

APPENDIX¹

HISTORY AND FUTURE OF THE NATIONAL CLAY CONFERENCE

¹ This Appendix is the revised version of a brochure bearing the above title, which was prepared for the Tenth National Conference on Clays and Clay Minerals, Austin, Texas, copies of which were presented to those attending the Annual Banquet on the evening of October 17, 1961.

INTRODUCTION

by

EARL INGERSON

At the Ninth National Clay Conference, Purdue, 1960, representatives of the Local Committee for the Tenth Conference suggested to the National Committee that it would be in order to make the tenth annual meeting an out-of-the-ordinary one in several respects. The Committee agreed to this thesis and has cooperated heartily, as have the National Research Council, the National Science Foundation, many companies that are listed separately elsewhere, members of the Local Committee, and personnel at The University of Texas, including the Bureau of Economic Geology. Our thanks and appreciation are hereby tendered to all of these groups.

We have attempted to make the Tenth Conference outstanding in several aspects, as follows:

(1) *Distinguished speakers invited from abroad.* The National Science Foundation very generously raised its contribution to a record amount, which enabled us to invite eight outstanding participants from seven countries.

(2) *Field trips and related symposia.* Two field trips—to bentonite and uranium localities in the Gulf Coastal Plain and to vermiculite occurrences in the Central Mineral Region of Texas—should be of more than usual interest to participants. Symposia on the characteristics and origin of such deposits were designed to complement the field trips and provide an opportunity for a much more thorough and satisfying discussion of their subjects.

(3) *A pause for reflection.* The first nine conferences have been highly successful. The pattern of organization and procedure has remained very much the same during these nine years. Recently there has been a greatly increased tendency, with cause, to discuss the future of the Committee and the Conference. The National and the Local Committees thought that the tenth meeting would be an appropriate time and place for a review of the history and accomplishments of the organization and a formal discussion of its future policies and operations. These things form the basis of the program for the annual banquet. Participants are urged to share their views on these problems with the National Committee in order that the future course may reflect as accurately as possible the needs and wishes of the entire group.

(4) *Index of Proceedings.* With the publication of the papers from this conference there will be ten separate volumes of Proceedings comprising some 4,350 pages and 341 individual papers on a surprising variety of subjects, written by some 370 authors. It is becoming increasingly difficult to

find a given paper or subject in this extensive series. The Local Committee, therefore, proposes to use a part of the funds it has raised to sponsor the preparation and publication, as a separate volume, of a comprehensive subject-author index* of the first ten volumes of the Proceedings of the National Clay Conference.

We trust that these extra efforts by the Local Committee, together with the continued interest and support of the National Committee and all participants, will make the Tenth Anniversary meeting memorable in every way.

* Note added in press: A further grant from the National Science Foundation has assured compilation and publication of this index, which is currently in preparation.

CLAY MINERALS COMMITTEE: NAS-NRC

MEMBERSHIP OF THE NATIONAL COMMITTEE, 1952-1961

Isaac Barshad, 1960-1961
Thomas F. Bates, 1954-1960
William F. Bradley, 1957-1958
George W. Brindley, 1958-1961
Charles G. Dodd, 1954-1960
James Earley, 1959-1961
A. F. Frederickson, 1952-1961
R. E. Grim, 1952-1960
John C. Hathaway, 1960-1961
Ernst A. Hauser, 1952-1956
E. C. Henry, 1952-1957
M. L. Jackson, 1954-1961
A. L. Johnson, 1952-1959
Edward C. Jonas, 1960-1961
Walter D. Keller, 1957-1961
Walter P. Kelley, 1952-1961
Paul F. Kerr, 1952-1957
Maxwell M. Knechtel, 1954-1960
R. Torrence Martin, 1957-1961
Katharine Mather, 1959-1961
James L. McAtee, 1959-1961
Charles Meyer, 1952-1957
Richard C. Mielenz, 1953-1958
W. O. Milligan, 1952-1959
Haydn Murray, 1959-1961
Paul G. Nahin, 1952-1960
Joseph A. Pask, 1954-1960
E. F. Preece, 1952-1957
C. S. Ross, 1959-1961
Richards A. Rowland, 1952-1961
Ada Swineford, 1956-1961
Karl Terzaghi, 1952-1956
Charles E. Weaver, 1960-1961
E. J. Weiss, 1957-1960
J. L. White, 1958-1961

