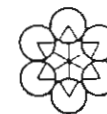


# aipea



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

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## newsletter

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February, 1988, n° 24

Acting Secr. Gen. : R.A. Schoonheydt, Laboratorium voor  
Oppervlaktechemie, K.U.Leuven, K. Mercierlaan 92,  
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PRESIDENT'S PODIUM

Dear Clay Scientists, Dear Colleagues,

1987 was the year of the 6th Meeting of the European Clay Groups in Sevilla, Spain, on September 7-10 and of the AIPEA Council Meeting. The organization of the 6th EUROCLAY was entrusted to the care of the Spanish Clay Society (Sociedad Espanola de Arcillas) under the Chairmanship of Professor Emilio Galán, University of Sevilla, who with nineteen members of the organizing Committee delivered a perfect job making this important scientific conference a great success. Fifteen Spanish institutions and eleven businesses and industries sponsored the 6th EUROCLAY. The program, spirit and principal gains of this meeting will be mentioned in detail elsewhere in this issue of AIPEA Newsletter.

I take the liberty to repeat here at least approximately what I felt and said at the closing session on behalf of the AIPEA Council in Sevilla : "There are some men and women in Europe and other continents who focus their brains and hearts to the products formed from the interaction of the lithosphere - the hydrosphere - and the atmosphere under the action of the solar energy. It should be mentioned that also the biosphere, as a younger sister of the clay products, formed from these three megaspheres of the Earth under the influence of the solar and probably still another energy. We all seek to know more and more about the newly formed earthen products which we call clay material or shortly clay. And this is the reason why we investigate this exciting material and why we gather at the international clay conferences like this 6th Euroclay Meeting, organized by the Spanish Clay Society in Sevilla.

On behalf of the AIPEA Council I would like to thank Professor Emilio Galán, the Organizing Committee, and his magnificent coworkers, for his kind invitation, for perfect organization of the 6th Euroclay, cordial hospitality and this is actually the best support of clay science in Europe."

The AIPEA Council Meeting was held on September 8, 1987 in the agreeable meeting place of the 6th EUROCLAY, Los Lebreros Hotel. The main points on its agenda were as follows : Matters arising from the minutes of the last Council Meeting in

Denver, 1985; Secretary General's report including :

- a) invitation for the 1993 International Clay Conference
- b) request from a publisher for the AIPEA membership list
- c) report of the standardization and preparation techniques committee (SPI)
- d) appointment of an Acting Secretary General.

Because Prof. A. Herbillon has new duties in France making management of his Secretary General's office difficult, the Council accepted his recommendation to appoint Prof. R.A. Schoonheydt as Acting Secretary General until the next Business Meeting, 1989; Treasurer's report considering especially the late payment of the fees by several AIPEA members and his proposal how to improve this situation; The 1989 International Clay Conference (ICC) in Strasbourg incl. the point dealing with the responsible co-editors-in-chief (Dr. V.C. Farmer and Prof. Y. Tardy) of the Editorial Committee for the next ICC Proceedings; Arrangements for the next Bradley Award; Appointment of the Nominating Committee (Prof. L. Heller Kallai, Prof. S.W. Bailey, Prof. F. Veniale, Prof. H. Minato and the AIPEA President); Relations with I.U.G.S..

A more detailed report on the Minutes of the recent AIPEA Council Meeting is given by the Secretary General on the following pages of this Newsletter.

The date of the IXth International Clay Conference in Strasbourg to be held on August 28 - September 2, 1989, will be not too far-away at the time of the editing of this Newsletter issue. It will be just about the time for planning to attend this AIPEA Conference and thinking about the themes which could contribute to its program in the best possible way.

May I wish all AIPEA members, their families and the institutions involved in clay matter research a happy, prosperous new year of 1988.

Jiri Konta

COUNCIL AFFAIRS

Acting Secretary-General

Our Secretary-General, Dr. A. Herbillon, took up a new position as Director of the Centre de Pédologie Biologique in Nancy, France. This made it impossible for him to continue his duties as secretary-general. The AIPEA appointed Prof. Robert A. Schoonheydt as acting secretary-general.

Prof. Robert Schoonheydt is research director of the National Fund of Scientific Research (Belgium) and extraordinary professor of the Katholieke Universiteit Leuven. His research activities in the field of clays involve the study of the organisation of molecules on clay surfaces and of the organisation of clay particles in aqueous suspension by spectroscopic techniques. He is president of the Belgian Contact Group on Clays and co-editor of Clays and Clay Minerals.

The secretarial address is :  
Prof. R.A. Schoonheydt  
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B-3030 Leuven (Belgium)  
Tel. (0)16/22.09.31 - Ext. 1592 - Telex 25941 elekul b

Membership fees

The red number on your address label indicates the last year for which membership fee was received by the Treasurer. All fees were added for consecutive years since the time you applied initially. Therefore and if for any reason, payment was omitted for one particular year, this will be shown by the actual date indicated on the label. This will allow you to make payment for outstanding dues (Statutes, item 3). This is especially important if you wish to be included in the forthcoming list of members and to attend the 1989 International Clay Conference in Strasbourg, France. According to by-law 3, conference fees are established as follows :

- |   |        |
|---|--------|
|   | US\$   |
| 1) Member of AIPEA :                                  | x      |
| 2) Member of affiliated society not member of AIPEA : | x + 20 |
| 3) Non-member of AIPEA or of affiliated society :     | x + 40 |

When you make your payments, please use encoded cheques payable to AIPEA !

Send your cheques to : Dr. C.R. De Kimpe, AIPEA Treasurer  
Land Resource Research Centre  
Central Experimental Farm  
Ottawa, Ontario  
Canada K1A 0C6

New list of members

So far, AIPEA Newsletters were sent automatically to all members including those who were late with their dues, assuming that a global payment covering several years would be received. This policy has proved to be very costly. It was decided by the Council that the list of members will be revised more frequently in the future and that membership will be suspended if the fees remain unpaid for more than 3 (three) years.

A new list of members will be prepared and distributed before the 1989 International Clay Conference, to be held in Strasbourg, France.

You will greatly assist us in preparing the new list of members by considering the following points :

- 1) if you are late with your dues (as indicated on your address label) and wish to keep membership in AIPEA, update your payments.
- 2) if you are no more interested in AIPEA activities, please send a notice of resignation to the Treasurer or to the Secretary.
- 3) check if your address is correct and keep us informed of any change.
- 4) you may be eligible to life membership : it is automatically granted to individuals over 65 years of age who have been AIPEA individual members for 10 years or more. If this applies, please notify the Treasurer.
- 5) if you know that AIPEA members are deceased, please let us know.

This will help us to keep the list of members up-to-date.  
Thank you very much for your cooperation.

C. De Kimpe  
AIPEA Treasurer

### The 1989 Bradley Award

The Bradley award will be presented for the second time during the 9th International Clay Conference in Strasbourg. The closing date for submission of manuscripts is November 20, 1988.

The selection committee consists of the president of AIPEA, prof. J. Konta and 4 members nominated by the AIPEA council : Prof. J.J. Fripiat, Prof. E. Galan, Prof. R. Giese and Prof. K. Wada.

All AIPEA members should encourage entries of high quality. You are therefore requested to circulate the regulations and the application form among possible candidates.

