

# aipea



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

---

**newsletter N° 27**

**februari 1991**

---

Editor : Prof. R.A. Schoonheydt, Secretary-general, Centrum voor Oppervlaktechemie en Katalyse, K.U.Leuven, K. Mercierlaan, 92, B-3001 Leuven, Belgium.  
telephone : 32-16-220931, fax : 32-16-295126.

## TABLE OF CONTENTS

PRESIDENT'S PODIUM	2
AIPEA AFFAIRS	3
Bradley Award 1993, 11th ICC, Teaching Committee	
S. HENIN	4
27th CMS MEETING	6
7th EUROCLAY	10
NATIONAL CLAY GROUPS	10
Belgium, China, Czechoslovakia, DTTG, France, Great Britain and Ireland, Hungary, Israel, Italy, Japan, Korea, South Africa, USA, USSR	
MEETINGS	25
29th International Geological Congress	
28th CMS Annual Meeting	
Eurolat '91	
INTERNATIONAL UNION OF GEOLOGICAL SCIENCES	28
ANNOUNCEMENTS	29
MEMBERSHIP	31

---

## PRESIDENT'S PODIUM

---

Dear Colleagues

1990 was a relatively calm year for AIPEA, but I had the opportunity to attend several meetings that were of relevance for clay research. In May 28-29 I was fortunate to attend, as a guest, the 25th Anniversary Meeting of the "Laboratorium voor Oppervlaktechemie" of the "Katholieke Universiteit Leuven". The meeting included two symposia, one concerned with Catalysis and the second with the Material Science of Zeolites and Clays. I presented a lecture on the second topic. During this meeting I had the opportunity to visit the facilities of the laboratory and was deeply impressed by the high standard of the research currently developed by this group for which I want to express my sincere recognition.

On September 25 I attended the meeting in homage of Prof. S. Henin on the occasion of his 80th birthday. AIPEA was one of the sponsors of this meeting that was organised by "The Institut National Agronomique". I take this opportunity to congratulate Prof. S. Henin for this outstanding scientific contributions and achievements in various areas of Clay Mineralogy and to recognize his great efforts to promote international cooperation among clay scientists. Dr. S. Henin was the first President (1950-52) of CIPEA, a Committee within the International Union of Geological Sciences (IUGS) dedicated to the promotion of clay research. It was the starting point for the creation of AIPEA.

I greatly appreciated an invitation from the Czechoslovak Clay Group to participate in the 11th conference of Clay Mineralogy and Petrology that took place in Ceske Budejovice in August 27-31, 1990. Unfortunately I could not attend this Conference due to unexpected personal problems.

I have continued my activities related to the research programmes on materials of the European Community (EEC). With reference to this, I want to call the attention of clay scientists to the different opportunities that exist to establish cooperative research projects among groups of different countries. These opportunities refer especially to research groups of the twelve countries which are members of the European Communities, but there are also special programmes for research groups of countries outside the E.E.C.. Scientific cooperation between the European Community and other countries takes place within the framework of bilateral cooperation agreements which the EEC has signed with several Asian and Latin-American (ALA) and certain Mediterranean (MED) countries. Information of the different research programmes may be obtained directly from the central offices of the EEC in Brussels. In relation with the research activity of the EEC, I want to mention the Workshop on "Pillared Layered Structures" organised

in December 1989 by the Directorate General for Science, Research and Development within the framework of the Advanced Materials Technologies Programme. 38 experts from eight European countries were invited to take part in the Workshop and the Proceedings edited by Dr. I.V. Mitchell have been published recently.

According to the information received from the organizers, the Proceedings of the 1989 International Clay Conference are expected to be published in July 1991. This is good news and I thank the editors for their efforts. However, I consider that AIPEA council has to look for new ways to minimize the period between the International Conferences and the publication of the Proceedings.

In 1991 the 7th Conference of the *European Clay Groups* (EUROCLAY) will be held in Dresden from August 26th to 30th. During this conference a meeting of the AIPEA Council will take place. I hope to meet many of you in Dresden.

With my best wishes for a happy and prosperous new year.

J.M. Serratos

---

## AIPEA AFFAIRS

---

### *Bradley Award 1993*

The next Bradley award will be given to an outstanding young clay scientist at the occasion of the 10th International Clay Conference in Adelaide. The rules for submission of papers will be published in Newsletter N° 28, 1992. However, our young scientists can already prepare themselves in 1991.

### *Treasurer*

Dr. C. De Kimpe, our AIPEA treasurer, has moved. All correspondence should be addressed to  
Dr. C. De Kimpe  
Research Coordinator  
Natural Resources  
Agriculture Canada  
Room 725, Sir John Carling Building  
Ottawa, Ontario  
Canada K1A 0C5

*11th International Clay Conference*

We remind those who are interested, that proposals for hosting the 11th International Clay Conference must be submitted to the secretary-general one year before the 10th ICC, that is in the summer of 1992.

*Teaching Committee of AIPEA*

Travel fellowships for students to attend the AIPEA meeting in Australia are being developed by the Teaching Clay Mineralogy Committee. This is being pursued because it is a very long trip to Australia for many potential student participants and more importantly because there will be a tremendous learning opportunity for young scientists at the conference and to participate in field trips in New Zealand with its beautiful landscapes shaped by volcanoes, glaciers and loess. These provide some of the best opportunities in the world to see in the field young weathering products with short range order such as ferrihydrite and allophane. The youthful landscapes of New Zealand can then be contrasted with the old highly weathered soils and rocks of Australia many of which have been preserved by a dry climate. The financial arrangements for a limited number of these fellowships are progressing and interested students should look for further announcements in the Newsletter. The Teaching Committee is composed of Amos Banin, Israel; R.W. Fitzpatrick, Australia; N. Kostic, Yugoslavia; D.G. Schulze, Indiana, USA; Kazue Tazaki, Japan; and J.B. Dixon, Chair.

---

**JUBILE SCIENTIFIQUE S. HENIN**

---

Le Jubilé Scientifique de Monsieur Stéphane HENIN, organisé à l'occasion de ses 80 ans et de ses 60 ans de recherche, s'est déroulé à PARIS dans les locaux de l'Institut National Agronomique le 25 septembre 1990.

250 personnes avaient tenu à honorer ce Maître, dont plusieurs personnalités étrangères et en particulier le Dr. J.M. Serratos, Président de l'A.I.P.E.A. Sa présence était un témoignage d'estime de tous les spécialistes des argiles envers Monsieur HENIN, qui a été parmi les initiateurs des organisations internationales dans ce domaine, et qui a ainsi été amené à présider la première Association : Comité International Pour l'Etude des Argiles (C.I.P.E.A.), entre 1950 et 1952.

Après un message personnel de Monsieur H. CURIEN, Ministre de la Recherche et de la Technologie, une série d'exposés présentés par ses élèves

directs ont fait le point sur les apports de S. HENIN dans les différents secteurs de la Recherche qu'il a irrigués au cours de sa longue carrière. Lui-même a conclu la réunion scientifique par une brillante prestation, où, à côté des remerciements d'usage, il a tenu à préciser ses idées dans un domaine qui lui a été cher durant ces dernières années et qui a aujourd'hui beaucoup d'avenir : l'environnement.

