

A I P E A

NEWSLETTER

NO. 13

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INTERNATIONAL ASSOCIATION FOR THE STUDY OF CLAYS
INTERNATIONALE VEREINIGUNG ZUM STUDIUM DER TONE
МЕЖДУНАРОДНАЯ АССОЦИАЦИЯ ПО ИЗУЧЕНИЮ ГЛИН

NEWS OF INTERNATIONAL CLAY ACTIVITIES

WORKING GROUP OF THE INTERNATIONAL GEOLOGICAL CORRELATION PROGRAM "GENESIS AND AGE OF KAOLINS"

1976 Annual Report

Participating countries: Algeria (Dr. A. Saadallah), Malawi (Dr. M.J. Crow) and Venezuela (Dr. S.E. Rodriguez) were approved as new members of the Working Group (WG); 34 other countries participating in the project are listed in the 1975 Annual Report. Prof. F. Loughnan (Australia) was co-opted to the Executive Committee (EC) of the WG as its fourteenth member.

National funds were used for research by each member of the WG. Financial support from UNESCO and IUGS enabled seven members of the EC to defray partly the travel and subsistence costs of the 7th Kaolin Symposium in Japan (Aug. 27 - Sept. 5, 1976).

The project with its present objectives (see 1975 Ann. Rep.) will be concluded in 1980 by a final report.

In 1976 two kaolin symposia were organized. In conjunction with the International Geological Congress meetings in Sydney, Australia, August 16 - 26, 1976, the Working Group sponsored a field trip and the 6th Kaolin Symposium. The field trip was organized and led by Prof. Fred Loughnan of the University of New Wales in Sydney. The field trip was very informative and covered the clay rocks of the Sydney basin. A group of 14 participants left Sydney early morning on August 12, and returned late in the evening on August 15. Prof. Loughnan took the excursion around the periphery of the Sydney basin to show the clay rocks associated with the coal measures and many other kaolinic occurrences (see special report by H.H. Murray, p. 3).

The 6th Kaolin Symposium was held on the afternoon of August 23 and 24, chaired by Prof. S.W. Bailey of the University of Wisconsin. Many interesting papers were given and these are abstracted in the program of the International Geological Congress.

Prof. Hideo Minato of the University of Tokyo and his co-workers sponsored the 7th International Kaolin Symposium, August 27 - September 5, (see special report by Prof. Sudo in this issue). The symposium was attended by 30 participants from Japan and by 15 participants from other countries. The first two days of the symposium were held in Tokyo at which time several papers describing kaolins in Czechoslovakia, German Democratic Republic, France, Spain, Federal Republic of Germany, Japan, Turkey and Taiwan were given and discussed. The next eight days were spent visiting kaolin, clay, bentonite and zeolite deposits near Hiroshima, Nagoya, Yamagata and Morioka. The symposium and the trip was very well organized. The first trip south of Tokyo was led by Prof. K. Nagasawa, the trip to the Iwate clay mines near Morioka was prepared by Prof. Iijima. A guide book and the proceedings of the 7th Kaolin Symposium were published (chairman H. Minato, editor S. Shimoda, 150 pages), and given to each participant. The proceedings can be ordered from Prof. Hideo Minato (University of Tokyo, College of General Education (Kyojo - Gakuba, Komaba, Meguro-ku, Tokyo, Japan). The price is 6 US dollars.

Plans for the future:

8th Kaolin Symposium in Madrid and field investigation of kaolin and alunite deposits in Spain (Segovia, Guadalajara, Teruel and Valencia), Sardinia and Italy (near Rome and Viterbo) will be organized by Prof. Emilio Galan (Avenida Juan Andrés, 30, Madrid-35, España) and Italian members of the working group (7 - 16 Sept., 1977) (see p. 11).

9th Kaolin Symposium and field investigation in the Federal Republic Germany (5 days, leader Prof. Köster) and Austria (3 days, leader Dr. Wieden), probably 2 - 9 July, 1978 before the Sixth International Clay Conference in Oxford (10 - 14 July, 1978). The excursion will include visits to several kaolin and clay deposits in the Rhine river area, in eastern Bavaria and in Austria. A half-day post session at Vienna is provided for discussions about the visited kaolin deposits. The Organizing Committee of the Sixth International Clay Conference will be asked to kindly allow the Working Group No. 23 to organize a one-day session in Oxford mostly on methods of kaolin investigation.

10th Kaolin Symposium and field investigation in Hungary 1979 (3 days, leader Dr. Varju), Rumania (4 days, leader Dr. Radan) and Turkey (4 days, leader Dr. Seyhan).

11th Kaolin Symposium and field investigation of weathering crusts in recent tropics, 1979, Nigeria (7 days, leader Prof. Oyawoye, Ibadan University) and possibly Ghana (3 days).

12th Kaolin Symposium and field investigation, 1980 (after the 26th IGC in France), Poland (3 days, leader Dr. Wicwióra), probably Ukrainian SSR.

Kaolin Symposium and field investigation in Georgia, USA, 1980, after the 26th IGC (7 days, leader Prof. Murray).

Far East Symposium and Study of Argillation (with economic mineral deposits, soil formation and engineering geological problems in view), Oct. 1981, Kiushiu (Japan), Taiwan, Malaysia, South Korea (leaders Prof. Minato, Dr. Wang and others).

Summary: Two kaolin symposia were organized by the working group No. 23 in 1976 in Australia and Japan. The abstracts of proceedings of the symposium in Australia were published in the program of the 25th International Geological Congress. The proceedings of the symposium in Japan were published in a volume by the University of Tokyo.

P.S.: I wish all members of the Working Group good health, happiness in personal life and success in scientific research throughout the New Year 1977 and after.

--M. Kužvart, Secretary
Working Group

P.P.S.: Members of the Working Group, who intend to ask their national authorities for financial support for participation on a conference symposium, excursion, etc. concerned with clays, kaolins, bentonites, laterites, silcrete, marshallite, caliche, ortstein, terra rossa, soil formation, clay minerals in engineering geology, etc. May ask the secretary of the WG for an official invitation or delegation by the Working Group. They will be expected to send a one-page report to the secretary after the event.

THE 5th SYMPOSIUM ON "GENESIS OF KAOLIN" AT DRESDEN (GDR) 14 - 20 SEPTEMBER 1975

The 5th kaolin symposium with 3 days of technical sessions and 4 days of field trips was organized at Dresden by Prof. Dr. M. Störr (Ernst-Moritz-Arndt-Universität at Greifswald). Twenty-nine papers were presented and are published now in the Zeitschrift für Geologie 1976. Most of the papers inform about genesis and age of important kaolin deposits in the world. The field trips were extraordinary well organized. About 40 participants of 15 countries visited kaolin deposits at Caminau, Seilitz, Ockrilla, Gröppendorf, Kemmlitz and clay deposits at Wetro, Berzdorf and Espenhain. The review of weathering deposits was finished with a visit to the nickel hydrosilicate mine Callenberg. Besides the kaolin and clay deposits several points of historical interest were visited; particularly the famous Meissen China Factory must be mentioned.

The participants of the symposium obtained a photocopy book edited by M. Störr and entitled "Kaolin deposits of the GDR in the northern region of the Bohemian massif". This excellent volume has been provided as a basis for discussions on the symposium and as a guide book to the field trips. Twelve chapters well illustrated by sketch maps, figures and tables review the geology and mineralogy of the kaolin deposits of the GDR. The history of the theories of kaolin origin as well as the results of modern geological and mineralogical research work on the kaolin deposits of the GDR are represented thoroughly.

