Rendus de Conférence internationale sur les argiles.

La prochaine conférence internationale sur les argiles se tiendra en septembre 1969 à Tokyo (Japon) avec la coopération de la Société Japonaise des Argiles, du Conseil Scientifique du Japon et du Service géologique du Japon. Le programme de la conférence comprendra des sessions scientifiques pour la présentation et la discussion de communications portant sur les sujets suivants: Structure des minéraux argileux, genèse des argiles, système argile-eau, composés organo-argileux et application industrielle des argiles. Une large fraction des recherches sur les argiles sera d'ailleurs reliée à des problèmes intéressant les industries chimiques et céramiques et le domaine pétrolifère, à la cristallographie, minéralogie, géologie et métallogenie aussi bien qu'à la science du sol. Des excursions seront organisées pour visiter des gisements, des instituts de céramiques et d'organismes pétrolifères, des sociétés fabriquant des instruments utilisés dans la science des argiles, des lits de cendres volcaniques quaternaires et des argiles marines récentes en relation avec la mécanique des sols.

Toute correspondance concernant l'A.I.P.E.A. doit être adressée au Secrétaire Général:

Prof. Dr. U. Schwertmann
Institut für Bodenkunde der Techn. Universität
Engler-Allee 19—21
1 Berlin 33, Allemagne Fédérale

Toute correspondance relative à la prochaine Conférence internationale (Japon 1969) doit être adressée à:

Conférence Internationale sur les argiles - 1969
Comité organisateur
c/o Institut Géologique et Minéralogique
Faculté des Sciences
Université de Tokio
Otsuka, Bunkyo-Ku
Tokio (Japon)

Gründung einer Internationalen Ton-Gesellschaft

Im Juni 1966 wurde das bisherige, 1948 gegründete Comité International pour l'Etude des Argiles (CIPEA) umgewandelt in die selbständige

Association Internationale pour l'Etude des Argiles (AIPEA)

Zweck der AIPEA:

Das Ziel der AIPEA ist es, die internationale Zusammenarbeit auf dem Gebiet der Ton-Forschung und -Technologie zu fördern. Zu diesem Zweck unternimmt sie die Organisation von Tagungen, wie die Internationale Ton-Konferenz, von Exkursionen und von Besichtigungen von Zentren der Ton-Forschung und -Technologie, die Veröffentlichung von Ergebnissen der Ton-Forschung und- Technologie sowie die Zusammenarbeit mit anderen internationalen Organisationen, die an der Forschung und Technologie der Tone interessiert sind.

Vorstand für 1966—1969:

Präsident: Dr. P. Graff-Petersen, Denmark
Institute of Mineralogy and Geology
Ostervold 7, Copenhagen K

Vizepräsident: Prof. F. V. Chukhrov, USSR

Generalsekretär: Prof. U. Schwertmann, Germany

Schatzmeister: Prof. J. L. White, USA

Hauptschriftführer: Dr. L. Heller, Israel

Alt-Präsident: Prof. I. Th. Rosenqvist, Norway

Beirat: Prof. Y. K. Bentor, Israel; Prof. G. W. Brindley, USA; Prof. J. J. Fripiat, Belgium; Dr. R. C. Mackenzie, Great Britain; Prof. E. Nemecz, Hungary; Prof. Y. Shirakì, Japan; Prof. T. Sudo, Japan; Dr. G. Walker, Australia.

Mitgliedschaft:

Die Gesellschaft nimmt als Mitglieder Wissenschaftler, Institute und Gesellschaften auf. Der jährliche Mitgliedsbeitrag beträgt 5 Schweizer Franken (bzw. den Gegenwert in anderen Währungen) pro Person.

Tagungen (International Clay Conference):

Alle 3 Jahre wird eine Internationale Ton-Konferenz abgehalten. Die erste fand 1963 in Stockholm/Schweden statt, die zweite 1966 in Jerusalem/Israel. Vorträge und Diskussionen dieser Tagungen wurden und werden jeweils in Form der „Proceedings of the International Clay Conference" veröffentlicht.

Die Internationale Ton-Konferenz 1969 wird im September 1969 in Tokio/Japan in Zusammenarbeit mit der Clay Society of Japan, dem Science Council of Japan und dem Geological Survey of Japan veranstaltet werden. Das Programm der Konferenz umfasst Vortrag und Diskussion wissenschaftlicher Abhandlungen über Zusammensetzung und Entstehung der Tonminerale, Ton-Wasser-Systeme, Ton-organische-Verbindungen, Ionenaustausch an Tonen und industrielle Verwendung von Tonen. Das Interesse an diesen Themen erstreckt sich auf folgende Gebiete: Keramische, chemische und Erdöl-Industrie, Kristallographie, Mineralogie, Geologie einschliesslich Erzlagerstütten und Bodenkunde. Auf Exkursionen sollen Ton-Vorkommen, Gesellschaften und Institute, die auf dem Gebiete der Ton-Produktion und Ton-Forschung in Verbindung mit der keramischen und Erdölindustrie tätig sind, Firmen, die wissenschaftliche Geräte für die Ton-Forschung herstellen, und Lagerstätten quartärer vulkanischer Aschen und rezenter mariner Tone in Beziehung zur Bodenmechanik schwieriger Baugrundverhältnisse besichtigt werden.