Un cocktail amical a clôturé cette réunion, ce qui a permis aux élèves et amis de remettre au Maître divers cadeaux et souvenirs en témoignage de gratitude.

G. PEDRO

---

**SCIENTIFIC TRIBUTE TO S. HENIN**

---

The scientific jubilee of S. HENIN was organized at the Institut National Agronomique in Paris on September 25, 1990 at the occasion of his 80th anniversary and of his 60 years of research.

250 persons, many from abroad, were gathered to honour S. HENIN. The presence of prof. J. Serratos, president of AIPEA, evidenced the high esteem of the clay specialists from all over the world to S. HENIN. Prof. HENIN was one of the initiators of international organisations of clay research and has been president of the first international clay research association, the Comité International Pour l'Etude des Argiles (C.I.P.E.A.), between 1950 and 1952.

After a personal message of Mr. H. Curien, Minister of Research and Technology, a series of papers were presented by HENIN's former students on the highlights of HENIN's achievements in clay research and other areas. Prof. HENIN himself concluded the scientific symposium with a brilliant speech, in which he not only thanked the scientific community for this jubilee, but also gave his ideas about the science of the environment, a subject which has been very close to his heart in recent years.

A friendly cocktail concluded the meeting. Prof. HENIN was overwhelmed by the presents, the memories and the witnesses of gratitude from his students and friends.

Translated from the text of G. Pedro.

Robert SCHOONHEYDT

---

## 27th CLAY MINERALS SOCIETY MEETING

---

Walter Keller had a birthday party. And three hundred clay mineralogists came to help him celebrate this 90th birthday - they stayed for the 27th annual meeting of the Clay Mineral Society, October 6 through 11, which was hosted by the Department of Geological Sciences, University of Missouri, Columbia, with support from their administration. In addition to the financial support provided by the host institution, A.P. Green Industries, Aquafine Corp., Coors, E.C.C. America Inc., General Refractories Co., Harbison-Walker Co., Hecla Mining Co., and Thiele Kaolin Co. provided general financial support. Rheox Inc., a subsidiary of NL Industries, helped support the Pioneer Speaker and Exxon and Mobil gave in support of the Clay-Sandstone symposium.

Jack Burst and Bill Johns were general chairs for the local committee; however, by their own admission, most of the work was ably handled by Jim Stitt. The technical program was divided into three parts: a symposium on clay minerals in sandstones convened by Dave Houseknecht and Ed Pittman, the Keller-90 symposium convened by Haydn Murray, and a general session. Every year we claim the papers were good. That makes it hard to distinguish a meeting when the papers were noticeably better, but that is the case for this meeting. The program was quite full, and there seemed to be more mature workers reporting broad, interdisciplinary, long-range syntheses of the work they or their group had been doing.

The meeting began with a short-course titled *Neutron Scattering Technology for Clay Mineral Investigation*, which was led by Fred Ross of the Research Reactor facility at the University of Missouri-Columbia. The 41 participants heard from Dave Bish from Los Alamos National Laboratory, D.A. Neuman from the National Institute of Science and Technology, Ahmed Moini of Mobil Research and Development, Robert Von Dreele from Los Alamos National Laboratory, D.L. Worchester from the Department of Biological Sciences at the University of Missouri-Columbia, and W.B. Yelon from the University of Missouri-Columbia Research facility. Three important points from this session for the clay mineral community to keep in mind are: that inelastic scattering of neutrons yields information about the character and orientation of organic and water molecules in the interlayer space; that small angle neutron scattering (SANS) gives information on the level of aggregation of clay-sized particles; and that Rietveld techniques are not yet applicable to deciphering clay mineral structures.

The meeting program began with a plenary session, first featuring the George W. Brindley Lecture given by Alain Baronnet, Centre de Recherche sur les Mécanismes de la Croissance Cristalline, Marseille, France. His topic

was *Crystal Growth and Reactivity of the Layer Silicates*. Using superb HRTEM images, he showed intergrowths of brucite-like and talc-like layers with chlorite in a low grade metamorphic rock. These phases showed transitions perpendicular to the c-axis as well as parallel to it. Two CMS Distinguished Member awards were made. Joanne Hower accepted the award for John Hower, given posthumously. Joe L. White accepted the award and then spoke, mostly with tongue-in-cheek, on *Non-Bragg Reflections*. John W. (Spike) Jordan then gave the Pioneer of Clay Science lecture, *Bentonite: Off the Water Wagon, A Review*.

After the plenary session, the meeting adjourned to a luncheon in honor of Walter Keller, one of the founders of the Clay Minerals Society. Walter was the entertainment for his own party. Few stand-up comedians could have done as well. He reminded 163 of us that the first formal meeting of the Clay Minerals Society, was held in Columbia in 1953... and the registration fee was \$4. He asked how many in the crowd had been to that meeting in 1953 and, surprisingly enough, there were maybe 8 to 12 hands raised. Then, as a reminder to all those junior to him, and that was everyone in the room, he said to remember that it's not the young sap wood that holds up the tree - of knowledge - it's the old dead wood. He showed us a 37-inch-long birthday card he had received from former student, Ye Zhizheng, '48, Director of the Nanjing Institute of Geology and Mineral Resources. The card has 100 ideograms in the old Chinese writing, each saying good health, long life, happy birthday, or some variation on that theme. He left us with a thought about what really matters in education: it's "not how much the professor teaches, but how much the student learns and takes away". It was announced that another former student, Jack Tlapek, '64, had established a scholarship fund (\$125,000) in Walter Keller's name. Walter just may have a longer lasting affect on the community of clay scientists, in particular, and society, in general, because of this teaching rather than because of the substantial and formidable body of his published works.

The technical sessions were dominated by two symposia: one on kaolinites and related minerals and processes, in honor of Walter Keller, and the other on clay minerals in sandstone. The Keller symposium, organized by Haydn Murray, filled three sessions. On Monday afternoon, participants heard a review of the state of thought about halloysite from Bull Bailey, followed by a series of papers suggesting two kinds of kaolinites: those from feldspathic terrains and those from slate belts or other source areas with 2:1 minerals. On Tuesday morning, kaolinite and kaolinitization in England and New Zealand were described; the detection of K/E; pseudomorphic replacements of kaolinite; and kaolinite-dickite stabilities. In the afternoon, there was a well-organized paper on a deposit exhibiting a gibbsite-halloysite-kaolinite sequence and a very good student paper on the Maoming

Kaolin from South China. On Wednesday, the kaolinite crowd went on the field trip.