--H.M. Köster

THE 6th SYMPOSIUM ON KAOLIN GENESIS AT SYDNEY AUGUST 16 - 25, 1976

In conjunction with the 25th International Geological Congress held in Sydney, Australia August 16 - 25, 1976, the kaolin working group sponsored by UNESCO held a symposium in conjunction with the Australian Clay Minerals Society. Two sessions were held on the afternoons of August 23 and 24. The attendance was excellent and lively discussions resulted after each paper. Papers were presented by Prof. W.D. Keller, University of Missouri, U.S.A., Prof. H.H. Murray, Indiana University, U.S.A., Prof. F.C. Loughnan, University of New South Wales, Australia, Prof. H. Minato, University of Tokyo, Japan and Prof. W.H. Huang, Texas A & M University, U.S.A. on the first afternoon. These papers all dealt with some aspect of kaolin genesis. The second afternoon papers were presented by the members of the Australian Clay Minerals Society and dealt with various aspects of clays in Australia. Those presenting papers were Dr. P.J. Darragh of CSIRO, Dr. W.F. Cole of CSIRO, Prof. R.J. McLaughlin, University of Melbourne, Dr. K. Norrish of CSIRO and Dr. E. Slansky of N.S.W. Geological Survey. The Symposia were organized by Prof. Fred Loughnan and he is to be commended for the excellent program. Prof. Loughnan also led an excellent excursion from August 12 - 15 covering the kaolinite clayrocks of the Sydney Basin and he provided a specially written guidebook with maps that summarized the general geology of the basin, and the specifics of clay geology and mineralogy for each stop. The excursion was directed primarily to the wide array of kaolinite clayrocks in strata of Early and Late Permian, Early Triassic and Early Jurassic age. One of the most exciting stops was a visit to the Wingen Mullite Deposit at Murulla where we saw endellite associated with mullitetridymite-cristobalite. The origin of the mullite is easily explained as it results from combustion metamorphism by burning coal beds. The question is how are veins and massive beds of endellite formed in close association with mullite and high temperature silicas? We had four full days of fascinating clay geology and Prof. Loughnan did a masterful job in leading the discussions and organizing the stops. Fourteen people participated in the field excursion. More clay mineralogists and geologists should have the opportunity to see these kaolin occurrences in Australia. Sydney is a beautiful city and the Geological Congress was well organized. The clay papers were high quality and well presented.

--H.H. Murray

THE 7th SYMPOSIUM ON GENESIS OF KAOLIN AT TOKYO AUGUST 29 - SEPTEMBER 5, 1976

The Working Group of "Genesis of Kaolin" in Japan (Chairman: Prof. H. Minato, Tokyo University) invited this Symposium to Japan, and it was held at Tokyo under the sponsorship of the Japan Society for the Promotion of Science on August 29 - 30, 1976 with field investigations on August 31 and September 1 - 5, 1976.

The general program was as follows:

August 27, 1976 Registration

Opening remarks (H. Minato, H.H. Murray, T. Sudo)
N. Fujii: General review on kaolin deposits in Japan
H. Minato: Mineralogy and genesis of hydrothermal kaolin in Japan
K. Nagasawa: Geology and mineralogy of kaolin deposits of supergene origin in Japan

August 28, 1976

E. Galán: Spanish kaolin deposits: new data
J. Esteoule and J. Esteoule: Kaolin deposits in France
H.M. Köster: Kaolin deposits in the Federal Republic of Germany
J. Neuzil: Kaolin deposits of Czechoslovakia
M. Störr: Relationship between genesis, mineralogy and engineering properties of the kaolins of the GDR
H.H. Murray: The Georgia sedimentary kaolins
W.D. Keller: Texture of kaolin observed by scan electron microscopy, as evidence of the mode and process of genesis of the kaolin

Two publications: (1) "The 7th Symposium on Genesis of Kaolin - International Correlation Program - Correlation of Genesis of Kaolin (1976)", Editor: S. Shimoda. This contains the papers presented to this symposium. (2) "Geology of the Seto, Shikozan and Itaya Kaolin Deposits - A Guide to the Field Investigations - Working Group of Genesis of Kaolin in Japan".

Those interested may obtain further information from Prof. H. Minato, Tokyo University (General Education), Kamaba, Meguro-ku, Tokyo, Japan.

-- T. Sudo

NEWS OF NATIONAL CLAY GROUPS

CLAY RESEARCH ACTIVITIES IN AUSTRIA

Am Institut für Bodenforschung und Baugeologie der Universität für Bodenkultur in Wien sind drei Herren mit der Untersuchung von Prozessen der Tonmineral-Bildung beschäftigt: Dr. Müller, Dr. Riedmüller und Dr. Schwaighofer. Die Arbeiten von Müller und Schwaighofer beziehen sich vorwiegend auf bodenmineralogische Untersuchungen und Verwitterungsstudien. Riedmüller beschäftigt sich mit Neubildung und Umwandlung von Tonmineralen in tektonischen Scherzonen.

Im Mineralogisch-Petrographischen Institut der Universität Wien behandelt Herr Dr. Kurzweil im Rahmen seiner sedimentpetrographischen Arbeiten ebenfalls tonmineralogische Fragen.

Herr Prof. Dr. Höller vom Institut für technische Petrographie und Mineralogie der Technischen Universität Graz befaßt sich mit seinen Mitarbeitern, Dr. Kolmer und Dr. Wirsching vorwiegend mit dem Problemkreis der bei hydrothermalen Prozessen entstehenden Tonminerale und Zeolithe.

-- B. Schwaighofer

THE GROUP OF CLAY MINERALOGY AND PETROLOGY IN CZECHOSLOVAKIA

The G.C.M.P. in Czechoslovakia organized its 7th Conference on Clay Mineralogy and Petrology in Karlovy Vary, the cultural centre of western Bohemia and the centre of Czech ceramic industry on September 28 - October 3, 1976 incl. a 2 day excursion to several plants and kaolin or clay deposits. The organization of the conference was the result of the activity of the staff of the Department of Petrology, Charles University, several members of the Group of Clay Mineralogy and Petrology of Czechoslovakia and the Institute of Ceramics in Karlovy Vary. These conferences are held every third year, the first at Prague in 1958. The aim of the conferences was to assemble people who work or are interested in clay mineralogy, clay petrology, clay geochemistry and geology, soil science etc. in Czechoslovakia and to give them an opportunity to present the results of their original research work, to bring and hear what is new and most stimulative in this branch of science in our country and to contact foreign distinguished scientists from various countries, willing to present lectures.

168 participants, of which 50 were from ten foreign countries attended the conference. During the Conference 53 lectures were presented and during the excursion to 8 localities and 3 plants explanations were given. The lectures dealt with the crystal structure of

clay minerals, relationships between the structure and different properties of clay minerals, petrology, geology and genesis of argillaceous rocks, hydrothermal decomposition and synthesis of clay minerals, rheological properties, soil science and other topics.

The Proceedings of this conference containing more than 500 pages, 200 figures and photographs will be published by the Charles University, Prague, within one year.

--Jiri Konta

GROUPE FRANCAIS DES ARGILES

Le Groupe Français des Argiles a tenu deux réunions au courant de l'année 1976 à Paris.