#### Rules :

1. The object of this award shall be to offer financial assistance to the recipient to enable him or her to participate in an International Clay Conference for the purpose of presenting his or her paper.
2. Candidates must submit five copies of a paper of approximately 1500 to 2000 words in English, French, German, Russian or Spanish on a topic relevant to one of the sessions at the Conference. Papers written in a language other than English must be accompanied by an extended summary of not less than 1000 words in English. The paper should be written in a format acceptable for international journals. Assessment will be on scientific content only and the winning entry shall form the substance of a paper to be presented by the successful candidate at the Conference to which the award relates.
3. The award will normally be made at four-yearly intervals and initially will not exceed 1000 \$, although the value will be reviewed from time to time. An award shall not be made if it is considered that candidates do not reach the required standard.
4. Persons eligible for the award shall be under 35 years of age on the closing date for submissions : no restriction is placed on the sex or nationality of the candidate or the nature of his or her employment. Every application must be supported by two members of AIPEA.
5. The selection committee shall consist of the President of AIPEA and four members nominated by the Council of AIPEA.

The paper must be in the hands of the selection committee at least six months before the Conference to which it relates.

6. A suitably inscribed certificate will be presented to the successful candidate during a plenary session to be followed by the oral presentation of the winning paper. A portion of the prize may be sent to the successful candidate in advance in the form of a ticket enabling him or her to travel to the Conference.
7. The attached form must be completed and returned with each entry to arrive before the official closing date. The candidates must note that the deadline will be strictly observed.
8. The winning paper must be submitted for publication in the Conference proceedings.

### EUROCLAY 1987

EUROCLAY 87 was held in Sevilla 7-10 September 1987. The Meeting was organized by the Spanish Clay Society (Sociedad Espanola de Arcillas) with the financial support of 15 scientific and governmental organizations headed by the Ministry of Education and Science, Council of Education and Science of the Government of Andalucia, Council of Scientific Investigations, Universities of Sevilla and Granada, ICONA, Spanish Clay Society, etc. Also 11 business and industrial institutions gave financial support.

According to the participant list 400 scientists and 54 accompanying persons intended to participate in the Meeting. They came from 33 countries : 147 from Spain, 44 from Italy, 27 from France, 18 from West Germany, 17 from United Kingdom, 11 from Czechoslovakia, 9 from U.S.A., 6 from Belgium, Poland and Sweden, 5 from Finland, Japan and Norway, 4 from The Netherlands and Portugal, 3 from Austria, Israel and Switzerland, 2 from Brazil, Denmark Hungary and Yugoslavia and 1 representative of Argentina, Bulgaria, Canada, D.D.R., Indonesia, Iceland, Ireland, Republic of South Africa, Romania, Turkey and U.S.S.R.. The actual number of participants was close to 450.

At the opening ceremony Prof. Dr. A. Pascual Acosta (Consejero de Educaci3n y Ciencia de la Junta de Andalucia) introduced

the Chairmen of the organizing Committee, Prof. Dr. E. Galan (University of Sevilla), who opened the Conference and held the introductory address. It was followed by a lecture on the Modern History of Sevilla and America, read by Prof. Dr. J. Bernales (University of Sevilla). Rector of the University of Sevilla, Prof. Dr. J. Pérez Silva, discussed the role of the Meeting and expressed his best wishes to the participants. The opening ceremony was closed by Dr. A. Pascual Acosta.

Two plenary lectures were given by :

1. Serratosa J.M., Spain : "Application of NMR spectroscopy to the study of clay minerals and related compounds".
2. Roaldset E., Norway : "Role of the clay in the petroleum generation and exploration".

At the closing session, on Thursday 10, two other lectures were read :

3. Störr M., D.D.R. : "Methodology and analytical techniques of clay mineral research".
4. Chamley H., France : "Diagenetic and paleoenvironmental expression of clay successions in the sedimentary geological record of marine basins".

Papers sent to the Conference were divided into the following thematic sections :

1. Geology and Geochemistry : 29 oral and 46 posters.
2. Surface Chemistry : 19 oral and 17 posters.
3. Crystal Chemistry and Structure : 9 oral and 22 posters.
4. Non-silicate Minerals in Clays.
5. Applications : 10 oral and 21 posters.
6. Rock and Soil Mechanics; joint with Section 4; 9 oral and 12 posters.

Introductory lectures were read by the Chairmen of the representative sections :

Section 1

- Srodon J. : "Illite-smectite in the rock cycle".  
 Ortega M. : "Clay minerals and evolution of the subbetic zone (Betic Cordillera, SE Spain)".  
 Kuzvart M. : "Clays in the 21st century".  
 Wilson M.J. : "Mineral weathering in cool temperature climates and its implications for "acid rain" and catchment studies".

Section 2

- Lagaly G. : "Surface chemistry and catalysis".  
 Schoonheydt R. : "Organization, mobility and reactions of organic molecules on clay surfaces".

Section 3

- Drits V. : "The nature of defects and structural features of phyllosilicates".  
 Bailey S.W. : "Identification of polytypes of 1:1 layer silicates".  
 Wiewiora A. : "Polytypes of phyllosilicates : typomorphic importance, crystal chemistry and x-ray identification".

Section 4

- Schwertmann W. : "New aspects of iron formation in various environments".

Section 5

- Murray H.H. : "New applications of kaolins and future trends".  
 White J.L. : "Rheology of aluminium hydroxides gels".

Section 6

- Stepkowska E. : "Problems of particle thickness in Soil Mechanics".

The papers both presented orally and as posters were subjected to public discussion. For the first time, discussion of posters was held at the end of poster sessions. Also exchange of points of view during coffee breaks was very vivid. A book of extended abstracts presented at the Meeting was published.

The Meeting was preceded by two scientific excursions and followed by a third one :

- A. Cabo de Gata bentonite mines in the vicinity of Almeria.
- B. Soils in Alpujarra Mountains and on the SE Mediterranean Coast.
- C. Kaolin deposits at Poveda de la Sierra (Guadalajara) and Mg-clay deposits (sepiolite, palygorskite, bentonite) of the Tajo Basin. A guidebook for excursion was published.

A special Meeting on "Clay-based Barrier Materials and Research", sponsored by ENRESA, the Spanish Company responsible for radioactive waste management, took place on Tuesday 8, conducted by Dr. R. Pusch (Geological Survey of Sweden).

The Meeting included a rich social programme which was started with a wellcoming party at the College in Castilleja de Guzman in the vicinity of Sevilla and its gardens were visited in the evening of the first meeting day, after which a dinner was given at Villa Luisa offered by the Major of Sevilla, Mr. M. del Valle Arevalo. Closing dinner took place in the Hotel Alfonso XIII in a very friendly atmosphere. On the last Meeting day an excursion was organized to Jerez and to Cadiz. Visitors went to the Clock Museum and to the Andalusian Horse Exhibition in Jerez, followed by a lunch at the Casino Bahia de Cadiz. Finally the stone decay of the Cathedral of Cadiz was observed and commented. This day ended with a Round Table Discussion on the "Decay of Building Stones" with a lecture on this subject by Prof. J. Konta.

The accompanying program included :

1. an artistic tour of Sevilla, i.e. visits to the Cathedral, Old City District, Mosque tower (La Giralda), Bullring and the Golden Tower (Torre del Oro).
2. a visit to the Fine Art Museum Ruins of Italica.