FIRST NATIONAL CONFERENCE ON CLAYS AND CLAY TECHNOLOGY

University of California, Berkeley, California, July 21–25, 1952

LOCAL COMMITTEE

Joseph A. Pask, Division of Mineral Technology, University of California,
(Chairman)

R. E. Grim, Department of Geology, University of Illinois (Honorary Chair-
man)

Harmer E. Davis, Institute of Transportation and Traffic Engineering,
University of California

George L. Gates, U. S. Bureau of Mines, Petroleum Experiment Station

Irving Goldberg, Institute of Transportation and Traffic Engineering,
University of California

Walter P. Kelley, Department of Soils, University of California

Alexander Klein, Division of Civil Engineering, University of California

Adolph Pabst, Department of Geological Sciences, University of California

J. Schlocker, U.S. Geological Survey, Engineering Geology Branch

Wilbur H. Somerton, Division of Mineral Technology, Petroleum Engineering,
University of California

Mort D. Turner, State Division of Mines

Charles M. Gilbert, Department of Geological Sciences, University of
California

SYMPOSIUM TOPICS

Instrumental Methods

Clay Mineral Structures

Origin of Clay Minerals

Clay Mineral Technology in the Oil Industry

SECOND NATIONAL CLAY CONFERENCE

University of Missouri, Columbia, Missouri, October 15–17, 1953

LOCAL COMMITTEE

Walter D. Keller, Department of Geology, University of Missouri (Chairman)

H. H. Krusekopf, Department of Soils, University of Missouri

A. G. Unklesbay, Department of Biology, University of Missouri

James F. Westcott, A. P. Green Company

Robert Weigel, Mexico Refractories
C. E. Marshall, Department of Soils, University of Missouri

SYMPOSIUM TOPICS

No symposia

THIRD NATIONAL CLAY CONFERENCE

The Rice Institute, Houston, Texas, October 26–29, 1954

LOCAL COMMITTEE

W. O. Milligan, The Rice Institute (Co-chairman)
R. A. Rowland, Shell Development Company (Chairman)
M. S. Taggart, Humble Oil and Refining Company
J. W. Jordan, Baroid Sales Division, National Lead Company
D. R. Lewis, Shell Development Company
Brian Eby, Consultant

SYMPOSIUM TOPICS

No symposia

FOURTH NATIONAL CLAY CONFERENCE

The Pennsylvania State University, University Park, Pennsylvania,
October 10–13, 1955

LOCAL COMMITTEE

Thomas F. Bates, Department of Mineralogy, The Pennsylvania State University (Chairman)
George W. Brindley, Department of Ceramic Technology, The Pennsylvania State University
C. Burton Clark, Harbison-Walker Refractories Company
James W. Earley, Gulf Research and Development Company
J. C. Griffiths, Department of Mineralogy, The Pennsylvania State University
F. A. Hummel, Department of Ceramic Technology, The Pennsylvania State University
C. D. Jeffries, Department of Agronomy, The Pennsylvania State University
Rustum Roy, Department of Geophysics and Geochemistry, The Pennsylvania State University

SYMPOSIUM TOPICS

Thermal Transformation
Clay–Water Relationships
Mixed-Layer Clays

FIFTH NATIONAL CLAY CONFERENCE

University of Illinois, Urbana, Illinois, October 8–10, 1956

LOCAL COMMITTEE

R. E. Grim, Department of Geology, University of Illinois (Chairman)
Alvin H. Beavers, Department of Agronomy, University of Illinois
W. F. Bradley, Illinois Geological Survey
John B. Droste, Department of Geology, University of Illinois
Russell T. Odell, Department of Agronomy, University of Illinois
W. Arthur White, Illinois Geological Survey
George M. Wilson, Illinois Geological Survey
Paul A. Witherspoon, Illinois Geological Survey