Sämtliche Korrespondenz in allgemeinen Angelegenheiten der AIPEA einschliesslich Beitritt ist zu richten an den Generalsekretär

Prof. Dr. U. Schwertmann
Institut für Bodenkunde der Techn. Universität
Engler-Allee 19—21
1 Berlin 33, West Germany

Anfragen in Zusammenhang mit der Internationalen Ton-Konferenz in Japan 1969 sind zu richten an

c/o The Geological and Mineralogical Institute,
Faculty of Science,
Tokyo University of Education,
Otsuka, Bunkyo-ku
Tokyo, Japan

MISCELLANEOUS NEWS — INFORMATIONS DIVERSES — VERMISCHTE MITTEILUNGEN

International Soils Museum

At the occasion of the 8th International Congress of Soil Science at Bucarest in 1964, the ere-time Director of UNESCO's Department of Natural Sciences, Professor Kovda, announced that this United Nations Agency had launched a new project, which received strong support of the Government of the Netherlands, viz. the creation of an International Soils Museum. This museum would ultimately contain representative soil profiles of the whole U.N. family of countries and thus also form the basic collection of the soils as they will be represented on the FAO/UNESCO Soil Map of the World. The Secretary General of I.S.S.S. was requested to take charge of the implementation of the project.

The Dutch Government which offered hospitality to the new Institute and agreed to undertake the construction of adequate premises, was also host to an International Panel of the Museum nominated by UNESCO and consisting of the members

G. Aubert (France)
D. L. Bramao (FAO)
S. Evteev (UNESCO)
S. V. Govinda Rajan (India)
Ch. E. Kellogg (U.S.A.)
V. A. Kovda (U.S.S.R.)
F. A. van Baren (Netherlands and I.S.S.S.)

The inaugural meeting was held in The Hague (Netherlands) on 28th September 1967, an official reception being offered by the Minister of Science and Education, with subsequent meetings in Delft at the International Institute for Aerial Survey and Earth Sciences (I.T.C.) and the State University of Utrecht. This program was the logical consequence of the decision taken by the Minister of Science and Education, that the Museum be founded as an outside branch of the I.T.C. and work in intimate liaison with the Soils Department of the Utrecht University headed by Dr. F. A. van Baren, who will act as Honorary Director of the new Institution A number of conclusions and recommandations have been presented to the Director General of UNESCO, the first steps taken by Dr. Van Baren having received full approval.

Contacts have been and will further be made that aim at an as close as possible cooperation with National Societies, Universities and Institutions, it being clear right from the start that only through internationally organized efforts the project will have a chance to succeed. It further is being studied whether through the issuing of founders' certificates individual members of I.S.S.S. might be willing to assist in laying a sound financial basis for the project that will make the Museum indeed a centre of concentrated knowledge of soils on a worldwide scale and an internationally recognized place where soils in their geographical distribution can be studied by any soil scientist interested in the subject.

Relation with F.A.O. consolidated

The Director General of the Food and Agriculture Organization of the United Nations, Dr. B. R. Sen, has granted the specialised consultative status to I.S.S.S., as per November 1st, 1967.

Dr. D. Luis Bramao, Chief, World Soil Resources Office of F.A.O. Rome, has been appropriated to ensure the liaison between this United Nations Agency and our Society.

Colloque de microbiologie du sol

La Société Française de Microbiologie organise, comme est la tradition, un colloque de microbiologie dans l'Institut Pasteur à Paris. Les jours de réunion sont les 1 et 2 février 1968. Des rapports seront présentés sur les sujets suivants:

Rôle des glucides dans la nutrition de la microflore tellurique (Mr. J. P. Voets, Gand, Belgique).

Enzymologie de la cellulolyse (Mme M. Charpentier, Paris).

Dégagement tellurique de CO_2, mesure et signification (Mr. Y. Dommergues, Nancy).

Les intéressés sont priés de se mettre en contact avec l'organisateur en chef:

Mr. J. Pochon

Service de Microbiologie du Sol Institut Pasteur PARIS, XVe, FRANCE.

NEW EDITIONS — NOUVELLES EDITIONS — NEUE AUSGABEN

Geoderma

Elsevier Publishing Company informs subscribers that a much regretted delay did occur with regard to the printing of the first number of volume I of this new periodical. Existing organizational difficulties now have been overcome and an early dispatch of the first copy is envisaged. The complete volume comprised of 4 numbers (about 450 pages) will come from the press between now and June 1968. The second volume before December 1968.

Elsevier further draws the attention to the fact that the special members' subscription of Dfl. 47,50, £ 4.15.0. or U.S. $ 13.25 is a nett price. Postage and costs of handling, amounting to Dfl. 3.—, Sh. 6 or $ 0.85 for volume I, must be added to the nett subscription, which actually allows a 25% discount on the price for non-members. Postage and costs of handling for volume II amount to Dfl. 3.50, sh. 7 or $ 1.—.