La première le 16 mars 1976 était consacrée aux "problèmes posés par l'utilisation industrielle des argiles" et comportait les communications suivantes:

M. J. Cases
Conférence: L'utilisation industrielle des argiles
M. P. Garin (Société: Union Minerale)
Préparation des argiles par voie sèche
M. J.L. Cardini (Société Minement)
La préparation des argiles pour l'industrie du papier
M. Keufer (Société: Blancs Minéraux de Paris)
L'emploi des kaolins et argiles kaoliniques
M. J.P. Latapie (Société: A.G.S.)
Les argiles: céramiques et réfractaires
MM. C. Sittler et N. Trauth
L'argile, matière première traditionnelle en Alsace
MM. J. Lemaitre, M. Bulens, B. Delmon
Influence de minéralisateurs finement dispersés sur la cuisson et la résistance mécanique des argiles cuites
MM. M. Thiry et F. Weber
Convergence de comportement entre les interstratifiés kaolinite-smectite et les fire-clays
MM. B. Siffert et T. Stutzmann
Contribution à l'étude du mécanisme d'adsorption d'acétamide et de polyacrylamides sur les argiles
MM. J.L. Guth, F. Stoessel, R. Wey
Polymérisation du benzène en polyparaphénylène dans une montmorillonite contenant des cations Cu (II)

La seconde, le 23 novembre 1976, avait pour thème "Sols, argiles et pollutions", et comportait les communications suivantes:

M. S. Henin
Conférence d'introduction: L'utilisation des propriétés des argiles dans la lutte contre la pollution
M. J.C. Peyrus et Mme C. Escande (C.E.A.)
Méthode d'évaluation prévisionnelle des transferts d'un polluant dans une nappe aquifère
M. A. Barbreau
L'élimination des déchets radioactifs dans les formations géologiques
MM. L. Monition et M. Bonnet (B.R.G.M.)
Rôle des argiles dans les mécanismes de pollution des aquifères
M. P.J. Pichat (Entreprise minière et chimique)
Nécessité d'un traitement ultime des déchets liquides ou boueux
Mme. J. Guignard et M. H. Pezerat
Problèmes de la pollution par l'amiante. Action fibrosante et cancérogène du chrysotile et des amphiboles
MM. B. Kubler, M. Pochon et J.P. Simeoni
Les argiles, indicateurs naturels et permanents des écoulements dans le Karst Jurassien
MM. M. Cadillon, H. Chamley et J. Portier
Comportement de la fraction argileuse de sols soumis à l'épuration tertiaire
Mmes. H. Besson et S. Caillere et M. S. Henin
Modalités des néogenèses dans des systèmes hétérogènes renfermant des phases peu solubles
Mme. H. Suquet, MM. J.T. Iiyama, H. Kodama et H. Pezerat
Synthèse et propriétés de gonflement de saponites à charge croissante
MM. P. Quantin et C. Janot
Etude sur la localisation du fer dans l'halloysite ferrifère de Forari, Nouvelles Hébrides
M. D. Proust
Evolutions minéralogiques et chimiques des labradors et hornblendes dans l'altération d'une orthoamphibolite (Massif Central, France)

L'index général (auteurs et matières) du Bulletin du Groupe Français des Argiles est en préparation et doit sortir au début de 1977.

Parution de l'ouvrage Crystallography and Crystal Chemistry of materials with layered silicates by F. Levy (D. Reidel Publ. Co., Dordrecht, Holland) dans lequel le chapitre "Physical and chemical properties of phyllosilicates" est rédigé par S. Caillere et S. Henin.

--H. Paquet

CLAY MINERALS GROUP OF THE HUNGARIAN GEOLOGICAL SOCIETY

On Sept. 24 and 25, 1975 a joint meeting on the theme "Problems of Lithology and Clay Mineralogy of the Pannonian Basin" was held in cooperation with the local territorial Section of the Hungarian Geological Society at Szeged (S. Hungary), centre of the main hydrocarbon-producing area of the country. The following papers dealing with clays were read:

- Rakovits, Z.: Observations made in thin sections of fine-grained detrital rocks (a microscopic study)
Szentgyörgyi, K.: Lithology and stratigraphy of the Neogene Hódmezővásárhely-Makó depression (SE-Hungary)
Varsányi-Tóth, I.: Quantitative determination of the clay mineral content of bore hole samples using chemical methods
Viczián, I.: 10-14 Å mixed-layer clay minerals in the Pannonian Basin

During the regular sessions of the Clay Minerals Group held in Budapest, the following papers were presented:

November 1975:

- Tóth, M.: Characterization of the structural order-disorder relations of kaolinites
Gadó, P.; Griger, A.: Results and problems in the x-ray diffraction phase analysis of minerals

December 1975:

- Varju, Gy.: Problems of the genesis of Hungarian kaolins
Varju, Gy.: Information on the International Geological Correlation Program "Genesis of Kaolins"

January 1976:

- Gilde, F.; Szántó, F.; Varju, Gy.: Sedimentation and flocculation of kaolin suspension

February 1976:

- Jónás, K.: Characterization of the "crystalline state" of bauxite minerals by means of infrared spectrophotometry

April 1976:

- Ibrányi-Arkosi, K.; Varju, Gy.: Measurement of the grain size of clay minerals by means of electron microscopy

May 1976:

- Wojnárovits, L.; Lenkei, Gy.: Scanning electron microscopic investigation of the Zettlitz kaolin and Füzérradvány illite

June 1976:

- Vargha, N.; Sasvári, J.: Determination of the mineralogical composition of Neogene "loose" marls of the Pannonian Basin using x-ray diffraction and scanning electron microscopy

On May 20, 1976 an interesting lecture was held in the Hungarian Academy of Sciences by Prof. W.D. Keller, University of Missouri, U.S.A. on "Scanning Electron Microscopic Study of Kaolins".

--István Viczián

ISRAELI CLAY SCIENCE SOCIETY

In a recent meeting of the Israeli Clay Science Society a new committee has been elected which includes the following members:

President: Prof. Amos Banin, The Hebrew University
Secretary: Dr. Arich Singer, The Hebrew University
Treasurer: Dr. Uri Minglegrain, The Agricultural Research Organization

--A. Banin

ITALIAN GROUP OF AIPEA

The 2nd National Congress of the Italian Group of AIPEA has been held in Bari (13 - 16 October 1976) with about 100 participants, included several Spanish colleagues. Dr. W.J. McHardy (Macaulay Institute for Soil Research, Aberdeen, Scotland) delivered the

general opening lecture: "Application of Scanning Electron Microscopy and Microanalysis to the Study of Soil Mineralogy". About 40 papers have been presented covering a large range of topics on clay mineralogy, geology and soil mechanics; the Proceedings are in press.

The Italian Group of AIPEA under the auspices of the Consiglio Nazionale delle Ricerche is establishing a multidisciplinary team for studying the distribution of clay minerals in sediments of Italy with regard to different geo-lithological formations and geo-sedimentological environments.