SYMPOSIUM TOPICS

No symposia

SIXTH NATIONAL CLAY CONFERENCE

University of California, Berkeley, California, August 19–23, 1957

LOCAL COMMITTEE

Joseph A. Pask, Ceramic Engineering, Division of Mineral Technology,
University of California (Chairman)
Quinten Aune, Division of Mineral Industries, U.S. Bureau of Mines
George Cleveland, California State Division of Mines
Isaac Barshad, Department of Soils and Plant Nutrition, University of
California
George L. Gates, Division of Petroleum Technology, U.S. Bureau of Mines
Irving Goldberg, Institute of Transportation and Traffic Engineering,
University of California
Fred R. Kelley, Department of Soils and Plant Nutrition, University of
California
Alexander Klein, Division of Civil Engineering, University of California
Walter P. Kelley, Department of Soils and Plant Nutrition, University of
California
Charles Meyer, Department of Geology, University of California
Adolf Pabst, Department of Geology, University of California
J. Schlocker, Engineering Geology Branch, U.S. Geological Survey
Wilbur H. Somerton, Petroleum Engineering, Division of Mineral Technology,
University of California
Edwin W. Tooker, Mineral Deposits Branch, U.S. Geological Survey

SYMPOSIUM TOPICS

Clay Structures
Clay–Water Systems

SEVENTH NATIONAL CLAY CONFERENCE
U.S. National Museum, Washington, D.C., October 20-23, 1958

LOCAL COMMITTEE

H. F. McMurdie, National Bureau of Standards (Chairman)
M. M. Knechtel, U.S. Geological Survey
John G. Cady, U.S. Department of Agriculture
G. A. Bourbeau, Agronomy Department, University of Maryland
H. E. Kissinger, National Bureau of Standards
W. C. Ormsby, National Bureau of Standards
Dorothy Carroll, U.S. Geological Survey
Sidney Diamond, Bureau of Public Roads
Earl B. Kinter, Bureau of Public Roads

SYMPOSIUM TOPICS

No symposia

EIGHTH NATIONAL CLAY CONFERENCE

University of Oklahoma, Norman, Oklahoma, October 11-14, 1959

LOCAL COMMITTEE

Charles G. Dodd, School of Petroleum Engineering, University of Oklahoma
(Chairman)
Carl C. Branson, School of Geology, University of Oklahoma and Oklahoma
Geological Survey
Hugh E. Hunter, School of Geology, University of Oklahoma
William E. Ham, Oklahoma Geological Survey
Charles J. Mankin, School of Geology, University of Oklahoma and Oklahoma
Geological Survey
Wayne F. Hower, Halliburton Oil Well Cementing Company
Del Leffler, Halliburton Oil Well Cementing Company
Charles E. Weaver, Continental Oil Company
F. Lee Hayden, Extension Division, University of Oklahoma
Satyabrata Ray, Research Institute, University of Oklahoma
J. Robert Porter, Jr., University of Oklahoma

SYMPOSIUM TOPICS

Clay-Water Systems
Clay Mineral-Geochemical Prospecting

NINTH NATIONAL CLAY CONFERENCE

Purdue University, Lafayette, Indiana, October 5-8, 1960

LOCAL COMMITTEE

Joe L. White, Agronomy Department, Purdue University (Chairman)
Stanley A. Barber, Agronomy Department, Purdue University
John B. Droste, Geology Department, Indiana University
Robert B. Johnson, Geology Department, School of Civil Engineering,
Purdue University
Gerald A. Leonards, Soil Mechanics Department, School of Civil Engineering,
Purdue University
Richard W. Lounsbury, Geology Department, School of Civil Engineering,
Purdue University
Charles W. Lovell, Soil Mechanics Department, School of Civil Engineering,
Purdue University
Philip F. Low, Agronomy Department, Purdue University
Wilton N. Melhorn, Geology Department, School of Civil Engineering,
Purdue University
Paul G. Moe, Agronomy Department, Purdue University
William Pullen, Geology Department, School of Civil Engineering, Purdue
University

SYMPOSIUM TOPICS

Engineering Aspects of the Physico-chemical Properties of Clays
Clay-Organic Complexes

TENTH NATIONAL CLAY CONFERENCE

The University of Texas, Austin, Texas, October 16-18, 1961

LOCAL COMMITTEE

Earl Ingerson, Department of Geology, The University of Texas (Co-chairman)
Edward C. Jonas, Department of Geology, The University of Texas (Co-
chairman)
Virgil E. Barnes, Bureau of Economic Geology, The University of Texas
W. F. Bradley, Department of Chemical Engineering, The University of
Texas
J. F. Burst, Shell Development Company
S. E. Clabaugh, Department of Geology, The University of Texas
D. Hoye Eargle, U.S. Geological Survey
S. P. Ellison, Jr., Department of Geology, The University of Texas
R. L. Folk, Department of Geology, The University of Texas
James L. McAtee, Jr., Baylor University