The other symposium was organized by David Houseknecht, and it filled four sessions. Beginning on Tuesday afternoon, participants were treated to a clear and concise review of critical point drying and some of the resulting illite textures that are preserved by this process. Paul Nadeau showed textures of clay minerals in sandstones that he had produced in the laboratory, and they looked very much like natural ones. On Wednesday morning, the first three papers focused on North Sea sandstones and their clay minerals. Wednesday afternoon saw a focus on clay coatings on quartz grains and their relation to porosity. David Houseknecht led off with a simple and elegant study in which he coated quartz grains in the laboratory, used SEM to record the textures, and then matched these with textures in sandstones from the Gulf Coast. Ed Pittman thoroughly and comprehensively covered the characteristics of detrital and diagenetic clay mineral coatings. Rob Lander showed evidence for two types of illite maturing within a few mm of one another in a sandstone from China. The Thursday morning session began with four excellent review papers and then we heard a clear, simple model for the clay mineral zonation in an Eocene sandstone on Barbados, West Indies. Talks from the Tuesday sessions and the Wednesday morning one indicate that there is agreement that clay mineral coatings on quartz grains help maintain and protect porosity and that there is an optimum amount of clay related to best porosity, but there is not agreement on whether these clay mineral coatings are detrital or diagenetic.

The three general sessions also offered some important papers. For example: Bob Reynolds showed how he had determined the degree of stacking order in the Zemplini illite by using lab techniques and his *hkl* modeling program; Warren Huff reported on his efforts to extend stratigraphic correlations using bentonites of Silurian and Ordovician rocks; and Dave Bish presented the world's latest and best refinement of the structure of kaolinite, including the H atoms.

On Tuesday afternoon, everything stopped at 4:40 for a look at the posters and to have a beer. There were 27 posters on a full range of subjects related to clay-sized minerals. One would be hard pressed to identify the most interesting poster; perhaps the one that clearly demonstrated that there are three interlayered components in the CMS Special Clay "CorWa-1" as shown by Klimentidis, Pevear, and Robinson.

Eighty-four participants took a one day, mid-meeting field trip that was conducted by Charles Stack of A.P. Green Industries, James Westcott, who is retired from A.P. Green, and Randy Miles of the University of Missouri-Columbia School of Natural Resources. John Whitfield of the Missouri Department of Natural Resources provided valuable information and

insight regarding the Pleistocene section at several stops. The trip crossed the dissected till plains, the Missouri River system, and the Ozarks Border area of Mid-Missouri, stopping at selected clay mines to observe the sequence from high alumina clays closest to the Ozark Dome to the less alumina-rich plastic clays farthest from the Ozark Dome. Walter Keller was an active participant, out of the bus and up on the outcrops to share his 60-year perspective of these clay deposits.

The best oral and the best poster presentations by students were recognized with prizes. The best paper was *Rare Earth Element Patterns in Smectite from the Cretaceous Clay Spur Bentonite (USA)* by Jessica Elzea, a student of Haydn Murray. The runnerup paper was *Volumetric Relations Between Kaolinite and Dissolved Plagioclase: Implications for Aluminum Mobility in the San Joaquin Basin, California* by Michael Hayes, a student of Jim Boles. The best poster was *Clay Mineral Diagenesis, Sespe Sandstone, Ventura Basin, California* by L.A. Hathon from the University of Missouri-Columbia, and the runnerup poster was *The Use of Backscattered Scanning Electron Microscopy to Characterize Micas and Associated Minerals in Clays and Shales* by C.P. Ambers, another student of Haydn Murray.

Congratulations to these people for their quality work and presentations. In the Council meeting, President Brij Sawhney reported that despite general economic conditions, the Clay Minerals Society enjoys financial health with a 6% growth in the endowments and an increase in membership to 920. He also reported that Editor-in-Chief Fred Mumpton, who has so devotedly served the Society and through whose efforts the journal has achieved an excellent reputation for quality of format and content, has resigned effective October 1, 1990. Ken Towe has agreed to be the Interim Editor for one year while a search is made. At least one strong candidate has been identified. The Teller's Committee reported that Dave Pevear is the Vice President-elect for 1990-91, both the secretary and treasurer remain the same, Don Scafe and Ken Towe, respectively. New council members are Philip Low, Dewey Moore, Paul Nadeau, and Rich Pollastro. Joe Dixon will be next year's Distinguished Member, and Tom Pinnavaia will be the Brindley Lecturer. At the close of the Business meeting on Thursday, leadership of the Society passed from Brij Sawhney to Tom Pinnavaia.

Next year's meeting will be held October 5-10 at the NASA Gilruth Center and the nearby Nassau Bay Hilton, about 20 miles south of the center of Houston, Texas. The general chair for the meeting is David Pevear (713/965-4452). Joe Dixon is the program chair (409/845-8323). Three symposia are on the program: Clay Geothermometers and Geochronometers, Extraterrestrial Clays, and Soils and Clays in Environmental Research. In the works for 1992 is a joint meeting with the Soil Science Society of America to be

held in Minneapolis, November 1-6. The contact person is Wayne Hudnall (504/388-1344). The 1993 meeting is slated for San Diego and Dick Berry (619/594-5586 or 619/594-6394) is the contact person. The 1994 meeting is scheduled for Saskatoon, and A.P. Mermut (306/966-6823) is the contact person.

---

### 7th EUROCLAY CONFERENCE

---

The main activity of the **former East German Clay Group** in 1990 has been the further organization of EUROCLAY '91. By the end of the year the 2<sup>nd</sup> circular has been distributed to about 500 preregistered participants. It informs about the extended abstract's preparation which needs to be finished by **April 15 1991**. These 6 pages abstracts will be published in the conference proceedings which will be offered to each participant while registering.

The 3 days technical session of EUROCLAY '91 has room for 96 papers in oral presentation. The poster exhibition will contain 280 papers which will be presented in two sessions of 140 each.

The 3<sup>rd</sup> circular containing more detailed information concerning the hotel reservation, the field trips, and the social events will be prepared by February 1991. The final registration is scheduled to be not later than April 15 1991.

At the occasion of the 7th Euroclay Conference the 1991 Martin Vivaldi Award will be given to a young European clay scientist under 35 years of age.

Manfred Störr

EUROCLAY '91, Ernst-Moritz-Arndt-Universität Greifswald, Sektion  
Geologische Wissenschaften, Friedrich-Ludwig-Jahn-Straße 17a,  
Greifswald, GDR-2000

---

### NATIONAL CLAY GROUPS

---

#### BELGIUM

The Laboratorium voor Oppervlaktechemie of the Katholieke Universiteit van Leuven celebrated its 25th anniversary. A meeting was organized with the theme

*"Molecular Sieves and Clays: Materials-by-Design"*.

The following lectures were given :

Opening by Prof. P.A. JACOBS, president of the International Zeolite Association

Lecture by Prof. W.M. MEIER (ETH, Zürich)

*The Atlas of Zeolite Structure Type Project: Past - Present - Future*

Lecture by Prof. W.J. MORTIER (Exxon, Rotterdam)

*The Solid State Theory of Molecular Sieves*

Lecture by Dr. H.K. BEYER (Hungarian Academy of Sciences, Budapest)

*Engineering of Molecular Sieves for Catalysis*

Lecture by Prof. E.F. VANSANT (U.I.A., Antwerpen)

*Engineering of Molecular Sieves for Adsorption and Gas Separation*

Lecture by Prof. J.M. SERRATOSA (Instituto de Ciencia de Materiales, Madrid)

*The Material Science of Clays*

Lecture by Prof. R.A. SCHOONHEYDT (KU Leuven, Leuven)

*Surface Chemistry of Aqueous Clay Suspensions*

Conclusions by Prof. J.B. UYTTERHOEVEN (KU Leuven, Leuven)

W. STONE

#### CHINA

The Third National Clay Symposium was held in Yantai county, Shandong province, on October 25-30, 1990. About 145 participants from different provinces, research institutes and colleges attended the meeting. Eighty-four scientific papers were presented orally or by poster. Papers sent to the Symposium were divided into three thematic sections.