The Proceedings volume of the international meeting "Clay Mineralogy and Soil Mechanics - Application to the Study of Landslides" held in Pavia, May 15-17, 1975 is now ready for distribution. It includes 15 papers covering 268 pages, among which are noticeable those of:

- I.Th. Rosenqvist: Clay mineralogy applied to mechanics of landslides (general lecture)
A. Leroux: Les different textures et leur influence sur le comportement des sols argileux et marneux
G. Sondrini: Microtextural and microstructural properties of some clay sediments as related to the nature and type of stresses
M.B. Jamiolkowski and L. Belloni: Mineralogical contribution to fundamental aspects of soil mechanics
P. Malesani, S. Vannucci and M. Sfalanga: Relationships between mineralogical composition and physical properties of clay soils
M. Maugeri: Influence of clay mineralogy on the progressive failure of slopes
G. Melidoro and L. Ginetti: Modern methods of in-situ thermo-treatment by freezing and heating
A. Franceschini: Consolidation and irreversible modification of clays by electro-osmotic method

Other papers are concerned with regional problems.

The price of the Proceedings is Lit. 15.000 (US \$ 20,-) and can be obtained from

Prof. G. Melidoro
Istituto Geologia Applicata e
Geotecnica
Facoltà Ingegneria
via Re David
200 - Bari, Italy

--F. Veniale

CLAY SCIENCE SOCIETY OF JAPAN

Activities in clay research in Japan were last presented in the News Letter of March 1975.

The 19th general annual meeting (1975) was held at Hiroshima University with presentation of papers concerning general subjects (45 papers), one symposium on "Mode of Occurrence, Properties and Utilization of Pyrophyllite", and 3 special lectures:

1. Rheology of the suspension by Prof. K. Umeya (Tohoku University)
2. The shoots of modern geology in 19th century in Japan - on the clay and clay minerals - by Prof. M. Doi (Hiroshima University)
3. Recent progress of the electron optical investigation of clay minerals by Dr. H. Yotsumoto (JEOL, Tokyo).

The 20th general annual meeting (1976) was held at the Hall of the Chemical Society of Japan in October with presentation of papers concerning general subjects (48 papers), one symposium on "Clay Science - Presence and Future -", and three special lectures:

1. Microstructures of clays as revealed by electron optical investigations by Prof. E. Suito (Osaka Institute of Technology)
2. Studies on clay minerals - presence and future by Prof. T. Sudo (Tokyo University of Education)
3. Organic materials and clays in primordial times by Prof. S. Akabori (Osaka University)

Seven papers were presented in the Symposium from the following fields:

Soil Chemistry - Prof. K. Wada, Kyushu University
Structural Chemistry - Prof. B. Kanamaru, Osaka University
Medical Research - Prof. H. Hayashi, Akita University
Ceramics - Dr. E. Kato, Nagoya Government Industrial Research Institute, Nagoya
Clay-water System - Prof. S. Okuda, Kyoto Technical University
Drilling Mud - Dr. B. Okino and Dr. K. Aoyagi, Japan Petroleum Exploration Co.
Soil Engineering - Dr. A. Ariizumi, Kashima-Kensetsu Co.

The Henmi cooperative research project (cf. AIPEA News Letter No. 11, page 7) was started with the study-program on "Mode of occurrence and properties of layer silicates". The first meeting was held at Hiroshima University in October 1974 with presentation of papers mostly concerning interstratified clay minerals, particularly complicated interstratifications of kaolin minerals and montmorillonite. The papers were printed in the Journal of the Mineralogical Society of Japan, Vol. 11, Special Issue No. 1 (1974) (in Japanese). Its second and

third meetings were held at Fukuoka in October 1975 and at Hachioji City in November 1976 respectively with presentation of papers concerning general subjects.

--Toshio Sudo

CLAY MINERALS GROUP OF THE NETHERLANDS

The Dutch Clay Minerals Group was formed in 1975 as an informal interest group. The group has now about 30 members, and most of them participated in one of the meetings held in 1976. The program was as follows:

- January 21,
S.J. van der Gaast, "Separation of clay minerals based on differences in particle density"
R. Brinkman, "Cloritization of smectite and vermiculite in seasonally wet, acid soils"
June 9,
L. van der Plas, "A new calorimeter to measure the heat of formation silicates"
A.H. van der Veen, "Quantitative analysis of kaolinite by DTA, in bauxite"
R.A. Kühnel, "Crystallinity of minerals in weathering products"
November 16,
M.G.M. Bruggenwert, "Adsorption of Al by clay minerals"
C.H. van der Weyden, "Adsorption of Zn, Co and Cd by clay minerals"

--A. Breeuwsma

NORDIC SOCIETY FOR CLAY RESEARCH

Spring meeting with the Nordic Clay Groups was held in Skåne, May 20-21, 1976.

On May 20, the group met at the Geological Institute of Lunds University with the following program.

"A short survey of the geology of Skåne, especially the north eastern part". The Precambrian part was presented by state geologist, Dr. Karl Axel Kornfält from the Geological Survey of Sweden at Lund, the Quarternary part by Doc. Jan Bergström, Geological Institute, University of Lund.

Dr. Jan Bondam, Geological Survey of Greenland, Copenhagen, showed the development of kaolin in regions south of the Baltic as compared to the kaolinization in Skåne. Jan Bondam on short notice took on this contribution which had been planned to be given by Doc. M. Störr from Greifswald, who was not able to come.

Mr. Håkan Rueslåtten, Geological Institute, Oslo University, gave a paper on "Podzol weathering on moraines in Numedalen, Norway". He showed two ways of development, one leading to smectite formation the other to mixed layer minerals. Discussion followed in which Prof. L. Wiklander gave a contribution.

Further contributions were introductions to the excursion. One was given by chief engineer Arne Gustafsson, Höganäs Ltd., Höganäs, on "Kaolin formation and deposits in north eastern Skåne and western Blekinge", the other by Dir. Carl-Axel Morfeldt, Hagconsult, Stockholm, "Bad rock as a hazard by construction of large storage rooms in rocks".

Under the presidency of Prof. Ivan Th. Rosenqvist, Oslo, there were 40 participants during the first day and 30 took part in the excursion. The excursion first took the members to the Höganäs kaolin deposit and plant at Åsen, Näsum in Skåne. Then the Harbour authorities at Karlshamn, Blekinge, showed a large underground oil storage room under the construction of which a considerable part of altered rock had been encountered. (In this connection you may be reminded of Rockstore 77 in Stockholm September 5-8).

It may be mentioned that first circulars for the Oslo meeting 1977 are still available from

the secretary	or	A.M. Brusewitz,
Tom Lundgren,		SGU, Fack,
SGI, Fack,		S-104 05 Stockholm
S-581 01 Linköping		Sweden
Sweden		

All who have returned the preliminary registration which was attached to the first circular will automatically receive the second circular.

The 1976 annual meeting was held in Stockholm with SOIL SEALANTS as the main topic. Sven Hansbo, Prof. of Geotechnical Sciences at the Chalmers Institute of Technology at Göteborg, gave a lecture on "Geotechnical properties of soil treated with bentonite". Kurt Beckius, technical director at the company Ahlscell & Ågren Ltd., Stockholm, gave a contribution on "Practical experiences of the use of bentonite as a soil sealant". Gustaf Sundström, civil engineer, G. Sundströms Ltd., Malmö, had a contribution on "The demand of sealing properties against the underground by sanitary landfills as regards the quantity and composition of the leachate".

A lively discussion followed in which the contributions by Prof. Lambert Wiklander, Uppsala, may be mentioned as of special interest.

The last contribution of the day also involved technical use of bentonite but from another aspect. "Experiences from the use of bentonite in iron ore pellets" presented by Ulf Finnström from LKAB, Malåberget, who showed results from the use of different qualities.