William L. McIntire, Department of Geology, The University of Texas
William R. Muehlberger, Department of Geology, The University of Texas
L. C. Reese, Department of Civil Engineering, The University of Texas
John L. Snyder, Department of Geology, The University of Texas
Hugo Steinfink, Department of Chemical Engineering, The University of
Texas
John E. Stone, Department of Geology, The University of Texas
E. Joseph Weiss, Department of Chemical Engineering, The University of
Texas

SYMPOSIUM TOPICS

Industrial Application of Clays
Origin and Occurrence of Vermiculites
Texas Bentonites and Uranium Deposits
Clay–Organic Complexes

CLAY CONFERENCE PUBLICATIONS

- Pask, J. A. and Turner, M. D., eds., 1955. *Clays and Clay Technology: Proceedings of the First National Conference on Clays and Clay Technology*. California Division of Mines Bulletin 169, 326 pp., \$4.50.
- Swineford, A. and Plummer, N., eds., 1954. *Clays and Clay Minerals: Proceedings of the Second National Conference on Clays and Clay Minerals*. National Academy of Science-National Research Council Publication 327, 498 pp., \$4.00.
- Milligan, W. O., ed., 1955. *Clays and Clay Minerals: Proceedings of the Third National Conference on Clays and Clay Minerals*. National Academy of Science-National Research Council Publication 395, 573 pp., \$7.00.
- Swineford, Ada, ed., 1956. *Clays and Clay Minerals: Proceedings of the Fourth National Conference on Clays and Clay Minerals*. National Academy of Science-National Research Council Publication 456, 444 pp., \$6.00.
- Swineford, Ada, ed., 1958. *Clays and Clay Minerals: Proceedings of the Fifth National Conference on Clays and Clay Minerals*. National Academy of Science-National Research Council Publication 566, 360 pp., \$4.50.
- Swineford, Ada, ed., 1959. *Clays and Clay Minerals: Proceedings of the Sixth National Conference on Clays and Clay Minerals*. Pergamon Press, London, 411 pp., \$8.50.
- Swineford, Ada, ed., 1960. *Clays and Clay Minerals: Proceedings of the Seventh National Conference on Clays and Clay Minerals*. Pergamon Press, London, 369 pp., \$8.50.
- Swineford, Ada, ed., 1960. *Clays and Clay Minerals: Proceedings of the Eighth National Conference on Clays and Clay Minerals*. Pergamon Press, London, 292 pp., \$9.50.
- Swineford, Ada, ed., 1962. *Clays and Clay Minerals: Proceedings of the Ninth National Conference on Clays and Clay Minerals*. Pergamon Press, London, 614 pp., \$15.00.
- Swineford, Ada, ed., 1962. *Clays and Clay Minerals: Proceedings of the Tenth National Conference on Clays and Clay Minerals*. Pergamon Press, London, 512 pp., \$7.50.
- The University of Texas, Bureau of Economic Geology Guidebook No. 3, 1961. Field Excursion, Central Texas, Bentonite, Uranium-Bearing Rocks, Vermiculite. 52 pp., \$50.

Volume 1 is available from the California Division of Mines, Ferry Building, San Francisco 11, Calif.

Volumes 2-5 are available from Publications Office, National Academy of Science-National Research Council, 2101 Constitution Ave., NW, Washington 25, D.C.

Volumes 6-10 are available from Pergamon Press, Inc., 122 E. 55th Street, New York 22, New York, or Pergamon Press, Ltd., 4 & 5 Fitzroy Square, London, W.1, England.

HISTORY OF UNITED STATES NATIONAL CLAY CONFERENCE

An After-Dinner Address to the Tenth National Clay Minerals Conference
Austin, Texas, October 17, 1961

by

RALPH E. GRIM

Department of Geology, University of Illinois, Urbana, Illinois

With the development of new and improved research tools such as X-ray diffraction, electron microscopy, thermal and optical methods in the 1930's and 40's, there was an enormous increase in the investigation of clay materials. Geologists, mineralogists, chemists, physicists, agronomists, ceramists, engineers, and others in increasing numbers applied these new tools to the investigation of the composition of clays and soils, and then, to the relation of the composition to the origin, occurrence, and physical properties of such materials. Along about the same time, the atomic structures of the clay minerals were worked out, providing for the first time a sound basis for an understanding of the properties of clays and soils.