(1) Clay mineralogy - 22 papers.

(2) Clay mineral deposits - 38 papers.

(3) Clay processing and utilization - 24 papers.

A selection of papers is given below :

- "Discovery and study of a new clay mineral - Lunijianlaite, a regular 50:50 interstratification of pyrophyllite and cookeite (ratified by IMA Commission on New Minerals and Mineral Names, on Feb. 1, 1990.)" by Kong Youhua, Wang Youwen and Lu Guanglie.

- "Study on structure of mixed-layer clay minerals" by Lu Qi and Lei Xinrong.

- "Di-octahedral chlorite and the discovery of Sudoite in China" by Yang Yaxiu and Zhang Naixian.

- "Clays and other minerals on loess of Lanzhou county" by Li Jietong.

- "Study of clay mineral composition by using computer program" by Zhu Weijiong.

- "Identification of hydrous character of bentonite by IR" by Yuan Wangzhi, Li Wenhui and Tao Daquan.
- "Paper coating kaolins in South China" by Zhou Guoping, Tang Shuang and Lin Yuchuan.
- "Study on texture of tonstein" by Liang Shaoxian et al.
- "Some questions about illitic clays" by Ge Chuanzhi.
- "Isotopic and geochemical characteristics of dickite deposit of Zhejiang province" by Xu Butai and Pan Jianqiang.
- "A discussion on the geochemistry and genesis of attapulgite deposit of Baitushan Liuhe, Jiangsu province" by Yi Facheng and Tian Xu.
- "Clay mineral research in prospecting and exploration of petroleum" by Zhao Xingyuan.
- "Some fundamental problems in exploration of clay mineral resources" by Yuan Weishun.
- "Study on clay surface modified by silane coupling agent" by Bei Yilling and Huang Jitai.
- "Application of clay minerals in catalytic cracking of oil" by Liu Deyi.
- "The use of 'Crystal-separation' of montmorillonite in highly finished products of chemical industry" by Tang Zilin.
- "The use of kaolin mineral fillers in high-molecular compound" by Fang Yesen, Lin Chengyi and Fang Jinman.
- "Montmorillonite gelatinizer and its application" by Ji Surong and Chen Kaihui.
- "Report of the IX International Clay Conference of AIPEA held in Strasbourg 1989 - The development of clay sciences in recent years" by Zheng Zhi.

All these papers and abstracts will be published in 1991, as a special issue, in "Nonmetallic Geology".

Zheng Zhi.

## CZECHOSLOVAKIA

The 11th Conference on Clay Mineralogy and Petrology, organized by the Czechoslovak Clay Group (CCG) of AIPEA, was held in České Budějovice, capital of South Bohemia, from August 27 to 31, 1990. The host institution was the Faculty of Agronomy of the University of Agriculture. About 140 participants, among them 50 foreign guests from Austria, Bulgaria, Germany, Great Britain, Hungary, Italy, Israel, Poland, Spain, USSR and Yugoslavia, attended the meeting. 73 abstracts were accepted for the Book of Abstracts. 50 papers and 36 posters were presented in the following sessions:

1. Mineralogy, petrology and geochemistry of clay matter
2. Advanced methods in the investigation of clay minerals
3. Technological applications of clays
4. Weathering, clay minerals in rivers, soils
5. Synthesis, sorption, organic matter-clay associations
6. Unesco projekt IGCP "Very low grade metamorphism"
7. Clay matter in coal basins

Most of participants took part in the one-day excursion to the principal open pit mines of clays in the České Budějovice basin.

Two spring meetings of CCG were held in Prague but the annual meeting was organized by the Slovak section of the Czechoslovak Clay Group in the first days of December in Bratislava. The pillared clays were the theme of the introducing lecture which was presented by dr. H. Slosiarikova. The nomination of the organization committee of the 12th Conference on Clay Mineralogy and Petrology which will be held in Bratislava in the year 1992, was also on the programme.

The first Circular of the 12th Czechoslovak Clay Conference will be mailed during the spring of the year 1991.

J. Sindelar

## DTTG

This year the annual meeting has been arranged once again in Vienna. During 31/5 and 01/06 8 papers and a lot of posters under the general topic "Clay mineralogy and geotechnics" were presented in the conference hall of the "Universität für Bodenkultur". The 8 plenary papers will be published as a special issue of the publications of the Institut für Bodenforschung und Baugeologie of this university.

As a consequence of the political changes in Germany clay scientists from the eastern regions of Germany joined the DTTG; a development we are glad about and which will continue as we hope.

F.J. Eckhardt

## GREAT BRITAIN AND IRELAND

### 1. Spring 1990

The Spring 1990 meeting was held on Friday 30th March at the Royal Entomological Society, 41 Queens Gate, London SW7 5HR. Six papers were read, consisting of verbal presentations of some of the posters papers given

by British delegates at the International Clay Conference in Strasbourg in August/September 1989. The meeting was attended by approximately 50 people.

### 2. Summer 1990

This was a joint meeting of the Clay Minerals Group and the Metamorphic Studies Group of the Mineralogical Society, held at Manchester University, July 4-6, 1990 under the auspices of the International Geological Correlation Project No. 294. The theme of the meeting was "Phyllosilicates as Indicators of Very Low Grade Metamorphism and Diagenesis". There were 4 invited lectures, 30 contributed papers and a number of posters on radiometric dating of phyllosilicates. The technical sessions were preceded by a workshop on illite crystallinity, and were followed by 2 days of field trips. The meeting was attended by an international audience of approximately 120 people. Selected papers will appear in "Clay Minerals" and "Journal of Metamorphic Geology".

### 3. Autumn 1990

This was a joint meeting of the Clay Minerals Group, the Geochemistry Group and the Petroleum Studies Group of the Geological Society of London, held at Burlington House, Piccadilly, London, September 17-18, 1990. The theme was "Geochemistry of Clay -Pore Fluid Interactions". There was one Plenary Lecture, 4 other invited lectures, and 19 contributed papers. The meeting was attended by approximately 100 people. The proceedings of the meeting will be published by Unwin Hyman (London) as a volume in the Mineralogical Society Series.

At the Annual General Meeting during the Autumn 1990 Meeting, the following were elected to serve on the committee for 1991:

- |                   |                       |
|-------------------|-----------------------|
| Chairman          | Dr. D.J. Morgan       |
| Secretary         | Dr. P.L. Hall         |
| Treasurer         | Dr. T.J. Primmer      |
| Principal Editor  | Dr. D.C. Bain         |
| Committee Members | Dr. D.H. Doff         |
|                   | Dr. R.J. Merriman     |
|                   | Dr. H.F. Shaw         |
|                   | Professor D.A. Spears |
|                   | Dr. I. Wilson         |
|                   | Dr. M.J. Wilson       |

### 3. Future Meetings

- Spring 1991. This meeting will be held on March 14-15 at Trinity College, Dublin. The final registration form is included in this bulletin as an insert. Completed registration forms should be sent to Dr. David H. Doff, Department of Geology, Trinity College, Dublin 4, Eire, by no later than 31 January 1991.