During the Meeting a special meeting of the Spanish Clay Society took place at the University of Sevilla, in which eight outstanding scientists were awarded honorary memberships of the Sociedad Española de Arcillas : J. Fripiat, F. Gonzales Garcia, R.C. Mackenzie, G. Millot, J.M. Serratosa, F. Veniale, A. Weiss and J.L. White.

Among the Business Meetings held on the occasion of this Conference it is to be noted that the Representatives of the European Clay Groups decided that an organization should be founded of European Scientists working in clay science. The name was chosen as : European Clay Groups Association (ACGA). As the first president Prof. F. Veniale was chosen.

It was also decided that the next EUROCLAY 91 will be organized in Dresden D.D.R. with Prof. M. Störr as chairman. In this last session Prof. F. Veniale and Prof. J. Konta held the final words to thank the Organizing Committee and Prof. E. Galan closed the meeting.

J.L. Perez Rodriguez

## THE NINTH INTERNATIONAL CLAY CONFERENCE 1989

Recall that the IX<sup>th</sup> International CLAY CONFERENCE 1989 will be held in Strasbourg, France, from Monday August 28th to Saturday, September 2nd.

On November 15th, 1987, about 400 scientists were already preregistered among whose American ones are at the first rank.

The second circular will be sent in February, 1988. The latter will give precisions about the definitive technical program and field trips, the Conference committee, the dead lines for submission of papers and for firm registration, the invited lectures, etc. ...

Please remember that a one-day parallel session on "clay minerals in soils and weathering" will take place with the members of Commission VII (Soil Mineralogy) of the International Soil Science Society (ISSS). The responsible of this session is Prof. Adrien HERBILLON, Centre de Pédologie Biologique, B.P. 5, 54500 VANDOEUVRE-LES-NANCY, France. A two-day field trip in Schwartzwald (RFA) will be organized by Dr. STAHR from the T.U. of Berlin, just before the ICC Conference.

The editorial board in charge for the publication of the Proceedings of the IXth International Clay Conference was appointed as follows :

- Co-editors in chief : V.C. FARMER and Y. TARDY
- Associate editors : R.A. EGGLETON, B. FRITZ, R. GIESE, H. KODAMA, H. PAQUET, J.A. RAUSSEL-COLOM and J. WILSON.

Correspondence for the 9th AIPEA ICC :

Dr. Hélène PAQUET  
Institut de Géologie  
Rue Blessig 1  
67084 Strasbourg (France)

## NATIONAL CLAY GROUPS

### Australia

The committee of the Australian Clay Minerals Society moves to different states every two years. Currently it is based in Brisbane. The main activity of the Australian Clay Minerals Society are our biennial conferences. The previous one was held in Sydney in December, 1986 and the next one is planned for Brisbane, 1988. As well as an interesting technical programme and a field excursion to the Ipswich/Toowoomba area, the Brisbane Conference should be particularly exciting as it is held during World Expo '88 and in Australia's Bicentennial year. All clay workers are invited to attend.

For further information contact :  
Mr. Ross Seedsman  
President, A.C.M.S.  
CSIRO - Division of Geomechanics  
Private Mail Bag No. 3  
INDOOROPILLY, Qld. 4068, Australia

R.W. Seedsman

### Belgium

In Spring, the Belgian Contact Group on Clays held its annual meeting in Louvain-la-Neuve. During this very successful meeting, the attendance had the privilege of listening to a very international set of speakers as detailed in the programme below :

- T. Pinnavaia (Michigan, U.S.A.) : "Intercalation chemistry of clays - Synthesis principles"
- J.J. Fripiat, G. Poncelet, A. Schutz, D. Plee and P. Jacobs, (Wisconsin, U.C.L., Orléans, K.U.L.) : "Physico-chemical characterization, surface and catalytic properties of pillared beidellite"
- C. Changui, W.E.E. Stone and A. Herbillon (U.C.L., M.R.A.C.) : "Physico-chimie des solutions hydroxy-aluminiques"

- E. Ruiz-Hitzky and E. Gutierrez (CSIC Madrid) : "Réactions de transposition des glycols dans l'espace interfolaire des argiles"
- E.M. Farfan-Torres, P. Grange and B. Delmon (U.C.L.) : "Montmorillonites Zr : argiles pontées et délaminiées"

W. Stone

### China

1987 was a relatively calm year for the Clay Group of China. Not any national or local meetings have been held; but in the field of prospecting work of the clay mineral deposits we achieved a lot of things successively. Kaolin of sedimentary type, weathered Tertiary arkosic sand layers in Maoming county, Guangdong province, proved itself as high quality coating material for paper industry. A great deal of fibrous aggregate of sepiolite veins, distributed in dolomite, were found in Henan, Shaanxi, and Hebei provinces. Rectorite mineral deposit was discovered in Zhongxiang county, Hubei province. We studied the processing and utilization of rectorite and fibrous sepiolite and obtained some good results.

In 1988, the 3rd National Clay Symposium will be held. Date and technical programme for the meeting will be fixed by the Committee of the Nonmetallic Mineral Deposits of the Geological Society of China on December this year in Nanjing, Jiangsu province.

Zheng Zhi

### Czechoslovakia

The Spring Meeting of the Czechoslovak Clay Group was held on the 10th March, as usually, at the Institute of Petrology (Faculty of Science, Charles University). Abstracts of seven members prepared for the Euroclay 87 were read. Ten members of our group took part at the Sixth European Clay Meeting in Sevilla, the largest delegation of the socialist countries.

The autumn sessions of our group, held on 13th October and 17th November, were devoted to the discussion of the Sevilla Meeting.

At the November Meeting Prof. J. Konta resigned as president of Czechoslovak Clay Group because of his duties in more important organisations. Dr. Karel Melka, Ph.D., founder member of Czechoslovak Clay Group, was nominated as new president for the period of three years. It was decided at the last mentioned meeting that the 11th Czechoslovak Conference on Clay Mineralogy and Petrology will be held in the year 1990 in the South Bohemian capital České Budejovice.

J. Sindelar

### Federal Republic Germany

A joint workshop of the DTTG and the Schweizerische Gesellschaft für Boden- und Felsmechanik was held in Zürich on 14th and 15th May 1987.

The workshop was held under the topic "Clay mineralogy and soil mechanics" with the scope to meet the "scientific clay mineralogy" with the problems of soil mechanics and the civil engineers (and reverse too). Six papers have been presented : three dealing with problems of "Clay mineralogy and soil mechanics" the other three under the topic "Clay mineralogy and waste disposal".

The papers will be published in 1988 in Applied Clay Science.

F.J. Eckhardt

### France

The "Groupe Français des Argiles" held its spring meeting 1987 on March 19.

The following papers were presented :

- Application of some physio-chemical methods to metakaolinite characterisation : IR absorption spectroscopy - calorimetry - conductimetry : M. Murat, M. Driouche, D. Mathurin, M. El.M. Chbihi, A. Bachiorrini.
- Cristallogenesis and surface properties of noble opals from Brasil : F. Bartoli, D. Bittencourt Rosa, M. Doirisse, R. Meyer, R. Philippy, J.C. Samama.