The workers from the various disciplines approached clay mineral studies with different backgrounds and often with somewhat different objectives. However, regardless of their approach or objectives, they obviously all had much in common. In these early days many people in various countries realized that it would be a wonderful thing if people from all disciplines working in the field of clay mineralogy could meet together to discuss mutual problems and interchange ideas. The first meetings of this kind were held in Belgium shortly following the end of World War II. And shortly thereafter, similar meetings were held in the United Kingdom and in France.

In the United Kingdom, Dr. D. M. C. MacEwan began in 1945 and 1946 to urge the formation of some kind of organization to hold regular meetings devoted to mineral clay matters. The idea was well received, and in November 1946 the Clay Minerals Group was organized within the Mineralogical Society of Great Britain, and the first meetings were held in January 1947. As is well known, this Clay Minerals Group has continued as a flourishing organization.

The success of the Belgian, English, and French groups had stirred interest in many countries for similar groups, and in 1948 at the time of the International Geological Congress in London there was an informal meeting of the representatives of the then-existing national group and interested parties from other countries where there were active clay mineral researches. It was

clear at that time that additional national groups would be organized in other countries, and it seemed desirable to set up some framework within which the national groups could join together for their mutual benefit. Accordingly, the Comité International pour l'Etude des Argiles (C.I.P.E.A.) was organized, consisting of representatives of national groups and representatives of other countries in which there were active clay mineral researches but as yet no formal national groups. The C.I.P.E.A. was to function through an Executive Subcommittee consisting of five persons, and I was asked to serve as chairman of this committee. C.I.P.E.A. has functioned through the years by organizing international clay mineral conferences at the time of the meetings of the International Geological Congresses. Such meetings have been held in Algiers, Mexico City, and Copenhagen. It also, under the guidance of Dr. Mackenzie of Aberdeen, Scotland, investigated the significance of experimental variations in the differential thermal analytical procedure with the view to the standardization of this procedure. A report on this matter was presented at the meeting in Algiers. Further, it has provided forums for the discussion of clay mineral nomenclature and classification problems. Some persons, but not the author, would like to see C.I.P.E.A. go further and in effect legislate a nomenclature and classification which all clay mineral investigators would be expected to follow. As is well known, this is a particularly difficult problem fraught with many complexities—some based on personalities. It is one thing to legislate a classification and nomenclature and quite another thing to have it followed. It has always seemed to me that C.I.P.E.A. should go no further than to provide a forum for discussions of this matter.

I served as chairman of the Executive Subcommittee of C.I.P.E.A. until 1960. Mackenzie, Caillère of France, and Bradley have been secretaries of this subcommittee. Currently, Rosenqvist of Norway is chairman and Graff-Petersen of Denmark is secretary. Plans are being studied for an international clay conference to be held, I believe, in a Scandinavian country in 1963.

The problem of the organization of a clay mineral group in the United States was more difficult than in European countries because of the size of our country and the scatter of interested parties. Happily, an opportunity to start some such clay mineral association presented itself in St. Louis in 1951 at the time of the meeting there of the American Institute of Mining and Metallurgical Engineers. In arranging for the program for this meeting, John J. Collins conceived the idea of a "Symposium on Problems of Clay and Laterite Genesis". Collins discussed his idea with A. F. Frederickson, then Professor of Geology at Washington University in St. Louis, and Frederickson organized the program and the meeting, which was under the joint sponsorship of the A.I.M.E. and the Society of Economic Geologists. The program consisted of three sessions for the presentation of papers and a fourth seminar session.

The St. Louis meeting was a great success. It was the general feeling that such meetings should be continued, and that they would be well attended by persons from various disciplines. The St. Louis meeting brought together for

the first time in the United States persons from more than a single discipline interested in clay mineral researches. It thus provided the first opportunity to discuss an association of clay mineral research people in the United States.

Accordingly in St. Louis on February 21, 1951, there was an informal meeting open to anyone interested in clay research, with the object of planning future conferences. I was asked to be chairman of this meeting which consisted of expressions of opinions from the floor as to possible plans of organization for future conferences. It was the general feeling that the object of such conferences should be to bring together people from all disciplines interested in clay research. Therefore, it seemed unwise to develop an organization tied to a national society representing a single discipline. Further, it was the general feeling in St. Louis that a national committee be formed to devise a plan for continuing clay mineral conferences, and I was asked to be chairman. The membership of this first committee was largely persons whose names were suggested from the floor of the meeting. A. F. Frederickson was the secretary.