The Clay Society has the following officers and council for the next period:

President:	Prof. Ivan Th. Rosenqvist, Inst. f. Geologi, Blindern, Oslo 3, Norway
General Secretary:	Mr. Sven Snäll, Sveriges Geol. Unders., Fack, S-10405 Stockholm, Sweden
Treasurer:	Mr. Dag Fredriksson, Sveriges Geol. Unders., Fack, S-10405 Stockholm, Sweden
Council: Denmark	Dr. Jan Bondam, Grønlands Geol. Unders., Copenhagen
	Mr. Knud Binzer, Danmarks Geol. Unders., Copenhagen
Finland	Mr. Kalevi Punekivi, Geologinen Tutkismuslaitos, Espoo
	Dr. Raimo Uusinokka, Inst. of Geol. and Pal., Helsinki
Iceland	Cand. Real. Hrefna Kristmannsdóttir, Orkustofnun, Reykjavik
	Mr. Jens Tomasson, Orkustofnun, Reykjavik
Norway	Dr. Per Jørgensen, Inst. f. Geol., Blindern, Oslo 3
	Mr. Tor Løken, Norges Geotekn. Inst., Oslo 8
Sweden	Chief Eng. Arne Gustafsson, Höganäs Ltd., Höganäs
	Dr. Naz Ahmed Shaikh, Sveriges Geol. Unders., Stockholm

--Ann Marie Brusewitz

CLAY MINERALS SECTION OF THE MINERALOGICAL SOCIETY OF POLAND

In the relatively short time following the last report on the activity of the Clay Minerals Section of the Min. Soc. of Poland (L. Stoch, AIPEA News Letter No. 12, p. 14-15) two meetings of this section have been held, both with scientific lectures:

1. April 9, 1976 "Mineral composition and properties of some raw materials for building ceramics" (Dr. R. Wyrwicki)
2. May 27, 1976 "Weathering and epigenetic processes in variegated series of Upper Silesia" (Dr. W. Kawalski)

Recently MINERALOGIA POLONICA, the journal of the Mineralogical Society of Poland, has been issued (Vol. 6, Part 1 and 2). It contains some papers (in English) concerning clay mineralogy, as follows:

1. "On the mechanism of the montmorillonite acid activation. I. Degradation of Ca-montmorillonite structure" (J. Fijał, Z. Klapyta, J. Zietkiewicz, M. Zyla) - part I, p. 29-43
2. "One-dimensional electron density function of montmorillonite from Milowice, Upper Silesian Coal Basin" (J. Mejsner) - part I, p. 45-51
3. "Sorptive properties of synthetic montmorillonite (V. Luptakova, A. Nemethy, M. Zyla) - part II, p. 35-47
4. "On the mechanism of acid activation of montmorillonite. II. Changes in the morphology and porosity in the light of electron microscopic and adsorption investigations" (J. Fijał, Z. Klapyta, B. Kwiecińska, J. Zietkiewicz, M. Zyla) - part II, p. 49-57
5. "Studies on the fluoroderivatives of silicate minerals with layered structure. I. Some aspects of the reaction of kaolinite with fluoride solutions" (J. Fijał, M. Tokarz) - part II, p. 59-72
6. "Palygorskite from Alwernia-Regulice" (W. Heflik, A. Krzyczkowska) - part II, p. 73-79

Recently it appeared that because of some technical reasons the date of the First Polish Conference on Clay Minerals primarily planned for September 1977 and announced in the last AIPEA News Letter, will be transferred to 1978.

--Anna Langier-Kuźniarowa

ROMANIAN CLAY GROUP

The 2nd National Clay Conference was held in Bucharest on April 11 - 12, 1975 organized by the Romanian Clay Group and the Institute of Geology and Geophysics. The meeting was open to all specialists interested in various fields of clay research and technology. About 50 participants attended the conference and 23 papers were given in 1 1/2 days of scientific sessions. The papers presented at the conference covered the following general subjects:

- mineralogical aspects of wall-rock alteration phenomena in the Neogene Volcanic Areas (East Carpathians and Apuseni Mountains) and the Banatitic Magmatic Province (Southwestern Carpathians);

- clay mineralogy and genesis of some sedimentary series (Miocene molasse of East Carpathians; bentonites, cinerites and salt deposits of Transylvanian Depression) and soils (Oltenia region);
- geotechnical aspects and physico-chemical properties of clays;
- laboratory techniques (x-ray, IR, DTA and electron microscope investigations) and crystal structure topics.

Prof. Joe L. White from Purdue University, West Lafayette, U.S.A., who was a guest of the Romanian Clay Group for about four weeks, attended the conference and presented a paper on "Infrared studies of the development of order in aluminium hydroxide gels" (by S.L. Nail, J.L. White and S.L. Hem). During his sojourn, Prof. White visited also laboratories of the Institute of Geology and Geophysics, the Enterprise for Geological Prospecting and the Research Institute for Soil Science.

A working assembly of the Romanian Clay Group took place after the conference. A report was given on the x-ray identification of clay minerals, and forthcoming activities of the RCG were discussed.

The volume including the papers (11 in English and 5 in French) presented at the First National Clay Conference is now available. The proceedings were published by the Institute of Geology and Geophysics in "Studii tehnice si economice" Seria I, No. 13, 1975, and are available from the above mentioned Institute. The Proceedings of the 2nd National Clay Conference are in print now.

Members of the Romanian Clay Group were pleased to receive the distinguished Prof. Ralph E. Grim from the Illinois University, Urbana, U.S.A.. In October, 1975, Prof. Grim was for a few days the guest of the Institute of Geology and Geophysics. He visited the laboratories, met Romanian research-workers, and discussed problems on clay minerals and bauxites.

The 3rd National Clay Conference took place in Bucharest on October 7 - 9, 1976, organized by the Institute of Geology and Geophysics and the Romanian Group for the Study of Clays (GRPEA). The meeting covered a wide range of subjects and was well attended by people from research institutes, industries and universities. There were given 54 contributions, presented in 7 scientific sessions, during 2 1/2 days.

The 1st session (9 papers) dealt mainly with mineralogy and geochemistry of endogenous phyllosilicates. Argillic alteration processes, illite crystallinity in thermal metamorphism and K/Ar dating were also discussed.

The 2nd session (10 papers) included presentations on mineralogy, geochemistry and genesis of sedimentary clays. The papers covered a large age interval (Cretaceous, Paleogene, Miocene, Quaternary and Recent deposits) and treated also topics concerning industrial aspects of clays.

The 3rd session (7 papers) dealt with soil mineralogy and geochemistry. Studies on weathering processes, K exchange and fixation were also reported.

The 4th session (9 papers) was conceived as a short symposium on kaolin deposits. The presentations covered various aspects of the mineralogy, geochemistry and genesis of some hydrothermal and sedimentary kaolinite-rich deposits (old weathering crust relicts and refractory clays included).

The 5th session (12 papers) was devoted to engineering aspects and physico-mechanical properties of clays. The papers outlined also the importance of clay mineralogy data in soil mechanics and landslides investigation.

The 6th session (3 papers) discussed analytical methods and laboratory techniques used in clay mineralogy.

The 7th session (4 papers) reserved to industrial applications of clays concluded the scientific programme.

About 40 papers presented in the sessions will be published as a special issue of the "Studii tehnice si economice" edited by the Institute of Geology and Geophysics.

