ASSOCIATION INTERNATIONALE POUR L'ETUDE DES ARGILES
INTERNATIONAL ASSOCIATION FOR THE STUDY OF CLAYS
INTERNATIONALE VEREINIGUNG ZUM STUDIUM DER TONE
МЕЖДУНАРОДНАЯ АССОЦИАЦИЯ ПО ИЗУЧЕНИЮ ГЛИН

AIPEA NEWSLETTER

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IN THIS ISSUE :

THE NEXT ISSUE:

will contain a detailed report on the activity of the KAOLIN WORKING GROUP of AIPEA by Dr. KUZVART, Czechoslovakia.

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1972 INTERNATIONAL CLAY CONFERENCE

MADRID, SPAIN

JUNE 25 th – 30 th

REPORT BY P.G. ROUXHET

Louvain, Belgium

The 1972 International Clay Conference was organized very nicely by the "Sociedad Espanola de Arcillas". It took place in Madrid between the 25th and the 30th of June and was followed by various field trips accross the country. The number of registered participants was beyond 400, some 110 communications being presented.

Three plenary lectures were delivered : The crystal-field theory and the structural characteristics of metallic oxides and silicates by E. Gutiérrez-Rioz; Bentonites: Origin, composition and occurence by R.E. Grim; Interstratification in clay minerals by D.M.C. MacEwan.

The form of the conference was arranged in order to stimulate efficient discussion; Therefore the participants received in advance the preprints of the papers. Each author had five minutes to recall the essential features of his contribution; brief questions could be asked immediately but most of the discussion took place at the end of a session including 3 to 5 papers. Because of practical limi-

tions parallel sessions, having the classical congress form, were organized in order to allow the presentation of a few more papers.

The communications were distributed into 7 different sections introduced by a chairman. Section I, on crystal chemistry of clay minerals, contained papers related to the following aspects:

- correlation between chemical composition and crystal structure or ordering, largely evoked in chairman's introduction
- theoretical calculations of bonding in the tetrahedra and of energy of interaction between kaolin layers
- defects in heated and unheated kaolin minerals
- characterization of peculiar minerals (Mg-Ni silicates Cr-halloysites, mixed-layer kaolinite-smectite)
- physical and chemical interaction between mica constitutional hydroxyls and their environment
- chemical reactions of kaolinite and pyrophyllite with Li_2CO_3.

The second section concerned the genesis and synthesis of clay minerals. It was introduced by a systematic review of recent improvements obtained in fundamental and experimental areas as well as in natural observations. Various aspects of the field work were represented : mineral evolution in the weathering and diagenisis zones, description of occurrences and associations, geographical distribution of clay minersl in given sediments.

The synthesis of kaolinite is still found to attract many people; the other reported laboratory works were rather related to the alteration or transformation of minerals. Data about interrelations between clay minerals were also provided through phase diagrams.

Three other sections were dedicated respectively to colloidal properties of clays, surface properties of clays and volume absorption phenomena. The introductions outlined points of particular interest in the fields of adsorption properties and clay organic complexes; various aspects of swelling were also discussed.

Few papers were presented on properties of clay dispersions. Ion exchange processes were represented by fundamental studies of rather simple systems as well as by more global descriptions of complex systems. Data were presented on the properties of adsorbed water, Al-hydroxy interlayers and the oriented crystallization on phyllosilicates.

There were of course numerous communications on the adsorption of organic molecules in the interlayer space, many of them attempting to describe the types of interaction with the mineral constituent. Other subjects concerned the geometrical aspects of the absorption of long molecules, reactions taking place in the adsorbed organic phase and motion in the adsorbed phase.

Communications were also presented on the modification of the surface extent or surface properties by HCl or organic reagents.

A symposium on K-exchange in micas was held, being introduced by a very detailed review of the weathering of mica to vermiculite under laboratory conditions. The papers presented illustrate various attempts to quantify and systematize the observations in this field.

A sixth section dealed with technical properties and application of clays. The introduction provided illistrations of the interaction between research and the industrial applications of clay minerals. The contributions presented concerned methods of evaluation of clays for industrial purpose and descriptions of Spanish clay minerals.

A last section was provided for general papers.
Two papers treated specific application of electron microscopy, diffraction and microprobe. A symposium was held on quantitative analysis of clays by X-ray diffraction; while a general scope of the problem was presented, peculiar aspects were also detailed: enrichment and randomizing of the sample, effects of particle size and lattice disorder.

A kaolin symposium was also organized during the conference. It included the papers dedicated to kaolin minerals in the various sections but a parallel session was also organized for additional papers. A special publication was prepared in order to collect these papers and the extended abstracts of those published in the Preprints and the Proceedings of the Conference. A special report by Dr. KUZUART will be published in the next NEWS LETTER.