In the months following the St. Louis meeting, there was much discussion as to the best means of organizing future conferences. The thought gradually crystallized in the minds of many of us that a committee of the National Academy of Sciences—National Research Council would be the optimum way to proceed. Such a committee could have as members representatives from various disciplines and institutions actively engaged in clay mineral researches. It would eliminate the difficulty of being tied to a national organization in a single discipline, which unavoidably would limit the interest of persons in other disciplines. The committee would have the status and permanence necessary to make arrangements for future conferences. Further, it would not be necessary to set up a new formal national organization—the feeling being that there were already too many such organizations. The N.A.S.—N.R.C. could be expected to serve as a bank to hold any funds that the committee might obtain and possibly also publish proceedings of the proposed national conferences.

At the meeting of the Geological Society of America in October, 1951, the writer informally discussed with Professor Cloos, then chairman of the Division of Earth Sciences of N.A.S.—N.R.C., the possibility of this division appointing a clay minerals committee to organize annual conferences and to aid generally in clay mineral researches. Professor Cloos was receptive to the idea and thought members of the Division of Earth Sciences would look favorably on the matter. Such an activity appeared to be clearly within the framework of N.A.S.—N.R.C. H. R. Gault, whose recent death saddened many of us, was then the executive secretary of the Division of Earth Sciences and was extremely helpful in these preliminary exploratory considerations with N.A.S.—N.R.C.

Shortly after the St. Louis meeting, a group from the University of California under the leadership of J. A. Pask, representing various departments interested in clay researches, expressed a desire to organize a clay mineral conference in 1952. They were given every encouragement by the

committee formed at St. Louis, although, as yet, this committee had no definite status. Pask and his local committee working with the California Department of Mines organized and held the first national clay conference under the sponsorship of a national committee and which was not a symposium in a special area organized by a national society. The conference in Berkeley, California, was held in July 1952 and was very well attended. It further increased the general desire for future conferences. The Berkeley meeting emphasized techniques for clay mineral analysis and study, and further presented a series of excellent papers on the application of clay mineralogy in various fields such as ceramics, soil mechanics, and petroleum engineering. The conference in Berkeley received generous financial support from various industries, especially those in California whose activities were concerned with matters associated with clay.

At the Berkeley meeting there was another meeting open to anyone interested at which time the committee formed in St. Louis reported its activities. The committee chairman recommended that the N.A.S.-N.R.C. be asked to appoint a clay minerals committee in the Division of Earth Sciences, and that it be an interdivisional committee in that it would contain members from various disciplines outside of those represented in the Division of Earth Science. Such a committee would be charged with organizing future conferences and any other desirable activities to foster clay mineral research. There was considerable discussion of the advantages of this procedure as compared to association with a single society or the formation of a formal new national society. Those attending the meeting were enthusiastic in their support for proceeding with the N.A.S.-N.R.C., and instructions were given to ask N.A.S.-N.R.C. to appoint such a committee.

Accordingly, following the Berkeley meeting, the Division of Earth Sciences of N.A.S.-N.R.C. was advised of the enthusiastic interest of persons from all disciplines in the appointment of a clay minerals committee, and a list of names was submitted to the N.A.S.-N.R.C. for consideration as appointees on the committee. This list was made up largely of persons suggested at the open sessions in St. Louis and Berkeley supplemented so that the committee would include active workers representing all disciplines interested in clays and further various institutions especially active in clay mineral researches. It included engineers, geologists, chemists, ceramists, agronomists, etc. There was much discussion among members of the informal committee as to possible members of the N.A.S.-N.R.C. committee.

Late in 1952, the N.A.S.-N.R.C. appointed the first clay minerals committee to function within the framework of the Division of Earth Sciences. The committee contained representatives of other divisions and thus had the status of an interdivisional committee.

Each year since 1952 a clay minerals committee has been appointed by N.A.S.-N.R.C. In the early years there were few changes in the membership of this committee, but as the years passed and other persons and institutions became active in clay mineral research, the membership of the committee has been changed substantially. The procedure has been that the chairman

of the committee with the advice of the committee members recommended to the N.A.S.-N.R.C. persons to be appointed on the clay minerals committee.