In the working meeting, organized at the end of the conference, the results of a test concerning Romanian equivalents of the structural terms published in AIPEA News Letter No. 7 were presented. The participants elected afterwards the following new board of the Romanian Group for the Study of Clays:

President:	Gh. Neacșu (Geological Prospecting Enterprise for Solid Mineral Resources, Bucharest)
Vice President:	Gh. Gătă (Research Institute for Soil Science, Bucharest)
Secretary:	Silviu Radan (Institute of Geology and Geophysics, Bucharest)
Members:	Lucretia Ghergari ("Babes-Bolyai" University, Cluj-Napoca) Lucian Matei (Institute for Hydrotechnical Research, Bucharest) D. Todor (Institute for Research and Technological Design in Transport, Bucharest)

The 4th National Clay Conference is planned to be held in Bucharest in April 1978.

--Silviu Radan

SPANISH CLAY SOCIETY

Meetings:

1) Symposium on soil-pesticide interaction

This symposium, organized jointly by the Spanish Clay Society and the Soil Science Society of Spain, was held in Murcia (Spain), September 14 - 18, 1976. The aim of the Symposium was to discuss the interaction between pesticides and the different components of soils at the molecular level. The topics of the Technical Sessions were:

- a) Molecular structure and degradation of pesticides;
- b) Clay-pesticide interaction;
- c) Sorption of pesticides by soil organic matter;
- d) Soil microorganisms and pesticides;
- e) Diffusion of pesticides in soils.

Main speakers who gave the introductory lectures of the Technical Sessions include: Dr. H.O. Esser (Ciba-Geigy, Switzerland); Dr. J.M. Serratosa (CSIC, Spain); Prof. M.H.B. Hayes (University of Birmingham, United Kingdom); Dr. W. Klein (Institut of Ecology, West-Germany) and Dr. R. Calvet (CNRA, France). General lectures and abstracts of the 21 papers presented at the Symposium will be published as a special volume.

2) 8th International Kaolin Symposium

This symposium is organized under the auspices of the National Research Council of Spain, the Spanish Clay Society, the Italian Group of AIPEA, the Spanish Ceramic Society and the Geological and Mining Institute of Spain. It will be held in Madrid, September 1977. There will be three days of Technical Sessions followed by field trips to visit kaolin and alunite deposits in Spain and Italy. Information on this Meeting can be obtained from:

Prof. E. Galán, Chairman
Avda. Juan Andrés, 30
Madrid-35, Spain

Personal:

Dr. Ing. J. Sierra, formerly Research Director of the "Adaro" Company has been appointed General Director of Mines of the Ministry of Industry.

Dr. E. Galán has been appointed Associate Professor of Crystallography and Mineralogy of the University of Badajoz effective October 1, 1976.

--J.M. Serratosa

THE CLAY MINERALS SOCIETY, U.S.A.

Officers of the Clay Minerals Society for 1977 are:

President:	Dr. John Hower
Vice-President:	Dr. John B. Hayes
Secretary:	Dr. B.L. Sawhney
Treasurer:	Dr. E.C. Jonas
Editor:	Dr. R.A. Rowland

Clay Minerals Conference at Corvallis

More than 100 clay oriented scientists gathered at the Oregon State University Campus at Corvallis, Oregon on August 1, 1976 to view the beauties of Oregon, to visit with old and new friends and gain knowledge. Dr. W.H. Slabaugh, General Chairman of the Conference, and his committee are to be complimented for conducting a well planned and coordinated meeting.

A field trip to the Oregon Coast and Coast Range provided a chance for newcomers to see more of Oregon and to collect samples. Another high point of the meeting was a Salmon Bake Picnic held in Avery Park. The good food plus a striking setting among the tall trees made the picnic an unqualified success.

It will not be possible to mention all of the papers presented at the Conference but several will be reviewed to present a cross section of the meeting.

Volcanic material has long been known as a parent material for the development of clays. In some instances, weathering has been occurring for extended periods of time to develop smectites. However, the examination of recent volcanic ash deposits has developed an insight to diagenesis over a relatively short period of time. K. Wada reported that opaline silica, allophane-like constituents, smectite and humus complexed minerals were present during early stages of weathering. Then, allophane, allophane-like constituents and imogolite developed. Allophane appeared as hollow spherules with diameters of 35 to 50 Å and imogolite as micron length tubes with diameters of 20 Å. Later stages of weath-

ering developed halloysite and/or gibbsite plus crystalline layer silicates. The amounts of layer silicates developed appeared to correlate with the nature of parent ash rather than weathering time. J.B. Dixon, K.C. McBride and F.R. McKee have examined a volcanic deposit in Washoe County, Nevada. All size fractions of the sample are largely (87%) halloysite with the 0.2 to 2 micron size being the major fraction. Small amounts of smectite and chlorites were also present. Most of the halloysite is spherical with pore spaces being shaped in arcs rather than rings. Central channels were observed in the tubular halloysite. It was proposed by the authors that the 0.2 to 2 micron fraction would be useful as a reference material for the hydrated tubular and spheroidal forms of halloysite. W.H. Hudnall and R.C. Jones have evaluated ash deposited on the island of Hawaii, with the most recent deposit being in 1924. Here, olivine and feldspars have weathered to yield smectite. The degree of crystallinity and amount of smectite increased with depth of burial until an ash was encountered that consisted mainly of volcanic glass where imogonite and amorphous materials were the weathered products.

The diagenesis of basaltic cinders found in North-Central Arizona has been studied by D.M. Hendricks. Samples of three Alfisols were taken from areas where rainfall varied from 40 cm to 75 cm a year. Smectite was the most abundant where rainfall was the lowest with some kaolinite also being present. As rainfall increased, halloysite became the major clay mineral present but smectite was also found. One Ultisol sample taken where rainfall was 140 cm was chiefly halloysite and no evidence of smectite was detected. All soils contained amorphous material, which varied from 30 to 55 percent, with the smaller amount being noted where rainfall was the lowest.

Two papers were presented which described clays found in Tonsteins. Tonsteins are argillized tuff layers which are interbedded with coals or organic-rich shales. J. Srodon and John Hower worked with samples from the Upper Silesian Coal Basin in Poland. Composition in these lens-shaped bodies may be characterized as a gradational transition from kaolinite-rich rock to smectites when going from outer parts toward the center of the lens. The expandable minerals form a series of various mixed layer smectite illites with more of the illite members being always found in the kaolinite-rich rocks. The entire series, which is very similar to one found in Gulf Coast profiles at least 1 kilometer thick, occurs within a distance of one meter. Random smectites are 9 - 10% smectite, partially ordered 60 - 35% smectite, and well ordered 50 - 30% smectite. Toward the illitic end, there is a systematic gain of potassium and loss of silicon and ferric iron with both being substituted by aluminum. Bruce Bahor examined samples from relatively thin Tonstein layers occurring in coal beds in the Rocky Mountain Area. These layers were identified as volcanic ash that was altered to kaolinite under low pH conditions after deposition in peat swamps. The particles of authigenic kaolinite varied in size from microcrystalline to coarsely crystalline, the latter in the form of large vermicules. In addition, large biotite books were also observed.