Subscription requests are to be sent to I.S.S.S.-Office, Amsterdam. Payment should be made directly to the publisher

Elsevier Publishing Company
P.O.B. 9061
Amsterdam-West

LORENTZ C. PEARSON — Principles of Agronomy — Reinhold Publishing Corp. 1967. 434 pp., 86 illustr., 65 tables, bibliography. Price $ 10,50.

The author, a college professor in Idaho, wrote this text after 15 years of teaching to provide students in agronomy of all continents with a broad picture of modern agricultural science.

The book covers a very large field, entering in on many disciplines. It is a treatment of principles of which there are very many. Therefore, everyone of them is dealt with briefly. Yet, sufficient detail is given to produce a real introduction to the subject. Discussions show the multitude of factors involved in some aspects of each chapter to field crop production and the fact that coordination of many disciplines is required in dealing with agricultural science problems. With over 200 references the book is well documented.

Following an introduction of some 70 pages with sections on general botany and production economics, the larger portion of the book deals with principles of crop production such as crop rotations, varieties and seeds, soil- and plant water relationships, soil properties and management, weed control, plant diseases and pests, harvesting, storing and marketing, statistical methods, design of experiments, genetics and plant breeding. In the space available it is not possible to do justice to such a wide array of subjects. Some statements, while correct, need further qualification, for example the one on soil genesis saying that the effects of parent material gradually disappear as the soil gets older.

On the topic of soil classification reference is lacking to the recently developed USDA system known as the 7th approximation. The two chapters devoted to statistical methods and design of experiments are enlightening. The author has succeeded in explaining the essence of the statistical method thoroughly and in simple terms. Field crops receive attention in a final section of the book. Compact information on the use, botanical relationships, morphology and adaptation, breeding, cultural practices, common diseases and pests are given for some 40 crops in an average space of 2 pages for each crop.

Useful reference to more complete treatises is made at the end of each chapter. The book is an admirable summary of important principles, well-written and well-balanced in context.

C. J. DE MOOY

MICHAEL BLAKE — Concentrated incomplete fertilizers — Crosby Lockwood & Son Ltd. London, 1967. pp. 113, illustr. Price 20/- sh.

The book deals with British farmers interests which have come in conflict with current government policy. The author is an educated farmer with college training in agricultural science. He exposes the hazards of incompetent use of large amounts

of concentrated compound fertilizers (the term incomplete being coined by the author) to the base status of the soil, the plant, the animal and, ultimately, the human consumer. In part the warning would apply anywhere in the world. Partly also, it is published in protest to the British Price Review Agriculture Policy which aggravates the problem and by this the author enters the political field.

It is a story of an agricultural support and fertiliser subsidy policy which, according to the author, has now developed a backfiring effect through lack of imagination and poor administration. Decreasing world prices are forced onto farmers whose only alternative is greater efficiency leading to unbalanced fertilization schemes with NPK. The result is increased production without due regard to quality of produce, condition of the animal and health of human consumers. Included is the accusation that scientists in applying high rates of NPK have not properly investigated what happens to the balance with other elements which are not applied. The book is properly documented. The problem is analysed clearly and a solution is suggested. Necessary details are given.

Some terms such as G-value, pC and pL are insufficiently explained and widely interpreted. However, the critisism is insignificant in view of the intended mission of its publication. The book contains valuable information for farmers. It is also directed at politicians by calling for a more refined advisory programme and at fertiliser manufacturers and merchants by a plea for better adaptation to farmers needs. It makes useful reading for students in agriculture since many questions of good soil fertility management are presented in their full bearing on practical agriculture.

A publication about agricultural problems of our time.

C. J. DE MOOY

Atlas and Handbook of Australian Soils

Thanks to a very well timed action of the Australian Soil Survey a new Atlas of Australian Soils will be available for distribution some time before the Congress commences. Up till now 6 sheets are available at prices for the public varying from $ Austr. 1.50 to 5.50.

Members of I.S.S.S. will be allowed a considerable reduction in price that, however, will vary with each sheet. There will also be an overall reduction in the price of complete volumes containing all sheets.

Also the Handbook of Australian Soils has been revised and brought up to date with particular attention to Congress requirements. It will be available to members of the Society at a cost of $ A. 6.75. It will also include appropriate information on the micromorphology of Australian soils.

Members interested in procuring copies of the Atlas as well as of the Handbook are requested to notify the Amsterdam Office without undue delay.

BOTTINI, O., Fertilizzazione e Fertilizzanti.

Linotype, Publiscientia, Via S. Giacomo, Napoli, 1967, pp. 509, graphs, tables, Lire 6.000.