- Winter 1991. The group will contribute a half-day session to the Min. Soc. Winter Conference in Cardiff. The conference runs from December 16th to 18th, the Group's session being yet again on the last day of the conference (Wednesday December 18). It will be entitled "Clays and the Environment". Offers of papers for this session should be addressed to the Group Secretary.

- Spring 1992. A meeting will be held in St. Austell, Cornwall from April 8-10 1992, jointly sponsored by Particle Characterization Group of the Royal Society of Chemistry and English China Clays International (ECCI). The topic of the meeting will be "Characterization of Clay Particle Sizes and Shapes". A keynote lecture will be given by Professor B. Jennings, Director of Research at ECCI. The meeting will consist of 2 days of scientific sessions, the final day being devoted to a tour of ECCI's mines and laboratories. For further details concerning any of these meetings, contact Dr. P.L. Hall, Hon. Secretary, British Clay Minerals Group, P.O. Box 153, Cambridge CB3 0HG, United Kingdom, Tel.: 44-223-325200.

P.L. Hall

## FRANCE

### 1990 Meetings

In 1990 Spring Meeting of the Groupe Français des Argiles was held in Mulhouse on March 27. It was dedicated to Pr. Raymond Wey, former President of the GFA, who retired this year. The meeting convened by Pr. Bernard Siffert was devoted to "Synthesis and approach of the natural conditions of clays and zeolites formation". There were 4 keynote lectures given by former students and colleagues of Pr. Wey at the Ecole de Chimie de Mulhouse on his main research topics, namely:

- Incorporation of heavy cations during clay synthesis, by B. Siffert.
- Synthesis of zeolites and microporous solids, by J.L. Guth.
- Interlayer reactions in natural and synthetic sheet silicates, by A. Kalt.
- Properties of sheet silicates in aqueous and organic solutions, by R. Le Dred and D. Saehr.



They were followed by 6 papers on current research of related topics. The meeting was attended by 50 people.

The 1990 Autumn Meeting was run as a 2 day symposium on the theme "Al and Fe in sheet silicates and associated minerals" as a part of the "Days of Mineralogy" of the Société Française de Minéralogie et de Cristallographie, held at Université de Bretagne, Rennes, from 5-7 September. The symposium was organized by Dr. Alain Manceau and was followed by approximately 60 people. There were a total of 3 invited lectures, 15 contributed papers and 6 posters.

On september 25 was held in Paris, at the Institut National Agronomique, the Jubilee of Pr. Stéphane Hémin, one of the founders of GFA in the years immediately following the second war, and past-president of our Groupe. The meeting had 7 invited lectures on topics as different as soil structures, clay minerals, agronomy, climate and environment, in keeping with the wide field of scientific interest of Pr. Hémin during his career.

#### *Future Meetings*

The Spring Meeting of the French Group will be held on March 21 at the Ecole des Mines de Paris and devoted to "Applied Clay Mineralogy". The meeting will be preceded by a field trip on March 20 in clay quarries near Paris where a whole range of interstratified kaolinite/smectites minerals are mined.

As the 7th EUROCLAY will be held this year, no Autumn Meeting will be organized.

#### *Publication*

The Groupe Français des Argiles together with the Société Française de Minéralogie et de Cristallographie has published a book on Clay Materials, edited by Alain Decarreau with 25 authors. In addition to an outstanding scientific content, the book shows a novel approach in bringing together the main scientific topics of clay mineral studies with their relevant methods of analysis.

Decarreau A. (ed.) - 1990 - Matériaux Argileux. Structure, Propriétés et Applications, Soc. Fr. Minéralogie et Cristallographie, Paris, 586 p.

The book is hard-bound and can be purchased for 420 FF at Soc. Fr. Minéralogie et Cristallographie, Tour 16, 4 place Jussieu, 75252 PARIS Cédex 05.

Médard Thiry

#### **HUNGARY**

In the monthly sessions of the *Clay Minerals Group* of the Hungarian Geological Society in Budapest the following lectures were presented:

March 26:

Yariv S. (Jerusalem): Thermal analysis of organo-clay complexes.

April 2:

Memorial session dedicated to the late *Prof. Ferenc Szántó* with contributions on colloid chemistry of clays by S. Rohrsetzer, I. Dékány, Z. Juhasz, T. Marosi, A. Lakatos and B. Várkonyi.

April 23:

Bihari D.: New indications of kaolin and bentonite in Keszthely Mts. (Transdanubia).

December 10:

M. Földvári, M. Rozs: Computer program for simultaneous quantitative determination of clay minerals by thermal analysis.

M. Földvári: Experiences with the new thermal apparatus "Derivatograph C" in the analysis of minerals.

On October 4 a *Symposium on Basalt Bentonites* was held by the Hungarian Geological Institute. The symposium organized by G. Solti was dedicated to the bentonites related to the Pannonian basaltic volcanism in western Transdanubia. Problems of geology, laboratory testing, technological properties, mining, marketing and protection of natural environment were discussed in 12 lectures. On October 5 a one-day excursion was held to the localities Pula, Gérce, Egyházaskesző and Várkesző.

On October 30 the Section on Soil Mineralogy of the Soil Science Society organized a one-day session on "*New Results of Soil Mineralogy*". Lectures on transformation processes of minerals in soils (E. Nemezc), surface reactions in the system soil, clay mineral, electrolyte (J. Kónya, N.M. Nagy) and mineralogy of fossil and recent soils (G. Bidló, M. Reményi, L. Zsupos and G. Szendrei) were presented. The symposium was dedicated to the celebration of the 5th anniversary of the Soil Mineralogy Section.

István Viczián

#### **ISRAEL**

I would like to inform you that The Israeli Society of Clay Research held its annual meeting on October 18, 1990 in Jerusalem.

Two guest lectures were presented by J.L. Perez Rodriguez of The Institute of Material Sciences in Seville, Spain and by E. Mendelovici, of IVIC, Caracas, Venezuela.

The topics covered were :

Clay Minerals as Supports in Anaerobic Digestors - J.L. Perez Rodriguez.  
Characteristics of the Products Resulting from Treatment of Manganese Minerals with Acid Ammonium Oxalate - E. Mendelovici.

Surface Properties and Pore Volume Structure of Chrysotile Asbestos - J. Berkovich.

Photostabilization Mechanisms of Pesticides Adsorbed on Clays - L. Margolis.

Israeli Attapulgitic As a Catalyst in the Dehydration of Alcohols - P. Bar-On and D. Steinberger.

The Influence of Humic Substances on the Colloidal Properties of Clays - J. Trachitsky, Y. Chen and A. Banin.

The Fractal Approach to Surface Chemistry - D. Avnir.