Zeolites are an important class of aluminosilicates that have found many uses in research and industry. There are more than thirty-three known naturally occurring zeolites but the major source of these molecular sieves at this time is the synthetic material. Molecular sieve zeolites were discovered in the late 1940's and have shown an unusually high use growth since that time. Edith Flanigen detailed the synthesis of zeolites and their uses. They are synthesized by hydrothermal techniques at relatively low temperatures and pressures by the crystallization of hydrous aluminosilicate gels. Crystal formation occurs under metastable conditions and the development of a specific zeolite species is a complex function affected by several variables. Of prime importance is mineral composition, temperature, pressure, and the nature of the cation. The cation plays a structure directing role in the reaction by templating the formation of specific polyhedral building units in the zeolite structures. Pore size in the many synthetic zeolites range from 3 Å to 10 Å allowing the separation of a wide range of molecules. Some examples of their application are:

Cracking catalysts for the production of gasoline.

Absorbents for the separation of hydrocarbons in gasoline upgrading and the separation of xylenes.

Purification of natural gas.

Cation exchange for recovering radioactive wastes.

Absorbents for removal of atmospheric pollutants such as sulfur dioxide, oxides of nitrogen and mercury.

Anyone attempting a comprehensive literature survey on zeolites would be faced with a formidable task as there are more than 10,000 publications and 3,000 patents on the subject.

Zeolites in pelagic sediments are important authigenic minerals according to M. Kastner and S.A. Stonecipher. The horizontal and vertical distribution and chemical composition of these zeolites depend upon the composition of the sediments and interstitial water, sedimentation rates, temperature, and thermodynamic stability. They extract elements from sea water and then release them within the sedimentary column. Phillipsite

predominates in the Pacific Ocean, mainly in volcanic and clayey sediments of Recent to Eocene age. It starts to form at the sediment-water interface and is usually not found in great abundance below 150 meters. It disappears below 500 meters. Clinoptilolite predominates in the Atlantic Ocean mainly in calcareous and clayey sediments of Miocene to Cretaceous age and persists even below 850 meters in depth.

The synthesis of chrysotile and hallosite was accomplished by H.E. Robson and W.H. Sawyer by hydro-thermal treatment (250-300°C) using gels prepared with metal halides, silica sol, sodium hydroxide and water. The pH of the synthesis gel is a critical variable and was controlled between values of 10.5 and 13. At a pH of 10.5, flakes of chrysotile were obtained while tubes were recovered in the pH range of 11.5 to 13. Tube lengths were observed to be longer as the pH increased. Where pH was decreased, the surface area of chrysotile increased along with a decrease of the 001 spacing intensity. All of the rest of the x-ray pattern remained essentially the same. The best hallosite products developed where a blend of silica sol and washed alumina hydrogel were employed. Surface areas ranged from about 90 up to 200 square meters per gram.

V.G. Hill discussed Bauxite and Bauxitization processes. The terra rosa type is found in the Caribbean and Southern Europe and is associated with pure limestone. Early reactions occurred under alkaline conditions with nordstrandite being the initial aluminum hydroxide mineral produced. Laterite type Bauxite is normally found in other rock types in Guinean, Brazilian-Guyana Shields and Australia. Here, Bauxite developed in an acid environment with feldspars, pyroxenes and amphiboles decomposing initially into gibbsite and silica gel. The pH, Eh and climatic conditions affect syngenetic reactions including losses of silica and iron. The formation of boehmite, diaspore and corundum occurs during later diagenesis reflecting changes in temperature, pressure and Eh.

Mössbauer Spectroscopy was used by E. Elsing, D. Albers and B. de Mayo as a method of examining illite-smectite mixed layer clays from the Disturbed Belt in Montana. They concluded that the ferrous/ferric iron ratio increased as the percentage of non-expandable layers increased. Where no illite was present, only ferric iron was detected and all was located in the tetrahedral sites. As the percentage of non-expandable layers (illite-like interlayers) increased (about 85% illite), the ferrous/ferric iron ratio increased until about 60 percent of the iron was ferrous and all of this iron was located in the octahedral sites. An increase in potassium content was noted as the percentage of non-expandable layers increased.

John Hower and J. Hoffman have studied the occurrence of Potash Bentonites. Generally, they are the burial metamorphic products of classical bentonites. In thin beds, it is possible for most of the elements to be washed away which can have a governing effect on diagenesis. However, with thick beds, elements are more likely to be retained with varied mineral composition to be expected in the beds. Where potassium concentration is exactly the CEC of the clay, mixed layer illite/smectite develops along with kaolinite and quartz. If an excess of potassium is present, again mixed layer illite/smectite is formed along with quartz but kaolinite is missing. It is believed that potash bentonites had their source from classical bentonites and were converted to potash bentonites under conditions of higher temperature (60 - 200°C) and pressure. In the discussion, it was decided that this class of clay minerals should be called Potassium Bentonites.

Clays may be used as a tracer to determine the source of material deposited in other areas. So say M.E. Harward, C.T. Youngberg, K.C. Jones and W.H. Hudnall where they examined samples in the Redwood Creek Basin and Redwood Creek, Oregon. A sample taken at 12 feet in the basin was qualitatively identical with samples taken from present day slides at a considerable distance upstream. Carbon 14 dating placed the basin sample at 4700 years. Muds from the Philippine Sea were examined by S. Boggs and J.C. Chen. The mineral composition of these pelagic muds indicated their source to be from the continent and local volcanic activity.

G.W. Brindley has worked with a hydrous magnesium silicate known as a kerolite. It is a clay-like mineral having a surface area, by nitrogen adsorption, of 200 square meters per gram which suggests that four crystals are held together in books. The L_p corrected x-ray peak (001) is 9.6 Å which resembles a highly disordered talc-like structure, possible due to the randomly arranged and poorly fitted layers. The mineral does not swell in the manner of stevensite but some penetration of water and glycol may occur over long periods of time.

The fluoride content of clays was determined by J. Thomas, H.D. Glass, W.A. White and R.M. Trandel using a fluoride ion-selective electrode. Fluoride values ranged from 44 ppm for nontronite from Colfax, Washington to 51,800 ppm for Hectorite from Hector, California. Clays formed under hydrothermal conditions generally are relatively high in fluoride content. Dickite from Duray, Colorado was found to contain 6700 ppm fluoride as compared to only 125 ppm for geode kaolinite. It is believed that, in some instances, peak shifts on DTA curves of similar clay minerals could be the result of significant differences in their fluoride content.

Heavy ends (resins and asphaltenes) from crude oils were shown to adsorb onto montmorillonite by D.W. Clementz. In these adsorption tests, it was determined that the degree of adsorption was influenced by the exchangeable cation on the clay, the basic nitrogen components of the organic molecule and the solvent. Generally, the potassium clay adsorbed less organic matter than the sodium, magnesium and calcium clays. As a result of this adsorption, the physical and chemical properties of the clay are drastically altered which may have an effect on the production of some crude oils.

Don Scafe continued his campaign for better slides for use in oral presentations. He stressed that slides should be simple and legible and that the use of key words is essential. Generally, slides used at Clay Minerals Conferences have improved over the years but some authors still need to improve the quality of their visual presentation. A statement made in the summary of the Banff Conference still applies. "All authors should realize that slides are an important part of their presentation and should prepare them so that they may be read and understood from all parts of the meeting room."

The 1977 Clay Minerals Conference will be held in Jamaica on August 14 - 20, in conjunction with the International Committee for the Study of Bauxite and Alumina. Dr. Vincent Hill, Ministry of Mining and Natural Resources, Kingston, Jamaica, is General Chairman of the Conference.