- EXAFS study of cations distribution in the octahedral sheet of phyllosilicates : A. Manceau, D. Bonnin, G. Calas.
- EXAFS study of local structure evolution of iron oxo-hydroxide precursors : J.M. Combes, A. Manceau, G. Calas.
- Film projection on talc.
- New results on Na montmorillonite hydration : I. Fournel.
- Fractal dimension measurement of clay aggregates mass and surface : M. Ben Ohoud, L. Gatineau, J.F. Alcover, P. Levitz, H. Van Damme.

The autumn meeting 1987 was replaced by the 6th European Clay Meeting, Sevilla. At the end of December 1987, a new committee will be elected to serve for the 3 coming years. The address of the group secretary will change.

### Great Britain and Ireland

The Spring Meeting of the Clay Minerals Group was organised jointly with the British Society of Soil Science and was held at Trevelyan College, Durham from 13-15 April. The theme was "Clay Minerals and Soil Properties". Three keynote addresses were given :

1. Poorly-ordered clay constituents in soils : some unsolved problems. Farmer V.C. (Macaulay Institute).
2. Some soil properties in relation to crystalline constituents of the clay fraction. Arnold P.W. (University of Newcastle).
3. Weathering of silicates under different climatic conditions. De Coninck F. (State University, Ghent). Twenty other papers were presented. About 70 delegates participated.

The following have been nominated to serve on the committee for 1988 :

Chairman : Dr. M. J. Wilson  
Secretary : Dr. P.L. Hall  
Treasurer : Dr. P.J. Loveland  
Principal Editor : Dr. D.C. Bain  
Committee members : Dr. C. Breen, Dr. J.R. Gronow,  
Mr. F.R. Price, Dr. T.J. Primmer  
Dr. K. Pye, Mr. M.H. Yates



Future Meetings - Spring 1988

A joint meeting of the Clay Minerals Group, the Petroleum Exploration Society of Great Britain, the Society of Professional Well Log Analysts and the Geological Society of London will be held at the Department of Engineering, University of Cambridge on 17 and 18 March on the topic "Clay Diagenesis in Hydrocarbon Reservoirs and Shales". To date, 19 papers have been received.

There will be two discussion sessions on special topics :

1. Principle of fundamental clay particles and its application in exploration and reservoir development.
2. Use of clay mineral assemblages in subsurface stratigraphy and facies mapping.

Details of the programme, registration and accommodation can be obtained from Dr. C.V. Jeans, Dept. of Applied Biology, Pembroke Street, Cambridge, CB2 3DX (Telephone no. 0223-3344).

Publication

Mineralogical Society Monograph no. 6, entitled "Chemistry of Clays and Clay Minerals" and edited by A.C.D. Newman has been published during 1987 by Longman Scientific and Technical in collaboration with the Mineralogical Society.

It contains the following chapters :

1. The chemical constitution of clays. Newman A.C.D. and Brown G.
2. Non-silicate oxides and hydroxides. Taylor R.M.
3. Dispersion and flocculation. Van Olphen H.
4. Cation exchange equilibria in clays. Laudelout H.
5. The interaction of water with clay mineral surfaces. Newman A.C.D.
6. Catalytic properties of clay minerals. Rupert J.P., Granquist W.J. and Pinnavaia T.J.
7. Thermal, oxidation and reduction reactions of clay minerals. Brindley G.W. and Lemaitre J.
8. Reactions of clays with organic substances. Rausel-Colom J.A. and Serratosa J.M.
9. Petrologic phase equilibria in natural clay systems. Velde B. and Meunier A.

Copies can be obtained from the Mineralogical Society, 41 Queen's Gate, London SW7 5HR or from Longman Scientific and Technical.

D.C. Bain

Hungary

In 1987 lectures dealing with clay mineralogy were presented in sessions organized by the Hungarian Geological Society (HGS) and by the Hungarian Society for Soil Science (HSSS). The following papers were presented :

February :

Szántó F. : "Adsorption and expansion properties of organophilic bentonites (Clay Minerals Section of HGS)".

May

Stefanovits P. : "Repartition of clay minerals in brown forest soils (Clay Minerals Section of HGS and Soil Mineralogy Section of HSSS)".

September

Földvári M. : "Systematics of minerals according to their thermoanalytical curves (Clay Minerals and Mineralogy-Geochemistry Sections of HGS)".

November

Viczián I. : "The repartition of clay minerals in Hungarian sedimentary formations (central session of the HGS)".

December

Csáki-Tombácz E. : "Humate - montmorillonite interaction (Soil Mineralogy Section of HSSS)".

István Viczián

Italy

Activity of the "Gruppo Italiano" of AIPEA

The Italian Group of AIPEA has organized in collaboration with the Società Italiana Scienza del Suolo and the ENEA (Ente Nazionale Energia Nucleare e Energie Alternative) a workshop on "X-Ray diffractometry analytical procedures for clay materials", held in Lerici, La Spezia at the ENEA Environment Research Center.

The aim of the two days (1, 2 June 1987) workshop was the standardization of the analytical procedure, and the preparation of a report to be submitted for discussion at the Round Table during the 6th Euroclay held in Sevilla, Spain 7-10 September 1987 (unfortunately, it was not going on because of the absence of Prof. J. Thorez, coordinator of the project).

The following introductory lectures had been delivered :

- Veniale F. (Dept. of Earth Sciences - Laboratory for Clay Research, University of Pavia) : "Influence of random and oriented powder preparation procedures on X-Ray diffractometric traces)".
- Arduino E. (Institute of Agricultural Chemistry, University of Turin) : "Suitable pre-treatments for Fe-Al-oxyhydroxides selective destruction".
- Laviano R. (Dept. of Geo-Sciences, University of Bari) : "Quantitative analysis of clays by X-Ray diffractometry".
- Leoni L. (Dept. of Earth Sciences and Agricultural Chemistry, University of Pisa) : "Combined chemical and X-Ray diffractometric quantitative analyses".
- Bonazzi A. (Dept. of Earth Sciences, University of Parma) : "Procedures and reliability of illite crystallinity index".
- Dell'Anna L. (Dept. of Geo-Sciences, University of Bari) : "Grain size analysis : a review of different methods".
- Ristori G.G. (Research Center for Soil Colloids, CNR - National Research Council, Florence) : "Cation exchange capacity measurement, as applied to different clays and soils".
- Vurro F. (Dept. of Geo-Sciences, University of Bari) : "X-Ray diffractometric and chemical methods for carbonate content determination".

Three invited lectures were also presented :

- Tessier D. (Laboratoire Science du Sol, INRA - Versailles, France) : "Clay behaviour at variable moisture".
- Rautureau M. (Laboratoire de Cristallographie, Université d'Orléans-France) : "Analyse de micro- et nano-particules à l'aide de la microscopie électronique analytique".
- Van Grieken R. (Department of Chemistry, University of Antwerp-Belgium) : "Single particle automatized analysis of suspended matter from water environment".

Moreover, the PHILIPS-Italia presented the suitability of the new advanced PW-1800 X-Ray diffractometer for research and routine powder analyses, with regard to its hardware and software configuration.