Use of Methylene Blue and Crystal Violet for Determination of Exchangeable Cations in Montmorillonite - G. Ritbo, K. Sharban, S. Nir and L. Margolis.

Comparison of K-Ca Exchange Kinetics on Vermiculite and Montmorillonite - A. Bar-tal, M.J. Eick, D.L. Sparks and S. Feigenbaum.

Clays in Hypersaline Environments - Y. Nathan, S. Shoval, A. Sandler and J. Charrash.

Clays in the Stone Industry - S. Mashraky and Y. Zimels.

Orientation of Clay Particles and Intensity of X-Ray Diffraction - Z. Lev.  
Characteristics of the Clay Component in Shards from "The Land of Gshur" (The Foothills of The Golan Heights) - S. Shuval, P. Bek, E. Yadin, L. Vinitsky, Y. Kirsch, F. Levi.

A. Banin

#### GRUPPO ITALIANO AIPEA

The activity during 1990 has been focused on the meeting "MINERALS IN FINE-GRAINED SEDIMENTS" held in Bologna (May 31 - June 2) under the auspices of SIMP (Società Italiana di Mineralogia e Petrologia) and CNR (Consiglio Nazionale delle Ricerche).

The programme scheduled several invited lectures, three POSTER Sessions introduced by general lectures and followed by panel discussion, and two excursions in the ceramic district of Sassuolo/MO, and with visit of the Research Institute of Ceramic Technology and the International Museum of Ceramics in Faenza/RA.

The participation and contributions of Spanish colleagues were greatly appreciated.

#### Invited lectures

ALIETTI A. (Modena, Italy): "Research on clay mineralogy in Italy".

BARBIERI M. (Roma, Italy): "Geochemistry of fine-grained sediments".

MEZZETTI R. (Bologna, Italy): "Aspects of volcanoclastic sediments in Central and Northern Apennines".

KUBLER B. (Neuchatel, Switzerland): "The mineralogical associations of fine-grained sediments during diagenesis to anchimetamorphism".

ROBERT M. (Versailles, France): "The cycle of clay formation in sediments and soils. New application of HRTEM".

KONTA J. (Prague, Czechoslovakia): "Clay and accompanying minerals transported in Bohemian Massif's rivers".

STOCH L. (Krakow, Poland): "Specific properties of clay minerals and their unconventional perspectives of applications".

WILSON M.J. (Aberdeen, Scotland): "Fundamental particles and interstratified clay minerals-current perspective".

STEPKOWSKA E.T. (Gdansk, Poland): "Microstructure and properties of clays".

Introductory lectures to the POSTER Session :

"Clay minerals and diagenetic processes"

VENIALE F. (Pavia, Italy): "Genesis of dickite in varicoloured clays/shales of the Italian Apennines" (this lecture was prepared in association with L. DELL'ANNA / Bari and P. FERLA / Palermo).

TOMADIN L. (Urbino, Italy): "Eolian dust and marine sediments".

The POSTERS (23) covered paleosols, basin analyses, suspended particulate in coastal areas, marine sediments and behaviour of heavy metals in river sediments.

Introductory lectures to the POSTER Session : "Clay minerals in hydrothermal transformations, and in atypical genetic conditions"

MORANDI N. (Bologna, Italy): "Hydrothermal clay minerals in volcanoclastic sedimentary deposits".

LOMBARDI G. (Roma, Italy): "Mineralogical methodologies applied to hydrothermal alteration products".

The POSTER (16) exhibition included Ba-rich zeolites in volcanoclastic sediments, early stage alteration of pyroclastic rocks, transformation sequences of clay minerals by virus, lichens (and other micro-organism), and of pyrite by vegetal roots, influence of silica on the crystallization of hematite and goethite, intergrowth of fibrous Mg-Silicate in serpentinite.

Introductory lecture to the general POSTER Session

FABBRI B. (Faenza, Italy): "Ceramic production and environmental impact".

The POSTERS (18) covered the following topics : clay deposits as raw material for ceramic industries, clay minerals and geotechnical behaviour of soils (landslides and slope stability).

The Gruppo Italiano AIPEA, Groupe Français des Argiles and Sociedad Espanola de Arcillas are organising a "MEDITERRANEAN CLAY MEETING" to be held during the last week of September 1992 in the Eolie islands (Sicily), with visits of kaolin, pumice and obsidian deposits in the Lipari island, fumerolae and hot-muds in the Volcano island, and volcanic activity in Stromboli island.

It will be followed by a 3-day excursion throughout clay formations and deposits in Sicily.

The meeting will include a "Veniale's Day" devoted to prof. F. Veniale, the pioneer of clay research in Italy, who is retiring from his academic activity.

F. Veniale

**JAPAN**

*Annual Meeting*

The 34th annual meeting of the Clay Science Society of Japan was held from October 22 to 25 at Kagoshima Univ. at Kagoshima. The following activities took place.

- (1) Clay Society Award: Shirozu H.
- (2) Special lecture: Yoshinaga N. (President) "Recent studies on the amorphous clays in soils", Imagawa K. (Kagoshima Pref. Inst. Indus. Techn.) "About the application of shirasu (volcanic materials)".
- (3) Symposium : "Studies on clays - my way of thinking and method": Inoue A., Tateyama H., Iwasaki T., Tazaki K. and Henmi A.
- (4) Oral session: 63 papers.
- (5) Excursion: Sakurajima (lava) - Iriki (kaolin deposit) - Hayato (Kagoshima Pref. Inst. Indus. Techn.) - Kokubu (Kyocera Co.)

*Committee*

The following executive council for the year 1991-1992 was elected at the Annual General Meeting :

- President: Otsuka N. (Tokyo Inst. Techn.)
- Vice-President: Yoshimura T. (Niigata Univ.)

- General Secretary: Nishiyama T. (Toyo Univ.)
- Treasurer: Kohyama N. (Nat. Inst. Indust. Health)
- Editor (Nendo Kagaku): Hayashi T. (The Nishi-Tokyo Univ.)
- Editor (Clay Science): Sato M. (Gunma Univ.)
- Council Members: Aoyagi K., Inoue A., Ueda S., Urabe K., Eto K., Okada K., Otsuka J., Kato M., Kimbara K., Kuroda K., Kohyama N., Koshimizu H., Shibasaki Y., Shimoda S., Shoji S., Tazaki K., Tatematsu H., Tsunashima A., Tomura S., Nishiyama T., Hayashi H., Fukushima Y., Yoshida T., Yoshimura T., Watanabe T.

*Publication*

The following issues were published : Nendo Kagaku (Journal of the Clay Science Society of Japan): Vol. 29, No 3, 4 and Vol. 30, No. 1 ; Clay Science : Vol. 7, No 4, 5, 6.

*Special event*

Panels for activity of the Clay Society were displayed from September 10 to 14 in "Powdertec Japan 90" at Harumi, Tokyo.