--Wayne F. Hower

THE NEW AIPEA NOMENCLATURE COMMITTEE

Chairman: G.W. Brindley
 Secretary: G. Pedro
 Members: S.W. Bailey
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 J.A. Rausell-Colom
 A. Alietti
 R.C. Mackenzie
 K. Nagasawa
 M.L.L. Formoso

NEWS OF MEMBERS

Dr. S.W. Bailey was appointed this year to the Roland D. Irving Professorship of Mineralogy at the University of Wisconsin. Last year M.L. Jackson became Franklin H. King Professor of Soil Science.

Prof. George V. Chilingarian just returned from Iran where he taught at Abadan Institute of Technology, Abadan, Iran, as Professor of His Imperial Majesty Shahanshah Arya Mehr Pahlavi Chair in Petroleum Engineering. During his stay, he obtained the "Alborz Prize" of \$ 10,000, which is a Persian version of a Nobel Prize. He also received a gold "Research Medal" for his important contributions to Petroleum Industry in Iran and education of Iranian students. He was on Iranian television program several times.

Prof. Dr. U. Schwertmann returned from an 8 months sabbatical leave at the Soils Department of the University of Natal, South Africa.

CALENDAR OF MEETINGS

May 2 - 6, 1977 Johannesburg, South Africa
 Sedimentary Basis and Associated Ore Deposits
 Address: The Secr. Geokongress 77, Dept. of Geology,
 Rand Afrikaans University,
 P.O. Box 524,
 Johannesburg 2000, South Africa

June 2 - 4, 1977 Oslo, Norway
 3rd Meeting of the European Clay Groups
 Address: Prof. I. Rosenqvist
 Institutt for Geologi,
 Postboks 1047,
 Blindern,
 Oslo 3, Norway

June 6 - 11, 1977 XIIth Conference on Silicate Industry and Silicate Science,
 Budapest, Hungary
 Address: SILCONF Scientific Society of the
 Silicate Industry,
 Conference Committee,
 P.O.B. 240,
 H-1368 Budapest, Hungary

August 14 - 20, 1977 Jamaica
 1977 Clay Minerals Conference U.S.A.
 Address: Dr. V. Hill
 University of Mining and Natural Resources,
 Kingston, Jamaica

July 9 - 14, 1978 Jerusalem, Israel
 Tenth International Congress on Sedimentology
 Address: Dr. G. Gvirtzman
 Chairman of Organizing Committee,
 Israel Geological Survey,
 30 Malkhei Israel St.,
 Jerusalem 95501, Israel

July 10 - 14, 1978 Oxford, England
 6th International Clay Conference
 Address: Institute of Geological Sciences,
 64-78 Gray's Inn Rd.,
 London WC1X 8NG, England

July 30 - Aug. 4, 1978 Honolulu, U.S.A.
 2nd Circum-Pacific Energy and Mineral Resources Conference
 Address: AAPG
 P.O. Box 979
 Tulsa, Oklahoma 74101
 U.S.A.

COURSE ANNOUNCEMENT

Two courses will be held at the Skidaway Institute of Oceanography, Savannah, Georgia, U.S.A.:

April 18 - 21, 1977 Nearshore Clastic Facies of the Triassic, Jurassic and
 Cretaceous in Eastern Utah - (a field/lecture course)

May 1 - 7, 1977 Nearshore Clastic Facies - (a field/laboratory course)

For further information write to
 James D. Howard
 Skidaway Institute of Oceanography
 P.O. Box 13687
 Savannah, Georgia 31406
 U.S.A.

NEW BOOKS

"Mineralogy of Soil Clays and Clay Minerals" edited by S.K. Mukherjee and T.D. Biswas,
 Indian Soc. Soil Sci. Bull., No. 9, New Delhi, 1974 with 1 map
 This 262 pp. bulletin collects 14 papers by Indian Soil and Clay Scientists which were
 dedicated to Dr. J.N. Mukherjee at the occasion of his 80th Birthday. Covering the various
 subjects of clay mineralogy it also reflects the remarkable activity of our Indian
 colleagues in this field.

"Technologia de Argilas", Vol. I Fundamentos, Vol. II Aplicações by Persio de Souza Santos
 Editora Edg. Blucher Ltda. Editora da Universidade de São Paulo, 1975, 802 pp.
 These two volumes written in Portuguese by our colleague Dr. Souza Santos from Brazil are
 a comprehensive treatment of all aspects of clay science based on his extensive work
 and experience in this field.

"Kaolin Deposits of the GDR in the Northern Region of the Bohemian Massif" edited by
 M. Störr. See Report on the 5th Kaolin Symposium of the IGCP Working Group "Genesis of
 Kaolin" by H.M. Köster in this issue.

"Tonmineralbildung und -umbildung in Böden des gemäßigt-humiden Klimas" (Clay Mineral
 Formation and Transformation in Soils of the Humid Temperate Climate) editor U. Schwertmann,
 Z. Pflanzenern. Bodenkunde, Vol. 139, No. 1, 128 pp., Verlag Chemie, D-6940 Weinheim, GFR.
 This issue of the German Journal collects the 9 review papers presented at a meeting of

Commission VII (Soil Mineralogy) of the Deutsche Bodenkundliche Gesellschaft held on April 19, 1974 (see AIPEA News Letter No. 10, p. 6).

Proceedings of the 1st National Clay Conference Bucharest, November 1973; Bucharest 1975, 125 pp. This volume contains 16 papers of the 1st Romanian National Clay Conference of which are 11 in English and 5 in French covering all aspects of clay mineralogy. It has been published by the Institut de Geologie si Geofizica as No. 13 of Technical and Economical Studies.

Proceedings of the International Meeting on "Clay Mineralogy and Soil Mechanics", 1975, 268 pp. For details see report of the Italian Group of AIPEA.

Tonmineralogie (Clay Mineralogy) Forschungsbericht d. Deutschen Forschungsgemeinschaft, H. Boldt Verlag KG, Boppard, FRG, Ed. by K. Jasmund, B. Drehler, H. Harder, U. Kramm, G. Lagaly, H. Graf v. Reichenbach und K.H. Schüller, 1976, 147 pp. This volume collects the results of a national research project on clay mineralogy conducted between 1968 - 1973 and initiated by the Deutsche Forschungsgemeinschaft in which some 20 research groups from various disciplines participated.

IMPORTANT NOTICE

The Proceedings Volume of the Mexico City AIPEA Conference is still available. It can be purchased for US \$ 45.00 from
Applied Publishing Ltd.,
P.O. Box 261,
Wilmette, Illinois 60091
U.S.A.

ACKNOWLEDGMENT: The help of Dr. B. Angel, UK, in reviewing the contributions to this NEWS LETTER is appreciated.

--U. Schwertmann
Secretary General

Membership

AIPEA accepts as members clay scientists, institutions, and companies. Members may join individually or through cooperating national scientific societies. Please fill in the attached form for joining AIPEA and send it along with your dues payment to the Treasurer.

The annual membership fee is as follows:

Individual membership \$ 4.00
Institutional membership \$ 5.75
Company membership \$ 23.50
Sustaining membership \$ 115
Patron membership \$ 1,150

Your cooperation in observing the following suggestions in paying your membership fee will be appreciated:

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Dr. J.B. Dixon
Treasurer AIPEA
Dept. of Soil and Crop Sciences
Texas A & M University
College Station, Texas 77843

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College Station, Texas 77843