The Italian Group of AIPEA is honoured and indebted to all representatives of the European National Clay Groups which unanimously elected Prof. Fernando Veniale as President of the European Clay Groups Association, founded on the occasion of the 6th Euroclay held in Sevilla, Spain last September 1987. Prof. Veniale has been the first elected President of the "Gruppo Italiano" of AIPEA, and in the past he was serving as member of the Council and Vice-President of AIPEA. His activity and dedication as greatly improved the participation of Italian clay scientists over national and international areas.

At present, the Italian Group is one of the most represented within AIPEA organization (about 90 registered members). During 1988 the Italian Group, in collaboration with the Italian Society for Soil Sciences, will organize a meeting on "Weathering and pedogenesis of mafic rocks and pyroclastic products", to be held at the CNR Research Center for Soil Colloids, Department of Soil Science, University of Florence on May 30, 1988. Doctor G. Pedro, from the Laboratory for Soil Science-INRA Versailles-France, has been invited to deliver a lecture on "Weathering of aluminosilicate rocks and diagenetic processes". The Seminar will be followed by a two-days excursion (May 31 - June 1, 1988) covering the ophiolitic areas around Impruneta and Maremma; furthermore, some pyroclastic materials in central Italy. For information ask Prof. G.G. Ristori - Centro per lo Studio dei Colloidi del Suolo, CNR (piazzale Cascine, 28 - 50144 Firenze).

Prof. Dr. Fernando Veniale

## Japan

### A. Annual Meeting

The 31st annual meeting of the Clay Society of Japan was held from October 4 to 7 at the Ehime University at Matsuyama.

(1) Special Lecture :

Kato C. (President) : "Function of clay lattice interlayer and new intercalation compounds"

Tachikawa R. (Ehime Univ.) : "Behavior of chemicals in some environments"

Kashima N. (Ehime Univ.) : "Geology of the Outer Zone in western Shikoku - A consideration from tunnel researches"

- (2) Symposium : "Clay-Water-Environment"  
Hayashi H., Kuwatsuka S., Utada M., Yagi N.
- (3) Oral Session : 48 papers
- (4) Excursion : Tobe-yaki (pottery) and Toseki deposit  
(sericite-kaolin deposit) at Tobe near Matsuyama.

B. Committee

The following executive council for the year 1988 was elected at the Annual General Meeting :

- President : Kida D. (Obayashi-gumi Co.)
- President elect : Honda S. (Akita Univ.)
- Vice-President : Oinuma K. (Tohyo Univ.)
- General Secretary : Tatematsu N. (Techn. Inst. JL)
- Treasurer : Nishiyama T. (Tohyo Univ.)
- Editor (Nendo Kagaku) : Yoshinaga N. (Ehime Univ.)
- Editor (Clay Science) : Sato M. (Gunma Univ.)
- Council Members : Aoyagi K., Hayashi T., Horikawa S., Kato M., Kubo H., Nishiyama T., Oinuma K., Okada O., Ossaka T., Otsuka N., Sakamoto T., Sato M., Shibazaki Y., Shimoda S., Suzuki K., Tatematsu N., Tateyama H., Tomita K., Torii K., Ueda S., Uno Y., Utada M., Wada Y., Watanabe Y., Yamanaka S., Yoshimura T.

C. Publication

The following issues were published : Nendo Kagaku (Journal of the Clay Society of Japan) : Vol.26 no.4 and Vol.27 no. 1,2,3. Clay Science : Vol. 6 no. 6.  
Special Publication : "Nendo Handbook", Gihodo, Tokyo.

Minoru Utada

Korea

One meeting of the Clay Studies Group of Korea took place in Seoul jointly with the Annual Meeting of the Mineralogical Society of Korea on May 16, 1987.

The papers delivered at the meeting were :

- Moon H.S. : "Layer Charge of Smectite from the Tertiary Formations in Korea".
- Hwang J.Y. : "Diagenesis and hydrothermal alteration of the Tertiary Formations at Hariyu", Minamiais, Japan.

- Chung, G.Y. and Kim S.J. : "Kaolinite group minerals in kaolin at Sancheong".
- Kim S.J. and Chung G.Y. : "Iron-bearing minerals in kaolin from Hadong-Sancheong area".
- Lee D.J. and Lee S.R. : "Mineralogy of high alumina claystone in the Cheonunsan Formation".

The next meeting of the Clay Studies Group is scheduled to be held on May 14, 1988 during the Annual Meeting of the Mineralogical Society of Korea.

Soo Jin Kim

Spain

The most important activity developed by the Spanish Clay Society has been the organization of the VI Meeting of the European Clay Groups held in Sevilla in September 7-10, 1987, which is described separately. The Annual Meeting of the Spanish Clay Society (SEA) took place in Madrid on 13th May. There were about 50 attendees and the two following lectures were given :

- Kaolins from Galicia : Industrial application by A. Varela.
- Genesis of clay minerals from Madrid Basin by M. Doval.

At the Annual General Meeting the following nominations were decided :

AIPEA Liaison Officer : Prof. Dr. J.L. Pérez Rodríguez  
Member of the Clay Minerals Editorial Board : J. Cornejo  
Spanish Representative at the European Clay Groups : E. Galan and S. Leguey.

The following members of the Executive Council were elected :  
Vice-president : Prof. Dr. F. López-Aguayo  
Council Members : Prof. Dr. C. Serna and Dr. M. Rodas

The first Martin Vivaldi Award was announced in connection with the Sixth Meeting of the European Clay Groups. Its monetary value was fixed at 100.000 pts. Some papers were submitted but the selection committee decided to give no award.

Eight outstanding scientists were awarded the honorary membership of the Spanish Clay Society due to their scientific values and relations with the Spanish Clay Society :

J. Fripiat, F. González García, R.C. Mackenzie, G. Millot, J.M. Serratos, F. Veniale, A. Weiss, J.L. White.

The Spanish Clay Society has published the "Spanish bibliography on clays from the Sixties : A selection".

J.L. Perez Rodriguez

### South Africa

Members of the Clay Interest Group met once in 1987 at a symposium organized by the Mineralogical Association of South Africa (MINSA) on 23 September in Johannesburg. On this occasion the following papers dealing with clays and clay minerals were presented :

- Bühmann C. : Clay minerals as palaeoenvironment indicators
- Bühmann D. : New aspects on nacrite neof ormation
- Purbrick J. : Applied mineralogy of the smectite group of minerals.
- Thamm A.G. : Diagenesis and clay mineralogy of Table Mountain Group arenites.

The 19th annual symposium of the South African Ceramic Society was held on 9 September 1987 in Pretoria and was devoted to the theme : Durability of ceramic products.

Dr. Dieter Bühmann

### U.S.S.R.

Meeting in which clay items were presented, were :

- The Symposium on the Application of Electron Microscopy in the Solution of Mineralogical Problems (Zwenigorod, April 1987).
- 13th All-Union Conference on Electron Microscopy (Sumy, October 1987) with sessions on Mineralogy and Selected Area Diffraction.

B.B. Zvyagin

## THE UNIVERSAL RECIPE or HOW TO GET YOUR MANUSCRIPT ACCEPTED BY PERSNICKETY EDITORS

Frederick A. Mumpton, Editor-in-Chief  
The Clay Minerals Society  
P.O. Box 595  
Clarkson, New York 14430 U.S.A.