29th International Geological Congress

Kyoto, Aug. 24 - Sept. 3, 1992

29th International Geological Congress will be held in Kyoto, Japan, on August, 1992, in which the following symposium on clay minerals is planned :

*Session 15: Clay Geosciences*

- (1) Formation of clay minerals during weathering, diagenesis and hydrothermal alteration.
  - (2) Characterization of clays and fine particles using new techniques.
  - (3) Origin and geological significance of clay minerals in marine sediments.
- All persons who are interested in the symposium will be welcomed for participation. Further information will be given by Prof. M. Sato.

Prof. Mitsuo Sato  
Department of Chemistry, Gunma University  
Kiryu, Gunma 378  
JAPAN

T. Tomita

## CLAY STUDIES GROUP OF KOREA

The meeting of the Clay Studies Group of Korea took place jointly with the Annual Meeting of the Mineralogical Society of Korea on June 23, 1990. The papers delivered at the meeting were:

- Cho, H.G. and Kim, S.J., "Mineralogy of alunite from Seongsan mine"
- Kim, G. Y. and Kim, S.J., "Mineralogy of Sarisan clay deposits in Yeosu area"
- Noh, J.H., "Genesis and phase equilibrium of mesolite-natrolite-laumontite in the Tertiary basic pyroclastic sediments"
- Cho, M.G., "Mineralogy of some zeolites and their cation-exchanged species from Tertiary formations in Yeongil-Gampo area"
- Song, Y.G., Kwon, E.S. and Moon, H.S., "Mineralogy of vermiculite from Cheongyang"

Soo Jin Kim

## SOUTH AFRICA

Three members of the Clay Interest Group of MINSA attended the 9th International Clay Conference in Strasbourg and actively contributed in it. At the annual symposium of MINSA, 28th September 1989, Pretoria, two papers relevant to clay mineralogy were presented:

- Netterberg, F.: Clay mineralogy of southern african calcretes.
- Bühmann, D. and Schlegel, C.: A chlorite Ib from the Spoodwell copper mine, Transvaal.

The 21st annual symposium of the S.A. Ceramic Society was held at the World Trade Centre, Jan Smuts Airport, Johannesburg, 28th June 1989. Under the theme: "Improved ceramic materials": 10 papers were delivered. There are no activities to report for 1990 from the South African Clay Interest Group. In order to reactivate the Clay Interest Group a clay workshop with main emphasis on two aspects:

1. X-ray diffraction clay mineral identification techniques and
2. determination of physical properties of clays

will be held at the Geological Survey in Pretoria under the auspices of MINSA from the 11th to 13th March 1991. The workshop will be jointly organised by Prof. O.R. Heckroodt, University of Cape Town and Dr. D. Bühmann, Geological Survey.

### *Gondwana Working Group: Clay mineralogy of Karoo age strata*

Karoo and timeequivalent sedimentary rocks cover large parts of five different continents: Africa, South America, Antarctica, Australia and India and range in age from about 300 to 160 million years to include the late Carboniferous, Permian, Triassic and early Jurassic. In order to contribute to a

better understanding of the evolution of this Gondwana sedimentary basin and its clay mineral content a Gondwana working group was formed at the 9th International Clay Conference, Strasbourg '89, with the aim to promote the mineralogical investigation of borehole cores of Karoo age strata from the Gondwana continent.

The interpretation of mineralogical results from one individual Gondwana continent will benefit if findings from all parts of Gondwana are considered. The 10th International Clay Conference at Adelaide, Australia, 18-26 July 1993, is an ideal forum to present and discuss results from different parts of Gondwanaland. Its symposium 2: "Clay Minerals of Gondwanaland" offers an excellent opportunity to do so. Everybody is welcome to contribute to this Gondwana working group.

For further information contact:

Dr. D. Bühmann  
c/o Geological Survey  
Private Bag X112  
0001 Pretoria  
South Africa

D. Bühmann

## CLAY MINERALOGY NEWS AS SEEN FROM THE USA

The Clay Minerals Society will meet in Houston, Texas October 5 -10, 1991 at the Nassau Bay Hilton with the following symposia: Clay Geothermometers & Geochronometers, Extraterrestrial Clays, Soils & Clays in Environmental Research. The CMS meeting will be preceded by a workshop on Mossbauer Spectroscopy. A visit to NASA and a field trip including Historic Galveston will also be available. D.R. Pevear, General Chair; J.B. Dixon, Program Chair.

The Soil Science Society of America will meet October 27 - November 1, 1991 in Denver, Colorado. H. Kodama, Agriculture Canada, Ottawa is Soil Mineralogy program chair.

SOILSYNC has been organized by D.G. Schulze of Purdue University to serve soil scientists interested in future access to the Advanced Photon Source under construction at Argonne National Laboratory. This facility will provide very high intensity x-rays for rapid analyses of many types of samples.

The Clay Minerals Society will have a joint meeting with the Soil Science Society of America in Minneapolis-St. Paul, Minnesota in 1992. J.M. Bigham of Ohio State University will be program chair for SSSA. Wayne Hudnall of Louisiana State University helped work out this joint arrangement.

International Working Meeting on Soil Micromorphology, Subcommission B of the International Society of Soil Science will be held July 12-18, 1992 in Townsville, Queensland, Australia. Richard Drees of Texas A & M University is a contact in the USA for this meeting.

J. Dixon

## USSR

This year our scientific activity has been restricted to publications only. V.A. Drits and A.G. Kossovskaya have published the first of a series of books. It is called "Clay minerals: smectites and mixed-layer formations". The cooperation of two so different experts permitted to combine the crystallochemical approach with geological aspects for the analysis of the relations between structure, properties and formation conditions. The next book of these authors "Clay minerals: micas and chlorites" will be published next year also by Nauka-Press, Moscow.

V.A. Drits and a number of his colleagues have prepared for publication by Nauka-Press (Novosibirsk) the book "Problems of the determination of the real structure of glauconites and related layer silicates".

B.B. Zvyagin

---

## MEETINGS

---

### 29th INTERNATIONAL GEOLOGICAL CONGRESS

KYOTO, JAPAN, August 24 - September 3, 1992.

The IGC organizes a symposium on CLAY GEOSCIENCES with the following themes:

- Formation of clay minerals during weathering, diagenesis and hydrothermal alternations;
- Characterization of clay and fine particles using new techniques;
- Origin and geological significance of clay minerals in marine sediments.

For more information contact:

The Secretary-general

IGC - 92 Office

P.O. Box 65

Tsukuba, Ibaraki 305

JAPAN

tel. : 81 - 298 - 54 - 3627

fax : 81 - 298 - 54 - 3629

### 28th CLAY MINERALS SOCIETY ANNUAL MEETING

HOUSTON, TEXAS, October 5-10, 1991.

- SYMPOSIA: Clay Geothermometers & Geochronometers, Extraterrestrial Clays, Soils & Clay in Environmental Research
- Mössbauer Spectroscopy Workshop
- Visits to Johnson Space Center (NASA) Facilities
- Field Trip, including historic Galveston.

Held at the NASA Gilruth Center and the nearby Nassau Bay Hilton, about 20 miles south of Houston center.

Headquarters : Nassau Bay Hilton and Marina

3000 Nasa Road 1, Houston, 77058

General Chairman : D.R. Pevear 713 965 4452

Program Chairman : J.B. Dixon 409 845 8323

## EUROLAT '91, 5th INTERNATIONAL MEETING

BERLIN, GERMANY, August 23-24, 1991.