This Italian textbook on fertilization and fertilizers, composed by Professor Bottini of the Naples University, contains a review of the function of this type of soil amendments in relation to agricultural production. Part I deals with the fundamental aspects of fertilization, part II discusses definitions and classification of fertilizers, and part III reviews fertilization in relation to soils, consumption of fertilizers by various types of crops, the trend of development of the use of secondary fertilizers, special plant nutrients with stimulators or disinfectants, and finally global, European and Italian consumption. For students in agricultural chemistry and plant nutrition an easily understandable textbook.

PAULI, F. W., Soil Fertility — A biodynamical approach.

Adam Hilger Ltd., London, pp. 204, graphs, col. plate, lit. ref., 50 Sh. net.

As it is hardly possible to treat in an adequate way all the aspects of modern soil science in one pocket-book sized volume of 200 pages, cover statements that "the author advocates a new fundamental approch to soil fertility" and "that the

book is presented as a step forward toward solving the world food problem" are bound to be slightly out of proportion. The reviewer could not find anything new or fundamental in the booklet, whereas the dynamic concept of soil already had been conceived in the early thirties. It neither became clear in what way this book could at all "contribute to solving the world food problem".

Apart from these objections to what are considered to be "overstatements", the book has its merits as a "refresher course" especially for those whose field of daily work is not the biosphere. It really contains a number of interesting subjects. The various sections are however rather short and consequently not complete, a shortcoming which is not counterbalanced by the excessive use of quotations. Not correct is the statement that in arid regions the main clay mineral is kaolinite, that the soil texture is mostly sandy or that the soils have predominantly a high porosity (p. 66).

A. MULLER

W. L. KUBIENA. Die mikromorphometrische Bodenanalyse.

Herausgegeben von W. L. Kubiena. Mit 103 Abbildungen, 2 Farbtafeln und 7 Tabellen. 1967 — Ferdinand Enke Verlag, Stuttgart. DM 40.—.

With the rapid development of the microscopical study of soil morphological features, increasingly the need was felt for quantitative determinations of specific phenomena in this field. For some time Professor Kubiena and his collaborators have been engaged in developing methods of micromorphometry, some of them regarding technical aspects, others dealing with problems of statistical analysis. Several of these results have been published in the course of years.

The present volume, dedicated to the late Professor J. M. Albareda Herrera and edited by Professor Kubiena, is devoted to the latest developments of micromorphometry. It contains twelve papers of Professor Kubiena and his co-workers in collaboration with a number of research workers from several institutes in Spain.

In an opening paper Professor Kubiena reviews the history of soil micromorphology, which is — as a matter of fact — closely intermingled with personal reflections, and he gives his vision on the aim of micromorphometric analysis as a study of the soil as an entity.

The next three chapters are devoted to preparation techniques and analytical methods. *Von Buch* describes his experience with the precision grinding machines Blohm HFS 6 and Klaiber HS II for the preparation of thin sections. *Higueras Arnal* sets forth on the methods of preparing soil thin sections as used in the Institute of Soil Science, C.S.I.C. in Madrid. *Geiger and Beckmann* present a summary of the methodology of micromorphometric structure analysis of the soil as developed at Reinbek over the last eight years. Part of this has been described in previous papers.

The remaining eight papers are consecrated to applications of micromorphometric methods. *Benayas de Rey* carried out an analysis of the degree of weathering of minerals in an "Atlantic Ranker". Thin sections permit the study of the decomposition of minerals in situ. *Ascaso Liria* used micomorphometric methods, such as have been developed by Kubiena and his co-workers on dense consolidated sediments in order to determine their porosity. *Bellinfante Crocci* applied a similar procedure to podzol soils in Northern Germany. *Kress-Voltz* analysed the structural properties of some volcanic ashes of the Canary Islands. As a result a difference has been revealed between various types of ashes as far as their benefical effect on arable soil is concerned. *Beckmann* made a study of the favorable influence of irrigiation on the structure of some soils in the south of the Black Forest (Germany). *Geiger* shows the Panama-Diseases (a withering sickness of bananas) to be closely related to certain site properties. A distinction is made by means of micromorphometric analyses between resistant and nonresistant sites. The findings of Geiger inspired *Kubiena* to an elaboration on the interrelation between certain plant diseases and the distribution of definite soil properties. *Beckmann & Geiger* present a classification of structural forms in the soil according to their (micro)-morphological appearance. Some general principles are proposed for the classification of the diversity of forms which occur. These principles are said to be independent of the size of a single form.

The papers are written in German and provided with summaries in French and English.

D. CREUTZBERG

PROGRESS IN SOIL BIOLOGY.

Edited by Otto Graf and John E. Satchell. Proceedings of the Colloquium on Dynamics of Soil Communities. pp. 656, tables, graphs, litt. ref., author index, index to genera. Friedr. Vieweg & Sohn GmbH, Verlag, Braunschweig; North-Holland Publishing Company, Amsterdam. Price $ 21.—.