When AIPEA President Jiri Konta first asked me to prepare a short article describing my concept of the "ideal" manuscript for publication in Clays and Clay Minerals, I begged off, believing that my limited experience in the editing field hardly qualified me to instruct eminent scientists how to write. I also believed that the "ideal" manuscript for Clays and Clay Minerals should be no less "ideal" or no more "ideal" than a manuscript submitted to any other technical journal in clay science or, for that matter, in any field of science or technology. Never having refrained before from rushing in where "mortals fear to tread", I quickly dismissed my first qualm; however, I am still of the opinion that manuscripts submitted to Clays and Clay Minerals except for the subject matter itself, should not be prepared differently from those destined for any other scientific journal. It is therefore with this thought in mind that the present article has been prepared.

Hopefully, the following comments, ideas, hints, recommendations, guidelines, or what have you will indeed contribute to the preparation of better organized and more readable reports in clay science that truly do what all scientific communications are supposed to do - convey information and ideas to the reader in an succinct, unambiguous, to-the-point manner, unencumbered by flowery prose, complicated jargon, convoluted reasoning, or wild-eyed speculation.

### The recipe - an overview

Despite the enormous diversity of the many branches of science and technology, the manner of reporting scientific and technical information seems to have resolved itself over the years into a rather standard format, a format that appears to be

just about the same regardless of the particular area of science being discussed. This format has emerged by trial and error and today appears to be the most universally accepted means of conveying scientific ideas and information. Although minor variations may be found, the standard format or recipe for acceptable manuscripts consists of the following major parts :

- |                         |                                   |
|-------------------------|-----------------------------------|
| 1. Title                | 6. Discussion                     |
| 2. Abstract             | 7. Conclusions (Summary & Concl.) |
| 3. Introduction         | 8. Acknowledgments                |
| 4. Experimental Section | 9. References Cited               |
| 5. Results              |                                   |

At this point, a few readers of this article will say to themselves that this standard format or recipe is all well and good for most papers and for most authors, but "their" work is different and therefore "their" manuscripts should be organized in a "different" or "special" way. In answer, this editor says "not so", or at least not so for 99,99 % of the manuscripts he has ever encountered. Rarely does a scientific investigation require a reporting style that differs substantially from this standard format. Granted, some manuscripts may benefit by a separate Theory section or Theoretical Background section (probably inserted after the Introduction), or a Regional Geology section (inserted either before or after the Experimental section), or even an extended Literature Review section (inserted after the Introduction), but the presence of such extra sections does not change the overall organization of the manuscript, nor do such sections detract (if they are properly prepared) from a straightforward, "eins, zwei, drei" manner of presentation. The standard format or universal recipe allows an author to tell the reader what problem he attempted to solve (Introduction), how he went about solving it (Experimental section), what he found out (Results), and how he interpreted these results (Discussion). It also allows him to tell the reader something about the significance of his findings (Summary and Conclusions).

The major sections of this universal recipe are discussed below in terms of the purpose, the kind of information that should or should not be reported, and the pitfalls that should be avoided in preparing each section. Although I would like to claim them as my own, few of the ideas expressed below are

original with this editor. Almost all are well discussed in numerous books on technical or scientific writing, some of which are listed at the end of the article. I strongly urge all authors or potential authors to read or re-read one or more of these works and to refer to them constantly as they prepare their next manuscripts.

### The title

The title of a scientific paper should tell the reader what the paper is all about. It should not be too short or too general (the title of Theophrastus' treatise "On Stones" would be considered inadequate today), or too long (the title "Unit-Cell Dimensions of Potassium Feldspar in Early to Middle Pleistocene Rocks of Southeastern North Dakota as a Function of Alkali Element Composition of Circulating Ground Waters and of Organic Carbon Content of Overlying Lignitic Shales" might put the reader to sleep before he gets into the body of the paper). Because the title of the paper will undoubtedly be read by almost every person who picks up the journal, the title is the author's first chance (and maybe his only chance) to tell the reader what the paper is all about and thereby convince him to read on.

In addition to being not too long and not too short, the title should tell the reader just what will be covered in the paper. It should not give the reader the impression that an entire field will be treated in the paper when in reality only a small part of that field is discussed. Thus, the title "Adsorption of Amino Acids on Kaolinite in Ethyl Alcohol" is more informative than "Amino Acid-Kaolinite Reactions". Moreover, words that do not contribute specifically to the subject of the paper should also not made part of the title. For example, the first four words of the title "Preliminary Results on the Effect of Magnesium in the Formation of Chlorite" add nothing, and the title is better written "Effect of Magnesium in Chlorite Formation". The titles also should not be an alphabet soup of abbreviations or acronyms, many of which may not be understood by the non-expert reader.

### The abstract

Not enough can be said about the importance of the Abstract. With the exception of the Title itself, the Abstract will be read by more people than any other part of the paper. In this era of magapublications, few researchers have time to read everything, even in their own field of specialization. I am loathe to admit it, but the editor is probably the only person who reads every word of every article in each issue of his journal. Most of us scan the titles in the table of contents and then turn to the abstracts of the papers that seem to be of interest. If the abstract turns out to be uninformative (i.e., if it really doesn't summarize the highlights of the paper) or if it is merely a table of contents of what is found in the rest of the paper, most of us will grumble a little about authors who try to keep their findings secret and regretfully move on to another paper.

Only the true-blue expert or avid lover of the subject will read the entire paper, and these people will read it regardless of how well or how poorly the abstract is written. It is therefore not for the expert in the subject that one prepares an informative abstract - it is for everyone else who might read it. Because most of these non-experts will not read beyond the abstract, it is vital that we convey everything we can about the paper - the rationale for undertaking the investigation, the important finding (including specific data, rather than arm-waving generalities), and the pertinent interpretations of those findings - in the abstract. In short, the abstract should be an fact-filled condensation of the entire paper. Many editors and reviewers take the attitude that if a subject is not of such significance as to be summarized in the abstract, perhaps it does not belong in the main body of the paper either.

Note that in the above discussion I haven't said that abstracts are easy to prepare. They are not. For me, at least, the abstract is the most difficult part of the manuscript, chiefly because I am forced to condense each part of the paper into a sentence or two and to construct those sentences with great care so that each contains the maximum amount of information. The author part of me says that surely the reader will want to read all of my wonderful paper and therefore I don't have to tell him everything in the abstract, but the editor

part of me knows different; hence, if I want the maximum number of people to benefit from or be aware of the results of my investigation, I had best make sure that the abstract says as much as possible.

To illustrate the difference between uninformative and informative abstracts, I recommend reading the abstracts in the program of some past scientific conference and then reading the abstracts of these same papers as they are published in the conference proceedings or in a primary journal, after a persnickety editor and a couple of referees have had a chance to work on them.

### The introduction

In a magazine advertisement or a television commercial the reader's interest must be aroused in the first few words, otherwise he will turn the page or go to the kitchen for a cold beer, and the commercial message will not be received by its intended audience. Likewise, the Introduction to a scientific paper must in a few short sentences convince the reader that it is worthwhile for him to read on. The Introduction must set the stage for the paper to follow and convey to the reader the rationale for undertaking the investigation. It must inform him of the nature and scope of the problem, why that problem is important, how the author attempted to solve that problem, and of what significance are the results that the author expected to obtain. Some introductions also mention very briefly the principal findings of the investigation, so as not to keep the reader in suspense as he works his way towards the Conclusions. If all of these questions are addressed in the Introduction, the reader will know what to expect in the rest of the paper. Authors must recognize that their scientific results may be of enormous significance and that their interpretations may be truly awe-inspiring, but if the reader cannot grasp why the investigation was conducted in the first place, he may never bother to read about these wonderful results or these revolutionary conclusions.