The form adopted for the conference favored obviously interesting discussions and appears particularly suitable for an international meeting. The present experience suggested also the following comments.

While it causes evidently many headaches to the organizers, the distribution of preprints before a congress increases in a very important way the efficiency of participation. Due to the important volume of the preprints it is suitable that participants receive them at least two weeks before the congress starts.

Although the meaning of the oral presentations and their limitation in time had been clearly stated by the organizers, most of them had the form of a classical congress communication and extended far beyond the prescribed time. It seems that participants do not adapt easily to a given discipline.

This form of conference, with grouped discussions, allows and even suggests a more active role for the session chairman. By organizing and stimulating the discussion, by recalling previous ideas and results, by outlining relations between various works, the chairman can make the discussion to be a very constructive work by which not only a limited number of protagonists but many participants feel concerned. Under these conditions the number and name of the scientific sections of the conference should be closely adapted to the accepted communications, whilst the common practice is to distribute the papers among preestablished sections.

REPORT ON THE GENERAL ASSEMBLY

held during the 1972 International Clay Conference on June 30, 1972 at Madrid

During the well-attended General Assembly the following decisions were made:

1.) New Council for the period 1972-1975
The candidates were proposed by the Nominating Committee (Prof. Chukhrov, Prof. White, Prof. Jasmund, Dr. Pedro), accepted by the Council and then elected by the General Assembly. Including the Council members to be kept for another 3 years, the Council for the period 1972-1975 consists of the following members:

President: Dr. W.F. Bradley, USA
Past President: Prof. F.V. Chukhrov, USSR
Vice President: Prof. J.J. Fripiat, Belgium
Secretary General: Prof. U.Schwertmann, FRG
Treasurer: Prof. J.L. White, USA
Editor in Chief: Dr. S.W. Bailey, USA
Members of the Council: Dr. J.L.M. Vivaldi (Spain), Dr. J.E. Brydon(Canada), Dr.K.Norrish (Australia), Dr. A.Langier-Kuźniarowa (Poland), Prof. F. Veniale(Italy), Prof. G. Millot(France), and 2 from the host country

2.) Based on a cordial invitation from Mexico as expressed by Dr. Liberto de Pablo the General Assembly agreed on Mexico City as the location for the 1975 International Clay Conference.

3.) The Treasurer Prof. White presented the financial report which after having been checked by Dr. Uytterhoeven and Dr.Robert was accepted by the General Assembly(see Report on p.).

4.) Prof. Heller-Kallai resigned as Editor in Chief. Dr. White expressed the sincere gratitude of the society for the great efforts Prof. Heller-Kaillai has put into this difficult reponsibility. Dr. Serratosa will take over the duties for finishing the final edition of the proceedings of the Madrid Conference.

5.) Membership affairs. Prof. White reported the current memberships situation. This is as follows:

514 Individual members
28 Institutional members
3 Company members

Distribution of Individual Memberships

Western Europe	244
Eastern Europe & USSR	18
USA & Canada	178
Far East	42
Central & South Amer.	7
Mid-East	7
Africa	1

Balance Sheet
May 25, 1972

CASH

Purdue National Bank Lafayette, Indianna	
Checking	$ 1,232.34
Savings(5-072-589-4)	265.14
Savings(6-007-797-1)	803.83
TOTAL ASSETS	$ 2,301.31

LIABILLITIES AND SURPLUS

Accounts payable	none
Surplus	
Excess of income over operating expenses	$2,301.31
TOTAL SURPLUS	$ 2,301.31

REPORT OF THE A.I.P.E.A. NOMENCLATURE COMMITTEE

The following members were present: G.W. Brindley (U.S.A.) Chairman, G. Pedro(France) Secretary, S.W. Bailey (U.S.A.), K. Jasmund (Germany), J. Konta (Czechoslovakia), T. Sudo(Japan), F. Veniale(Italy). B. Newmann(Gt.Britain) and B. Zvyagin(U.S.S.R.) were unable to attend. J. Martin-Vivaldi(Spain) was asked to assist the discussions, which took place in Madrid, Spain, June 25, 1972.

1. General definition of phyllosilicates*

The proposal formulated in Tokyo, 1969, was reconsidered and modified as follows:

It was concluded that the definition should be on the basis of structure and composition of the silicate parts of the structure, and that it is unnecessary to involve physical properties or interlayer bonding in the definition nor to have a category of pseudo-layer structures.