This book constitutes the proceedings of the third colloquium of the Soil Zoology Committee of the International Society of Soil Science held in September 1966 at Braunschweig-Völkenrode, German Federal Republic. The theme of the colloquium "Dynamics of Soil Communities" reflects the increasing interest among soil biologists in soil organisms as functional components of soil exosystems. During five working days 127 participants listened to 61 lectures and the presidential address of Dr. van der Drift. The material was organized in 5 main sections: (i) Internal Forces in the Soil Community (14 papers), (ii) External Forces on the Soil Community (11 papers), (iii) Human influences on the Soil Community (13 papers), (iv) Forces evoked by the Soil Community (11 papers) and (v) Other Soil Community Problems. As President van der Drift stated: "Many aspects of soil biology were put forward, new techniques were illustrated, new approaches to old problems were discussed, new problems were raised. Many papers give evidence of a fundamental approach, others originate from practical agricultural problems. In a rather young scientific branch such as soil biology is, fundamental studies are needed to fill up the many gaps in our knowledge. However, contribution to the solution of problems in agricultural practice cannot be postponed. It is encouraging to notice that soil biologists are aware of both needs". Concluding: the volume presents up to date subject matter essential to any soil biologist who whishes to have the latest information at hand.

SOIL POTASSIUM AND MAGNESIUM.

Technical Bulletin No. 14. Ministry of Agriculture, Fisheries and Food. pp. 195, graphs, tables, references. Her Majesty's Stationary Office, London. Price 40 s. net.

This publication contains the proceedings of a conference on potassium and magnesium organized in 1963 by the Soil Scientists of the National Agricultural Advisory Service of Great Britain.

Eighteen papers on subjects as:

the role of potassium and magnesium in plant nutrition and the mechanism of their absorption by cells,

movement of these elements in the soil in relation to their availability, comparison of analytical methods,

relation between soil analysis and crop response in terms of yield and nutrient content,

advisory aspects,

have been presented by research workers and N.A.A.S. advisers.

After each paper a summary is given of the discussion which followed their presentation. The conference was divided in five "syndicates" each of which considered specific questions. The reports of these syndicates are at the end of the book. Although much of the information on practical field experiments is of more local importance, being concerned with conditions in the United Kingdom and Eire, the volume is a rich source of knowledge with regard to the fundamental aspects of the uptake of the plant nutrients under discussion. It is a valuable complement to Technical Bulletin 13, which deals with soil phosphorus (see Bull. ISSS No. 29, p. 38).

A. MULLER

VAN DER MERWE, C. R.: Soil Groups and Subgroups of South Africa.

Science Bull. No. 356, Dept. Agr. Techn. Services. Chem. Ser. No. 165, pp. 355, tables, photogr., col. plates, ref., soil map. Govern. Printer, Pretoria, South Africa, 1966. Price R. 4.45 (US $ 5.50).

This volume is the second and revised edition of the 1940-textbook. Up to date meteorological data and results of clay mineralogical analysis by D.T.A. and X-ray contributed to an appreciable enlargement and improvement. As sharp con-

trasts in topography, geology, climate and vegetation make South Africa a very interesting region for pedological studies, this book is recommended to any student in soil geography. The classification system is brought into line with that used for the legend of the 1 : 5.000.000 S.P.I. Soil Map of Africa. The book contains an impressive amount of detailed information on the morphology of the soils as well as on their chemical and physical characteristics. Probably, as the profile descriptions date from the earlier edition, Munsell color indications are lacking, whereas in some instances the horizon designations could have been more specific, as e.g. with regard to the clay horizon of the Sugarbelt profiles. Finally, one might be inclined to agree with Summer that the soils of Northern Natal show more strongly a podzolic than a lateritic character.

Apart from these few remarks it man be stated that the outstanding book by Dr. Van der Merwe stimulates the reader to make comparisons between South Africa and other parts of the world.

WEST-EUROPEAN METHODS FOR SOIL STRUCTURE DETERMINATION, edited by The West-European Working Group on Soil Structure of the International Soil Science Society.

Editors in chief: M. de Boodt, L. de Leenheer (Belgium); H. Frese (Germany); A. J. Low (U.K.); P. K. Peerlkamp (Netherlands). 537 pages, 80 figures, plastic cover with clipper system for yearly supplements. Price 10 $ (+ 2 $ for shipping and insurance costs).

This most impressive volume on soil-physical properties gives much more than the title "soil structure determination" suggests. It indeed gives full information, resulting from the collaboration of no less than 86 soil institutions, laboratories and surveys in 12 West-European countries, on a number of physical properties, which although ultimately influencing and partly determining soil structure, merit attention for themselves. The following enumeration gives an overall impression of the scope of this international scientific achievement.