The Introduction is generally the place to review the literature, at least to the extent of demonstrating to the reader how the present investigation relates to past work. Every paper ever written on the subject, however, need not be

mentioned; the author should cite only those papers that bear directly on the problem to be attacked in the present investigation. Authors should also be careful to indicate exactly why a particular work was cited and exactly how the cited work relates to the subject under discussion. It is frustrating, for example, to read in the Introduction to a paper on "Hydrolysis of Manganese During the Weathering of Ultramafic Rocks" that "Jones and Smith (1978) noted manganese hydroxides in weathered serpentinites". One wants almost to shake the author to learn what was it that Jones and Smith found out about manganese hydroxides in such rocks or what Jones and Smith discussed that is germane to the problem of being investigated in the present paper.

Authors should also avoid citing the literature for information that is common knowledge. I once noted the statement in the Introduction to a paper submitted to Clays and Clay Minerals that "Clay minerals are abundant in sedimentary rocks and soils (Grim, 1953)". Such information was, of course, mentioned in the cited work, but was it really necessary for the author to cite Professor Grim's book or any published work for that matter for such common knowledge? On the other hand, because one of the purposes of the Introduction is to show the reader how the present investigation meshes with or fills a gap in our current knowledge, authors should not overlook important works on the same subject by other researchers. Even if the author doesn't agree with them, fairness requires that other points of view be recognized and considered. Furthermore, simply because an important work happens to be published in a language not understood by the author does not excuse him from including it in his review of the literature.

Well-written Introductions invariably end with what has been called a "succinct statement of the problem". Here, in one or two sentences the author should state precisely what the rest of the paper will be about and, perhaps, exactly what he intends to show from the results of his investigation. For example, the closing statement in the Introduction to the paper on the hydrolysis of manganese mentioned above might be: "To investigate the hydrolysis reactions of manganese during the weathering of ultramafic rocks, samples of fresh serpentinite and peridotite were treated with weak acids at room temperature for periods ranging from weeks to years. Reactions were followed by analyzing solid products and

residual solutions and plotting the results on appropriate Eh-pH diagrams". The "statement of the problem" at the end of the Introduction is therefore analogous to a speaker saying: "I've told you what subject I'm going to discuss, and I've told you why that subject is important. Now I'm going to give you specific details on the subject and then my interpretation of them. Pay attention - you don't want to miss what's coming next".

### The experimental section

The Experimental section of any scientific paper is probably the easiest to write and is often the first section to be tackled by the author. It is no less important, however, than any other section, inasmuch as one of the basic criteria of scientific publishing is that the reader be able to duplicate an author's results using the same procedures. The Experimental section should therefore be a straightforward presentation of what materials were used in the investigation (reagents, rock, water, soil or mineral samples), how these materials were treated (chemically, thermally, electrically), how starting materials and products were characterized (by X-ray powder diffraction, nuclear magnetic resonance, infrared spectroscopy, optical microscopy, transmission electron microscopy, or extended X-ray adsorption fine-structure spectroscopy), and how the data were massaged and evaluated (statistically, mathematically).

The locality, source, and properties of all starting samples should be reported in as much detail as possible to allow the reader to compare the author's results with other data reported previously on the "same" material. In so far as locality is concerned, note, for example, that "Germany" is hardly a sufficiently precise locality for a nontronite from Clausthal, Zellerfeld, Federal Republic of Germany. Samples obtained from reference collections, e.g., from the Source Clay Repository of The Clay Minerals Society, should be so indicated and designated with the reference numbers assigned to them. Standard methods employed should be referenced and need not be described in detail; however, new methods or modifications of standard methods should be described in as much detail as necessary to allow them to be used by the reader. The brand name and model of the instruments used should be stated, not

as an endorsement of that product, but so that the reader can evaluate the quality of the data being reported. The precision should be stated for all measurements, and the statistical methods employed and computer programs used to evaluate the data should be identified and referenced.

Except as they add to the characterization of the starting materials or samples, results should not generally be reported in the Experimental section.

### The results section

Despite the fact that many authors find it convenient to combine the experimental results obtained by a particular technique or on a particular suite of samples and an interpretation of these results in the same section, most readers find it extremely difficult to follow a paper written in this manner. The reader generally wants to see the results of the investigation neatly presented in a section all by themselves, unencumbered by discussion, interpretation, or comparison with the literature. He would then like to see the author's interpretations of these results in a separate section. In this way he is able to distinguish the authors's new data from information that is common knowledge or that has been reported by previous workers. Although a few papers lend themselves to combining results and discussion in the same section, most do not, and in general interpretations and discussions should be presented in a section separate from Results.

The results themselves should be presented preferably in tables or as curves, graphs, or half-tone illustrations. Details of experimental procedures should not be included in the Results section, but gathered together in the Experimental section, as noted above. The descriptions of the results should be as brief as possible and devoid of interpretation, although particular trends or ranges of the data should be pointed out. Some authors believe that because they obtained certain information in the course of their investigation, this information should be reported in their paper regardless of whether it is germane to the subject being discussed. Only those results that are relevant to the purpose of the paper, however, should be reported in the paper. Extraneous data, as interesting as they might be, should be saved for another day and another paper.

### The discussion section

The Discussion section is probably the most important section of the paper and should be carefully organized into specific subsections, each dealing with a different subject. In each subsection, the author should critically evaluate the data, show how they agree or contrast with published works, and interpret them for the reader. It is not sufficient merely to point the reader towards a table or graph and expect him to interpret the data himself; the author must do the interpreting and in so doing must solidly base his interpretations on specific data reported in the present paper or on a combination of published information and the current results.

Technical reviewers and editors have a habit of downgrading manuscripts because interpretations are not (or do not appear to be) supported by the data reported in the paper. All too often, authors make sweeping statements or draw broad conclusions without telling the reader specifically on which data these statements or conclusions have been based. Others merely refer the reader to "the data in Table 1" or the "results reported above", and some only say "therefore" or "thus" as a means of specifying the data on which conclusions are based. Such tactics leave the reader wondering whether or not the author truly has evidence to support these statements or if the statements are more wishful thinking than data-based interpretations. Authors should keep in mind that the reader is not obliged to believe what they tell him, but he will be more inclined to do so if he is provided with specific results and evidence every step of the way. Authors are also urged to present the data first in any sentence or paragraph in the Discussion section and then to interpret these data, rather than to state something as though it were fact and then present the data on which the statement was made later in the paragraph.

Many papers phrase all statements and discussion in the present tense. The reader, unfortunately, must determine for himself whether the statement refers to the author's present findings or to facts already known. No hard and fast rules can be applied, but the author's results are best described in the past tense, reserving the present tense for information currently known or for information taken from the literature.