The proposed definition, as regards clay minerals, is:

"Clay minerals belong to the family of phyllosilicates and contain continuous two-dimensional tetrahedral sheets of composition T_2O_5(T = Si, Al, Be, ...) with tetrahedra linked by sharing 3 corners of each, and with the fourth corner pointing in any direction. The tetrahedral sheets are linked in the unit structure to octahedral sheets, or to groups of coordinated cations, or individual cations".

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*Subsequent written comments have been received indicating that some members of the committee consider that this definition is too restrictive, and that an agreed definition should await some future occasion when more detailed discussion can be arranged.

Statement of Income & Expenses
June 27, 1967 to May 25, 1972

	1967	1968	1969	1970	1971	1972	TOTAL
INCOME							
Dues							
Individual members	197.46	344.45	419.67	479.90	907.35	389.98	$ 2,738.81
Companies and institutional	51.84	63.25	104.50	51.87	202.32	6.46	480.24
Interest					43.23	25.74	68.97
Miscellaneous	425.00						425.00
TOTAL INCOME	$ 674.30	$ 407.70	$ 524.17	$ 531.77	$1152.90	$ 422.18	$ 3, 713.02
OPERATING EXPENSES							
Printing & supplies	13.56	15.88	20.25	108.71	141.19	196.40	495.99
Postage		69.00	45.36	91.00	231.68	240.78	677.82
Bank box rental				3.00	3.00		6.00
Miscellaneous	2		200.50		11.00	20.40	231.90
TOTAL EXPENSES	$ 13.56	$ 84.88	$ 266.11	$ 202.71	$ 386.87	$ 457.58	$ 1,411.71
NET INCOME	$ 660.74	$ 322.82	$ 258.06	$ 329.06	$ 766.03	$- 35.40	$ +2,301.31

Joe L.White, Treasurer

2. Standardization of structural terms.

The terms plane, sheet, layer, interlayer, and unit structure, and their equivalents in other languages were considered.

The recommended usage is as follows:

A single plane of atoms; a tetrahedral, or an octahedral sheet; a 1:1 or 2:1 layer. A sheet is an articulated combination of planes, and a layer an articulated combination of sheets.

Layers are separated by various interlayer materials, including cations, hydrated cations, hydroxide groups or hydroxide sheets.

The total assembly of a layer plus interlayer material is referred to as a unit structure.

Equivalent terms in other languages are given in Table I.

3. Position of chlorite in an amended classification scheme.

Chlorite shall be considered as a 2:1 layer structure with an interlayer hydroxide sheet.

This description emphasizes the similarity of chlorite to other clay minerals containing interlayer materials, and eliminates such descriptions as 2:2 and 2:1 + 1.

It is recommended that the components of the chlorite structure be described as the 2:1 layer(not talc layer) and the interlayer hydroxide sheet(not brucite sheet). The amended classification scheme is given in Table II.

4. Definition of polytypism.

Polytypism has been considered to be a one-dimensional form of polymorphism, restricted to layer, or layer-like structure, with different structures formed by different stacking sequences of similar layers. However, small differences in composition are not unusual in different polytypes of a compound. Also, there has been controversy regarding the necessity for crystallographic identity of layers in different polytypes and a few authors have taken the view that individual layers in two specimens must be strictly identical as to space group symmetry in order to be polytypes. Other authors consider this interpretation unduly restrictive because the interlayer bonding of different stacking sequences may modify the individual layers. Also, different degrees of tetrahedral or octahedral cation ordering may affect the resultant symmetry.

Consequently, the A.I.P.E.A. Nomenclature Committee accepts the proposal of the Joint Committee of the International Union of Crystallography, and the International Mineralogical Association, that the definition of polytypism be modified to permit minor deviations, as yet unspecified, in overall composition and in symmetry of the layers.

5. The problem of new names.

The A.I.P.E.A. Nomeclature Committee recommends that special names be giv
ject to their accept
and the I.M.A. Nomen

It recommends
defined materials, such as irregular interstratified systems, or imperfect structures(e.g. serpentine-stevensite as in deweylite, and sepiolite-palygorskite as in aqzacreptite) or to amorphous constituents.

The name Aliettite proposed for a regular interstratification talc-saponite will be considered, particularly with respect to identification characteristics, in the coming months.

6. Distinction between smectites and vermiculites.

These minerals are normally distinguished by various behavioral tests, such as expansion with polyalcohols and with water, after saturation with particular cations. Dr.M.Robert(France) submitted experimental data showing that different behavioral tests may lead to different naming of minerals near the uncertain boundary between smectites and vermiculites.