Chapter I: General information about the site and the soil (6 sections)

Chapter II: Field information on soil structure (6 sections)

Chapter III: Sampling, transportation, storage (9 sections)

Chapter IV: Laboratory information on soil components

a) Moisture content at the moment of sampling (5 sections)
b) Grain-size distribution (26 sections)
c) References for methods to determine chemical components influencing the physical conditions of the soil (8 sections)

Chapter V: Determination of properties related to soil geometry

a) Particle and bulk density, total porosity, clod size distribution (29 sections)
b) Pore-size distribution, pF-curve (22 sections)
c) Air permeability, gas diffusion (5 sections)
d) Water permeability, percolation, K-value (17 sections)
e) Thermal characteristics (1 section)
f) Soil micro-morphology (6 sections)

Chapter VI: Behaviour of soil under applied forces

a) Behaviour against mechanical forces (13 sections)
b) Aggregate stability (23 sections)
c) Behaviour under changing water content (e.g. swelling and influence of frost) (3 sections)
d) Behaviour against other forces (3 sections)

Chapter VII: Field measurements

a) Moisture determination (3 sections)
b) Density-porosity determination (4 sections)

c) Infiltration rate determination (1 section)
d) Water- and air-permeability determination (5 sections)
e) Aggregate distribution (4 sections)
f) Aggregate stability (1 section)
g) Other methods (5 sections)

In all 7 chapters, 20 sub-chapters and 214 sections most detailed information on the methods used to determine the various itemized properties or characteristics is presented. The method-book merits a place in the libraries of all the laboratories which have soil-physical research on the programme of activities. It should be ordered directly from:

Prof. Dr. M. de Boodt
State Faculty of Agricultural Sciences
Coupure, 235, Ghent, Belgium

Bank account: Kredietbank Ghent
nr. 4400/66971

Additional information:

1) New contributions should now be sent in as soon as possible for the 1968 supplement to the national secretaries. These will be issued on separate sheets.
2) In order to further the object of the Working Group reference methods will now be proposed. The first will be for the determination of the water release curve of soils (pF-curves). The method proposed will be prepared by the Working Group from the contributions already received and circulated to all purchasers of the book.

OBITUARY — NECROLOGIE — NEKROLOGIE

Professor Ir. J. Hudig †
(1880—1967)

Professor J. Hudig died on the 4th July 1967, aged 87. He was born at Rotterdam and took degrees in electrical engineering and electro-chemistry at Hannover (Germany). He extended his studies to technical and agricultural chemistry at Berlin and Göttingen.

After two years at the Goes and Maastricht experimental stations he was appointed agricultural chemist at the Groningen station. He became well-known for his research on a number of plant diseases occurring in the peat reclamation districts of the Netherlands and N.W. Germany. They were caused by deficiency or unavailability of certain plant nutrients, e.g.: "gray spot" disease, "Hooghalen disease" and "reclamation" disease.

The influence of the different cations and anions and their mutual ratios on the nutrient uptake of plants was obviously a new field of research as was also soil structure in connection with the oxygen supply for the roots.

It should be remembered that this all was long before 1940 at a time when most researches in this field still confined themselves to the study of single values. His ability to look ahead was also evidenced by his discovery, about 1939, of constancy of the value for the adsorption capacity of clay particles of the same grain size. Thirty years later several investigators in various countries of the world found for this value 65 to 70 A ^{2} occupied per exchangeable cation.

Hudig and coworkers attributed this phenomenon to the formation by hydrolysis of an amorphous permutite — like coating on the surface of clay particles. This "Hudig layer" has an analogy in the deformed amorphous "Beilby layer" found on the surface of polished metals. Although other theories have now been adduced in explanation of the constancy of the adsorption complex, Hudig's hypothesis has not yet been disproved.

In his studies of different marshes Hudig arrived at the conclusion that clay may be formed from the remains of marsh plants. This was about 1935. The first X-ray diagrams of the clay fraction of soils date from 1930 and the first pictures by electron microscopy from 1940. His idea which at that time was very revolutionary (most people laughed about it), had to wait many years until better instruments were available and more details were known about the genesis of clay minerals. His marsh clay mineral is now known as "Hudig biogene illite".

In 1949 Hudig retired from his professional chair at the Agricultural University at Wageningen which he had held since 1928, but not as is usually the way to lead a quiet life. After his retirement he kept in touch with the world of agricultural chemistry, the fertilizer industries and crop production. He remained a consultant of the Netherlands Advisory Bureau of the Joint Phosphate Industries, Board member of the Institute of Sugar Beet production etc. Even after his retirement he published a number of papers on different subjects. The last paper prepared by him will be edited in Germany by the "Justus von Liebig Gesellschaft". It deals with the key role that phosphorus plays in the plant's synthesis of organic matter.

He was also preparing a paper on the world supplies of phosphorus. These are known to be small and new finds of some importance have been seldom made in recent years. As phophorus is indispensable for the life of vertebrates he assumed that the wholesale dying out of certain vertebrates within a relatively short time as it is known to have occurred at several periods of geological history, might also be attributed to the sudden development of phosphorus deficiency. He wanted world wide attention to be given to this problem which may be decisive for the future of mankind. This paper had to be left unfinished. The long, valuable, busy life of a man with the capacity for clear thinking, combined with a philosophical strain, has now come to an end. We may be grateful for the vast amount of knowledge he assembled and recorded for posterity in over a hundred papers.

H. W. VAN DER MAREL

Academician Nicolae Cernescu †
(1904—1967)

Soil science has suffered a heavy loss on April 26, 1967 by the untimely death of the Academician Nicolae Cernescu, Past-President of the International Society of Soil Science; his name and scientific activity are well known to soil scientists the world over.