The prime function of the committee has been to organize annual meetings. The committee has been fortunate in having an abundance of invitations from institutions asking authorization to hold the national conferences. The committee has striven to accept invitations in such a way that the conferences would be held in various parts of the country, where various aspects of clay minerals researches and their application would receive special attention from time to time. For example, in some conferences geological matters have been stressed, whereas at other conferences ceramics and engineering matters have occupied a good deal of attention. For each such conference a person from the institution seeking to sponsor the conference was appointed chairman of the local subcommittee to organize the conference. The chairman of the local subcommittee organized his own committee and proceeded as he wished to organize the conference. The national committee gave him every help based on experience from past meetings. For example, it supplied membership lists, it suggested ways of handling the publicity, it made suggestions with regard to programs and raising of funds. The financing of each meeting was a matter for the local subcommittee. The national committee asked only that each national conference should not incur a deficit. In some cases the local committees raised money from industries and obtained generous grants, enabling foreign investigators to attend the conferences. In other cases the registration fees and support of the local institution were enough to carry the cost of the conference. The local chairman was in each case appointed a member of the national committee if he was not already a member, so that he could more easily take advantage of the help of the national committee in arranging his conference. Conferences have been held each year.

The writer continued to serve as chairman of the clay minerals committee until 1957 when Professor W. D. Keller of the University of Missouri was appointed chairman. Professor Keller continued until 1959 when he was succeeded by Professor A. F. Frederickson. In the last years the committee has devised a plan for regularly changing the officers and further to change continuously but gradually the membership of the whole committee. The feeling is that in general all persons seriously interested in clay mineral researches should at some time be brought into the committee. At the present time the plan for the officers is for the chairman to serve for two years and to be succeeded by the vice-chairman who has served in that capacity for two years.

The national committee has met each year at the time of the national conferences at which time plans for future conferences were made. Perhaps the most difficult problem of the committee has been the publication of the proceedings of the conference. It has been felt from the start that the proceedings must be published in permanent form if the conferences are to continue and to be of value. The proceedings of the first conference were published by the California Division of Mines as an official publication of

this organization, and the clay minerals committee as such had nothing to do with this publication. Following the appointment of the committee by N.A.S.-N.R.C., negotiations were begun with N.A.S.-N.R.C. which led to their agreeing to publish the proceedings as part of the series of National Academy of Sciences-National Research Council publications.

It was thought that the sale of the proceedings would cover the cost of the publication. This plan was followed, and the proceedings of the second, third, and fourth conferences were published as N.A.S.-N.R.C. publications 327, 395, and 456 respectively. Difficulties immediately presented themselves. At first without any established procedure for editing the manuscripts there were unfortunately long delays in getting the proceedings into printed form. This was solved when Dr. Ada Swineford of the State Geological Survey of Kansas agreed to act as editor, and now so far as editing is concerned, there is no reason why the proceedings should not appear within the year following the meetings.

A further and more serious difficulty was that the sale of the proceedings was not as rapid as was hoped. The N.A.S.-N.R.C. unfortunately is not set up as a publishing house to advertise world-wide its new publications. By 1956 the N.A.S.-N.R.C. decided that it could no longer afford to back the publication of the proceedings, and it became clear that other arrangements would have to be made. In December 1957 the National Science Foundation gave N.A.S.-N.R.C. a grant to subsidize the publication of the proceedings of the fifth conference, held in Urbana, Illinois, which finally appeared as N.A.S.-N.R.C. publication 566.

In 1957 the committee with help of Professor Earl Ingerson began negotiations with Pergamon Press for publication of the proceedings as monographs in their Earth Science Series. Ingerson is editor in chief of this series. The negotiations were completed in May 1958, and Pergamon Press has published the proceedings of the sixth, seventh, and eighth conferences. I understand that the proceedings of the ninth conference are in the course of publication. Dr. Swineford has continued to serve as the editor of these proceedings.

The committee has from time to time discussed other possible activities that would be of value to clay mineral researches. It has, for example, provided forums for the discussion of problems of clay mineral nomenclature and classification. I am afraid I must say that out of these forums the only result has been the realization that there are many differences of opinion regarding the classification and nomenclature of the clay minerals. The committee has also studied the desirability and feasibility of devising some sort of procedure to assemble and distribute references to publications containing clay mineral data which appear in relatively obscure publications and which do not ordinarily find their way into the regular abstracting journal.