TABLE I

STRUCTURAL TERMS OF REFERENCE AND THEIR EQUIVALENTS IN DIFFERENT LANGUAGES

ENGLISH	FRENCH	GERMAN	RUSSIAN	SPANISH	ITALIAN
PLANE	PLAN	EBENE		PLANO	PIANO
SHEET	COUCHE	SCHICHT		CAPA	FOGLIETTO
LAYER	FEUILLET	SCHICHT-PAKET		ESTRATO o PAQUETE(DE CAPAS)	STRATO
INTERLAYER or INTERLAYER MATERIALS	ESPACE INTERFOL-TAIRE	ZWISCHEN-SCHICHT		MATERIAL INTERLA-MINAR o INTER-STRATIFICADO	INTERSTRATO
UNIT STRUCTURE	UNITE STRUCTU-RALE	STRUKTUR EINHEIT		UNIDAD ESTRUCTURAL	UNITA STRUTTURALE

TABLE II

Amended classification of phyllosilicates

Type of Layer	Interlayer material	Charge, x	Group
2:1 $T_4O_{10}(OH)_2$	nil	0	Pyrophillite-talc
	Individual cations or hydrated cations	$\sim 0.2 < x \leq 0.6$	Smectite
		$\sim 0.6 < x \leq 0.9$	Vermiculite
		$x \sim 1$	Mica
		$x \sim 2$	Brittle Mica
	hydroxide sheet	x variable	Chlorite
1:1 $T_2O_5(OH)_4$	nil	0	Kaolinite-serpentine

G.W. Brindley, Chairman

G. Pedro, Secretary

The Nomenclature Committee was unable to reach a firm conclusion on this problem. It was recommed that additional care be taken in application of tests, and particularly that the basis of the tests be broadened. In resolving whether a swelling 2:1 mineral be called a smectite or a vermiculite, it was recommended that the glycerol swelling test be made with Mg and with Na saturations, and also that the state of hydration after K saturation should be considered. It was recommended that the problems addressed to the Committee by Dr. Robert be studied further.

NEWS OF NATIONAL CLAY GROUPS

GERMAN CLAY AND CLAY MINERALS GROUP

The "Deutsche Ton-und Tonmineralgruppe (DTTG)" has been established March 28, 1972 in Kiel,W.Germany. The council elected at the inaugural session is as follows: President Prof.K.Jasmund(Cologne), Secretary- Prof. H.Graf v.Reichenbach(Kiel), Treasurer- Prof. H.M.Köster(Munich), Dr. G.Brümmer(Kiel),Prof. U.Hofmann(Heidelberg), Dr. G.Lagaly(Munich), Dr. K.Schüller (Lauf), Prof.U.Schwertmann(Munich), and Prof. A.Weiss(Munich). The present membership is about 40.

The foundation of the Group was stimulated by a research program on clays and clay minerals sponsered by the Deutsche Forschungsgemeinschaft since several years. The activities of the Group aim at the promotion of research and technology of clays under scientific and economical aspects,(a)by facilitating exchange of information among members, (b)by intensifying cooperation between all disciplines engaged in clay science (mineralogy, geology, pedology, crystal and surface chemistry, ceramics, etc), and (c)by establishing a closer contact to foreign clay groups.

Biennial meetings are planned to be held in the future.

H. Graf v. Reichenbach(Secretary)
3 Hannover-Herrenhausen,Herrenhäuserstr.2,GFR

GROUPE FRANCAIS DES ARGILES

The council members of the Groupe Francais des Argiles for the period of 1.6.1972 to 1.6.1975 are as follows:

President: Dr. Georges PEDRO
Director de recherche au C.N.R.A.
Route de St Cyr 78-VERSAILLES(France)

Vice President: Dr. Raymond WEY
Professeur àl'Université
Louis Pasteur E.S.C.M.
3, Rue A.Werner 68-MULHOUSE (France)

Secretary Treasurer : Dr. Michael ROBERT
C.N.R.A. Laboratoire des Sols
Route de St.Cyr 78-VERSAILLES(France)

Secretary Editor: Dr. Hélène PAQUET
Institut de Géologie
1, Rue Blessig 67-STRASBOURG(France)

ASSOCIATION INTERNATIONALE POUR L'ETUDE DES ARGILES

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Titre:
Titel: .....

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Adresse:
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Area of special interest in clay research and technology:
Domaine d'intérêt particulier dans la recherche et la technologie des argiles:
Specielles Interesse innerhalb der Tonforschung und Tontechnologie:

.....

.....

Type of membership:
Catégorie de membre:
Typ des Mitgliedschaft: .....

....

Date – Date – Datum | Signature – Signature – Signatur

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Schecks oder Postanweisungen müssen auf die AIPEA lauten und den Kassierer mit diesem Anmeldeformular gestellt werden.