Nicolae Cernescu was born in Cîmpulung Muscel (Romania) on 31st August 1904. Het was educated at the school of his native town and at the University of Bucharest (Faculty of Natural Sciences), where he graduated in 1925 in Physics and Chemistry. In 1931 Nicolae Cernescu successfully sustained his doctor's thesis prepared under the guidance of Prof. G. Wiegner, Head of the Laboratory of Agricultural Chemistry of the Federal Polytechnic in Zürich (Switzerland).

Since 1925 Nicolae Cernescu worked uninterruptedly in the Pedology Department of the Geological Institute (at present dependent on the State Committee for Geology), being appointed head of this Department in 1948. In 1955 he was elected as corresponding member, and in 1963 as a member of the Academy of the Socialist Republic of Romania; in 1955 he also headed the Pedology Group organized under the sponsorship of the Academy. Since 1939 Nicolae Cernescu worked as assistant lecturer in the Polytechnical Institute in Bucharest and in 1945—1947 as deputy head of the chair of Physical Chemistry. In 1947 he was appointed as lecturer in agricultural education and later professor of pedology at the Agronomical Institute in Bucharest (1948).

The rich scientific activity of Nicolae Cernescu, exposed in more than 100 papers, embraces most varied research fields in soil science. He brought important scientific contributions to various problems such as: mechanism of cation exchange in natural and synthetic silicates, constitution of the cationic exchange capacity of genetic soil types, pedogenetic chemistry of some soils, soil reaction in relation with the nature of the exchangeable cations, improvement of acid soil fertility by marl-adding, balance of some nutrition elements of plants in the genetic soil types of Romania.

In the last 20 years Nicolae Cernescu paid special attention to the problems connected with soil classification, pedogeographic subdivision and soil survey. He is the author of some soil classifications and of synthesis maps of Romania's soils among which should be mentioned the soil map at the scale 1 : 1 000 000, brought to the notice of the soil scientists attending the VIIIth International Congress of Soil Science (Bucharest 1964) and highly appreciated.

Nicolae Cernescu also devoted himself to the organizing of pedological research, developing the existing laboratories and creating new ones endowed with up to date equipment and able to solve the complex problems related with the knowledge of soils.

For his outstanding contribution in promoting Romanian science Nicolae Cernescu was awarded prizes of the Academy and decorated with medals and orders of the Socialist Republic of Romania.

Nicolae Cernescu has been a member of the ISSS since 1929. Between 1937—1941 he was the secretary of the Committee for Soil Genesis and Mapping. At the VIIth Congress of the ISSS Nicolae Cernescu was elected President of the ISSS for the period 1960—1964 when he organized the works of the VIIIth Congress of the ISSS, which took place in Bucharest in 1964.

Nicolae Cernescu exposed original papers in numerous international conferences, symposia and congresses. In 1963 he was elected corresponding member of the Academy of Agricultural Science in Berlin. He was a member of the Elaboration Committee for the 1 : 2500 000 Soil Map of East Europe, a member of the Reporter's Committee for the 1 : 1 000 000 Soil Map of Europe and a member of the Committee of Experts for the Correlation of Soils in view of realizing a Soil Map of the World. In these functions he promoted the idea of close international collaboration and contributed to the reconciliation of the various standpoints.

Since 1965 Nicolae Cernescu was a member of the Advisory Committee for Applying Science and Technique to Development, sponsored by the UNO. At the latest sessions of this Committee Nicolae Cernescu headed the proceedings of the Working Group on Natural Resources and presented the report on the world's natural resources.

Nicolae Cernescu's valuable scientific work, the substantial contribution he brought to the development of the soil science in Romania, and his sustained activity in promoting international collaboration in the field of soil science make him stand out among the scientists known the world over.

A man of vast erudition endowed with exceptional qualities, he was during all his life a passionate researcher in the field of soil science which he served faithfully and with abnegation. He always showed exceptional tact and calm in solving the most complex and difficult problems.

Those who knew Nicolae Cernescu will always keep most sincere feelings of high appreciation and esteem for him as a scientist characterized by remarkable humanity, his memory remaining for ever in their hearts.

N. FLOREA

Václav Novák †
(Professor, A. E., Dr., ScDr., Dr. h.c. (Brno))
(1888—1967)
His Life and Work

March 31st, 1967 marks the day that professor Václav Novák, a prominent authority on soil science, died in Brno, Czechoslovakia, at the age of 79. The deceased had been for many years a member of the International Soil Science Society and chairman of several sections (soil mechanics and physics, soil chemistry, etc.) at international soil science congresses.