### Address for Correspondence :

Technische Universität Berlin  
FG Lagerstättenforschung, BH 4  
- **EUROLAT '91** -  
Ernst-Reuter-Platz 1  
D-1000 Berlin 12

Telephone : (49) 030 314-23389  
Telefax : (49) 030 314-21124  
Telex : 184 262 TUBLN D

### Scope of the Meeting :

The aim of this 5<sup>th</sup> EUROLAT meeting is to provide a forum and an encounter point for people working on laterites or processes and products of lateritic weathering. The main topic of this meeting will be "Supergene Ore Deposits and Mineral Formation". In addition, presentations covering general aspects of laterite research are wellcome.

In cooperation with Prof. Dr. M. Störr (University of Greifswald), organizer of EUROCLAY, the date of the EUROLAT meeting had been chosen to be prior to the EUROCLAY conference (August 26-30) to be held in Dresden (170 km south of Berlin).

### Topics :

Supergene ore deposits and mineral formation :

- Lateritic bauxites
- Gold and PGE in laterites
- Weathering of BIF
- Ni-laterites
- REE in laterites
- Exploration in lateritic terrains

General aspects of laterite research :

- Geology and geomorphology
- Geochemistry and mineralogy of weathering profiles
- Mineral formation under surface conditions

- Element transfer in laterites
- Recent developments in analytical techniques

### Language :

The official language of the meeting will be English.

### Registration fees :

The following registration fees will apply

- Participants 65.- DM
- Students 25.- DM

### Call for papers :

Attendees intending to present a paper for oral or poster presentation are requested to submit an extended abstract (four pages maximum, 21 x 29.7 cm with 2.5 cm space on each side, including title, tables, line drawings and name(s) and complete address(es) of the author(s).

Requested are the original and one copy of the abstract as well as a MS-WORD-file or ASCII-file on 5¼" or 3½" diskette.

### Accommodation :

Short-term hotel reservations in the re-united future capital Berlin are very difficult. For your own convenience it is therefore advisable to submit your final reservation as early as possible. Accommodation at low rates will also be provided for student participants.

### Time schedule :

- |                      |                                       |
|----------------------|---------------------------------------|
| Januari 15, 1991 :   | Deadline for pre-registration forms   |
| April 31, 1991 :     | Deadline for abstracts                |
| May, 1991 :          | Second Circular with detailed program |
| August 23-24, 1991 : | EUROLAT-Meeting in Berlin             |
| August 26-30, 1991 : | EUROCLAY-Conference in Dresden        |

**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES**

**ANNUAL REVIEW OF EARTH AND PLANETARY SCIENCES**

Through an arrangement between IUGS and Annual Reviews, members of the IUGS community have the opportunity to purchase Volume 18 (and previous volumes) at 15 percent discount.

Clothbound 471 pages May 1990  
Retail price \$ 57.00 Discount price \$ 48.45

Editor : George W. Wetherill

**CONTENTS :**

- What is a Space Scientist ? An Autobiographical Example, James A. Van Allen
- The Valles/Toledo Caldera Complex, Jemez Volcanic Field, New Mexico, Grant Heiken, Fraser Goff, Jamie N. Gardner, W.S. Baldrige, J.B. Hulén, Dennis L. Nielson and David Vaniman
- Critical Taper Model of Fold-and-Thrust Belts and Accretionary Wedges, F.A. Dahlen
- Late Precambrian and Cambrian Soft-Bodied Faunas, S. Conway Morris
- Geological and Biological Consequences of Giant Impacts, Digby J. McLaren and Wayne D. Goodfellow
- Seafloor Hydrothermal Activity: Black Smoker Chemistry and Chimneys, K.L. Von Damm
- Formation of the Earth, George W. Wetherill
- Seismic Discrimination of Nuclear Explosions, Paul G. Richards and John Zavales
- Brine Migrations Across North America - The Plate Tectonics of Groundwater, Craig M. Bethke and Stephen Marshak
- The Origin and Early Evolution of Life on Earth, J. Oro, Stanley L. Miller and Antonio Lazcano
- The Nature of the Earth's Core, Raymond Jeanloz
- Synchrotron Radiation: Applications in the Earth Sciences, W.A. Bassett and G.E. Brown, Jr.
- Indexes

**ORDERING INFORMATION**

Note : All prices are listed in U.S. \$. Send personal check, bank draft, or money order *in U.S. dollars* to the IUGS Secretary General, U.S. Geological Survey, 917 National Center, Reston, Virginia 22092, U.S.A.

Prices :	Vol. 18	1990	\$ 45.00 / \$ 48.45
	Vols. 11-17	1983-1989	\$ 41.65 / \$ 45.00
	Vols. 1-10	1973-1982	\$ 26.35 / \$ 29.75

On each line, the first price listed is for shipping to the USA and Canada, the second is for shipping anywhere else in the world. Postage is included in the price. California residents please add 7 1/2 percent sales tax to the price.

Volumes will be shipped directly by Annual Reviews but please address inquiries to the IUGS Secretary General.

This highly cited, highly regarded series belongs in every geologist's library.

**ANNOUNCEMENTS**

- The office of the secretary-general has received the following items :
- 1989 Price list of the Mineralogical Society of America ;
  - Data Products and Services from the National Geophysical Data Center ;
  - Sciences de la terre - Earth Sciences : a list of books and maps edited by Editions du BRGM ;
  - A list of Journals for Geotechnical Mining and Mineral Engineers, edited by Elsevier ;
  - Information on the "Journal of Himalayan Geology".
- For more information contact the 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 fees are as follows :

Individual member of an Affiliated Society *	US\$ 4.00
Individual member	US\$ 6.00
Institution or Company (Corporate member)	US\$ 15.00
Life members (individuals)	US\$ 120.00

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

1. Pay fees by :
  - (a) bank money order, payable in **US dollars**, or
  - (b) international postal money order, payable in **US dollars**.
2. Pay membership fees for three or five-year periods.
3. Make check or money order payable to AIPEA and mail to :  
Dr. C. DEKIMPE  
AIPEA Treasurer  
Agriculture Canada  
Room 725, Sir John Carling Building  
Ottawa, Ontario K1A 0C5 (Canada)

\* You may join AIPEA in this category if you are a member of a national society affiliated with AIPEA.



---

**AIPEA MEMBERSHIP APPLICATION FORM**

---

(please print or type)

Family Name : .....  
Given Name : .....  
Title : .....  
Mailing Address : .....  
.....  
.....  
Amount of dues enclosed : \$ ..... for ..... years  
Type of membership : .....  
If you are an individual member of an Affiliated Society, give the name of  
the Society : .....  
Date : .....  
Signature : .....

---

**CHANGE OF ADDRESS NOTICE**

---

Name : .....  
New Address : .....  
.....  
.....  
Date effective : .....

Please mail to the AIPEA Treasurer, Dr. C. Dekimpe, Agriculture Canada,  
Room 725, Sir John Carling building, Ottawa, Ontario, K1A 0C5, Canada.