Objects still possessing particular properties or characteristics, however, are properly described in the present tense. For example, an author describing a rock sample might write "The rock is red and has a granitoid texture", but that its density "was determined to be 3.00 g/cm<sup>3</sup>". Likewise, the "bands characteristic of Al-O bonding were noted in the infrared spectrum", but that the "infrared spectrum in Figure 3 shows bands characteristic of Al-O bonding".

### The conclusions (or summary and conclusions) section

Authors often confuse "summary" with "conclusions". A Summary section by definition summarizes the results and interpretations of the paper, and, in one sense, may duplicate part of what is found in the Abstract. In some papers, the results of the investigation and the discussion of them are summarized in a final subsection of the Discussion, in others, a separate section is warranted, usually combined with conclusions.

A Conclusions section is the place where the author should discuss the importance of his findings. The conclusions should not merely repeat various points of the discussion, but should tell the reader why these points are important, something about their broad meaning, how they contribute to our understanding of the field being examined, and where more work is needed. Often a combined Summary and Conclusions section is the appropriate means of summarizing the findings of the investigation and of pointing out their overall significance.

As an author prepares the Summary and Conclusions section of his manuscript, he should reexamine his Introduction, especially the part in which he spelled out the objectives of the investigation, to see whether or not these objectives have been met. If they have not been met, he should tell the reader why not, or he should consider rewriting the Introduction to contain a different set of objectives.

### Recapitulation

The above discussions of the ideal manuscript for publication in Clays and Clay Minerals or for any other technical journal are offered to assist authors in preparing reports of their investigations that will be read, understood, and appreciated

by their professional colleagues. No matter how great the experiment or how revolutionary the results, if the work is not published or if it is published and still cannot be understood, nothing is added to that vast accumulation of information we call science. Even worse, mankind in the end reaps no benefit. In the above discussions, I have concentrated on only the main parts of the "Universal Recipe" for scientific manuscripts - much more could be said, and probably be said better. In the final analysis, no two papers are exactly alike, and the universal recipe should probably be modified (but not too much) to fit each investigation. Authors should make such modifications cautiously, however, and only after every attempt has been to mold their reports into the standard format.

The key to writing an acceptable scientific paper is organization. Most editors, technical referees, and critical readers agree that disorganized writing may reflect a disorganized investigation, and a disorganized investigation is tantamount to a poor investigation, of little use to anyone. This editor strongly suggests that authors organize their reports into the standard format described above. He also recommends that authors prepare extended hierarchical outlines of their reports before they put pen to paper (or finger to keyboard). I recognize that many authors do not need outlines before they write, but as a minimum I suggest that their final manuscripts be reduced to outline form as soon as they are completed. In this way the lack of organization becomes readily apparent.

The final word (at last !). No manuscript should ever be submitted for publication that has not undergone a critical review by at least one competent third party. Authors should not submit manuscripts that represent anything less than their very best effort, and critical review by colleagues for both technical content and manner of presentation is a vital part of the manuscript preparation process. Remember, the sole purpose of a scientific paper is to convey information in a succinct and unambiguous manner, and the data and discussion must be presented in concise, understandable statements. Anything that gets in the ways of fulfilling this purpose - flowery prose, personal "style", imprecise words, tortuous sentence structure, or jargon-filled paragraphs - must be ruthlessly deleted from the manuscript. Don't make the referees or the editor do this for you.

Raw, unreviewed manuscripts, which are at best described as "rough drafts", place an excessive burden on the journal, its editor, and its technical referees. Many of the questions raised by the referees could have been answered before hand by the authors if they had only asked a colleague to review their paper. Internal or external review prior to submission of the manuscript to a journal is an excellent means of catching poor organization, verbose explanations, convoluted reasoning, unwarranted interpretations, and unsupported conclusions. It also speeds up publication of that world-class paper we all strive to produce.

#### Acknowledgments

I am grateful to past and present associate editors of Clays and Clay Minerals and to dozens of other scientific and editorial colleagues for their comments over the years about the need for and means of achieving good writing in scientific papers. I also acknowledge the following texts on technical writing that have focused my own thoughts on this subject and provided a base on which to build, especially Robert A. Day's How to Write and Publish Scientific Paper.

#### Selected texts on technical writing

- Barnett M.T. (1974) Elements of Technical Writing : Delmar Publishers, Albany, New York, 232 pp.
- Day, R.A. (1983) How to Write and Publish a Scientific Paper : 2nd ed.; ICI Press, Philadelphia, Pennsylvania, 181 pp.
- Hayes R. (1965) Principles of Technical Writing : Addison-Wesley, Menlo Park, California, 324 pp.
- Hoover H. (1980) Essentials for the Scientific and Technical Writer, Dover Publications, New York, 216 pp.
- Katz M.J. (1985) Elements of a Scientific Paper : Yale University Press, New Haven, Connecticut, 130 pp.
- Tichy H.J. (1966) Effective Writing for Engineers, Managers, Scientists : Wiley, New York, 337 pp.

#### PUBLICATIONS

- Proceedings 8th International Clay Conference 1985, Denver, Colorado, U.S.A.  
Editors : Clays and Clay Minerals  
P.O. Box 368  
Lawrence, KS 66044  
U.S.A.  
Price : 80.00 \$
- Proceedings of the 6th Indian Colloquium on Micropaleontology and Stratigraphy. Part II. Stratigraphy and Microflora.  
Editor : B.K. Samanta  
Asia Books & Periodicals Co., 1986
- Publications of the Geological Publishing House, Xisi, Beijing China :
  - Metamorphic map of China, 1 : 4 000 000
  - Lithospheric dynamics map of China and adjacent seas, 1 : 4 000 000
  - The Evolution of the tethys in China and adjacent regions
  - Mesozoic and cenozoic geology
  - China geology import & export corporation

#### FORTHCOMING MEETINGS

- International Symposium : Major Projects in a Vertebrated Europe  
Congreso de la Obra Publica  
Colegio de Ingenieros de Caminos, Canales y Puertos  
C/. Calatrava, 19  
08017 Barcelona, SPAIN
- 28th International Geological Congress :  
Washington, D.C., U.S.A., July 9-19, 1989  
Contact Address : 28th Int. Geological Congress  
P.O. Box 727  
Tulsa, Oklahoma 74101  
U.S.A.

THE W.F. BRADLEY AWARD

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1. I have read the regulations governing the above Award and in conformity therewith I herewith submit a paper entitled :

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(a) NAME .....

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who are both members of AIPEA.

4. I agree to abide by the rules governing the Award and accept that the examiners' decision is final.

Date : ..... Signature : .....

N.B.-

- 1) If the candidate is not the sole author of the paper, a statement from the coauthor(s) is required specifying the candidate's contribution to the paper.
- 2) No letter of recommendation of any kind will be entertained.

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Individual member of an Affiliated Society *	US\$ 4.00
Individual member	US\$ 6.00
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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 cheque or money order payable to AIPEA and mail to :  
Dr. C. DEKIMPE  
AIPEA Treasurer  
Agriculture Canada  
Land Resource Research Centre  
Central Experimental Farm  
Ottawa, Ontario K1A 0C6 (Canada)

\* You may join AIPEA in this category if you are 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 : .....

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CHANGE OF ADDRESS NOTICE

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

Please mail to the AIPEA Treasurer, Dr. C. DEKIMPE,  
Agriculture Canada, Central Experimental Farm, Ottawa,  
Ontario, K1A 0C6, Canada.