Professor Novák's scientific and research activities covered a wide range and involved not only all branches of soil science, but also agricultural meteorology and bioclimatology. The greatest part of his activities as a scientist concentrated on soil mechanics and physics, further, on soil genetics and cartography. One of his great merits is the introduction of V. V. Dokuchayev's principles into Czechoslovak soil science. Professor Novák compiled the first general map of soil types in Czechoslovakia. He organized a detailed experimental procedure relating to mechanical soil treatment, worked on methods for the preparation of soil for mechanical analyses, occupied himself with agrophysical analyses, the study of water in the soil available to plants, the study of soil structure, etc. In the field of soil chemistry he worked on the chemical composition of colloidal clay, in the field of the sorption complex, on problems relating to saline soils, soil reaction, on methods of humus determination, and the like. He paid special attention to so-called garden soils and laid extraordinary stress on the living component of soils, i.e. the soil edaphon. In soil cartography he initiated a new method of systematic soil mapping in Czechoslovakia on the basis of soil types with regard to soil-forming rocks. In the last years of his life he drew attention to the importance of the study of soil amelioration in Czechoslovakia. Professor Novák kept on emphasizing the complex concept of soil science problems, not only from the viewpoint of soil physics, chemistry and microbiology, but also in relation to climate and microclimate, respectively. He was in steady contact with prominent foreign soil scientists and was a member of many scientific societies in Czechoslovakia and abroad.

Professor Novák was also an outstanding pedagogue during his long activity at the University of Agriculture in Brno. He was very popular among his co-workers and students. His publishing activities were rather comprehensive. During his scientific career he published 15 books, 105 specialized scientific communications, 106 miscellaneous papers and specialist articles, about 100 organizational and complex reports, and more than 600 contributions on soil science and agricultural

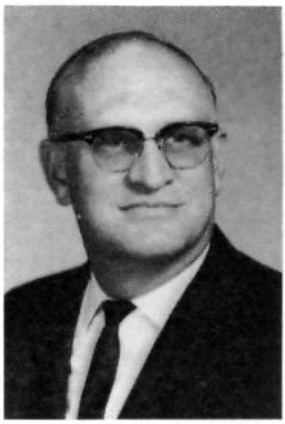
meteorology. Prof. Novák, as a scientist, research worker, university teacher, and foremost official of many important institutions, built up a school of devoted co-workers and disciples, not only in science but also in practice.

With professor Václav Novák's departure from this world, Czechoslovak and international soil science has lost an outstanding scientist and excellent man, but his name will go down for ever into the history of soil science and agricultural meteorology.

Honour to his work, honour to his memory!

JOSEF PELÍSEK
Professor, Dr., F.E., ScDr.

Sterling A. Taylor †
(1918—1967)



Dr. Sterling Angus Taylor died June 8, 1967, at his home in River Heights, Utah, USA, following a short illness. As a soil scientist, he had attained national and international recognition, having been invited to present scientific papers in Spain, France, Rumania, Italy, Australia, and at numerous meetings in the USA. His passing will be mourned throughout the world. He has trained students from 49 different countries and has made other professional friends in equally as many locations.

He authored a book entitled "Physics of Irrigated Soils", which will soon be distributed by W. H. Freeman and Company, San Francisco. Dr. Taylor was also an author of 93 scientific papers dealing with soil moisture, soil aeration, soil structure, soil heat, irrigation, climate and soil-water-plant relations. These papers have been published throughout the world in several languages. He maintained active membership in 11 professional and three honorary societies: American Society of Agronomy, American Association for the Advancement of Science, American Society of Agricultural Engineers, Soil Science Society of America, International Society of Soil Science, International Society of Scientific Hydrographers, American Society of Plant Physiologists, Soil Conservation Society of America, American Geophysical Union, American Institute of Biological Sciences, American Meteorological Society, Phi Kappa Phi, Sigma Xi, and Alpha Zeta. In addition, Dr. Taylor was a Fellow of the American Society of Agronomy and of the American Association for the Advancement of Science. He served as Vice President of Commission I, International Society of Soil Science, 1964—1967; Chairman of Divisions I and IV, Soil Science Society of America, 1955—1956, 1959—1960, respectively; and Chairman of the Terminology Committee of the Soil Science Society of America.

Dr. Taylor was born February 16, 1918, in Salem, Utah. He graduated from Utah State University in 1941, received his PhD at Cornell University in 1949, and joined the Utah State University staff the same year. He became head of the Department of Soils and Meteorology when it was formed early in 1965. He acted as special consultant for the International Cooperative Administration in India and Venezuela, the State of California, the UN Food and Agricultural Organization in Egypt, and the Cooperative State Research Service in Puerto Rico.

Dr. Taylor served in the U.S. Army during World War II, being released from active duty as a Major. He had recently been promoted to full Colonel in the Army Reserve. In addition to serving his country, he acted in behalf of his community as a member of the Cache County School Board. Dr. Taylor also developed innumerable personal friendships among non-professional people, and was active in the Boy Scouts organization for over 30 years. He served four years as a Bishop in the Church of Jesus Christ of Latter-day Saints.

Sterling A. Taylor made invaluable contributions to his profession and to the lives of individuals he encountered. His professional record of productivity at the forefront of his field is not likely to be surpassed. His personal ability to inspire his associates to strive for the upper limits of their ability will be sorely missed.

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