This brings the history of the clay minerals committee and the National Clay Conference up to date.

WHERE DO WE GO FROM HERE?

by

RICHARDS A. ROWLAND

An After-Dinner Address to the Tenth National Clay Minerals Conference
Austin, Texas, October 17, 1961

The purpose of the Clay Minerals Committee of the National Academy of Science-National Research Council is to provide a common meeting ground for individuals from the many diverse disciplines interested in the science and technology of clay. Our meetings are a forum for the presentation and discussion of current research. This forum is our principal reason for existing. During the past 10 years, programs have been planned so that there are no concurrent sessions, and everyone at the conference can hear every paper if he wishes. In addition, there have been field trips, cocktail parties, and free periods to permit representatives of diverse disciplines to become acquainted with each other and with each other's problems. This arrangement has worked well, and we are accomplishing our purpose.

Our excellent publication, *Clays and Clay Minerals*, records in the permanent literature the technical papers presented at our sessions. We are greatly indebted to our editor, Dr. Ada Swineford, for the magnificent job she has done in assembling and editing manuscripts. That there has been some delay between the presentation of your papers and their ultimate publication in the proceedings is entirely the fault of authors who do not submit their manuscripts promptly. I urge you to submit your manuscripts in the best possible form preferably before the date on which manuscripts are due. Only if this is done can Dr. Swineford have the final manuscript ready for the printer before the summer vacation and in time for the proceedings to appear before our next conference. Reviewers also should get the job done promptly and enthusiastically. It may interest you to know that several volumes of the proceedings published by the Pergamon Press are already out of stock in its New York office.

Perhaps many of you have heard that the N.A.S.-N.R.C. is considering discontinuing the Clay Minerals Committee. We are and have been an *ad hoc* committee of the Earth Sciences Division of the N.A.S.-N.R.C. In fostering the development of scientific matters and particularly interdisciplinary phases of science, the N.A.S.-N.R.C. works through a series of Divisions which are responsible to a Board of Governors. It has long been the policy of this Board to appoint an *ad hoc* committee to help get a specific group started. Our committee, as well as the American Geophysical Union, the American Geological Institute, and the Highway Research Board, is a typical example. It has also been the policy of the Board to urge that successful groups establish an independent organization, or at least a *quasi-independent* organization,

after having started as a committee. We are, however, in a unique position for several reasons. First, the hard core of regular participants at our conferences is somewhat less than 100, and we are not large enough to form an independent society. Second, our interest covers so many disciplines that we cannot continue to accomplish our purpose if we affiliate with any other society. Third, there is a continuing need for exactly the kind of conferences which we have been having. The officers of the Earth Science Division are fully aware of this problem, and we have their continued assistance and support in seeking a logical solution. They are very pleased with our success and proud of the fact that this was accomplished under the auspices of a Division of the N.A.S.-N.R.C.

Exactly how we can accomplish the transition presently is not known. However, two aspects are very clear. There is no intention on the part of the N.A.S.-N.R.C. to curtail our activities, and a workable arrangement has been agreed upon for making the transition from the present committee arrangement to one of a more permanent nature. The spontaneous enthusiasm with which our group operates is apparent from the large number of industries which have contributed to the support of this conference, the many excellent papers submitted to our technical sessions, and the enthusiasm of the group which has participated. Without this enthusiasm and a considerable degree of freedom and flexibility, we could not have come this far; and with it we will be able to continue as long as there is a need. So, where do we go from here? You can be assured that we will continue to have National Clay Mineral Conferences.

Clay mineralogy plays a large and important role in many fields. Although much has been learned during the past decade, there remains an enormous area to be explored. When a clay mineralogist is asked what he considers to be the most important things he needs to know, his first answer is usually a chuckle. Samples of the more specific problems to be answered may be enlightening.

Micaceous clay minerals are more abundant in the deeper part of younger basins and in the older shales. How can a detrital mica be distinguished from one developed by fixation of potassium during compaction or after aging?

What rules govern the interlayer geometry of clay-organic complexes? Although the literature is voluminous, very few generalizations are available for predicting the geometry of the resulting complex.

Can we develop a reliable method for the quantitative mineralogical analysis of clays? Most of us still make "educated" guesses.

Such questions as these suggest that although we have observed the role of clay mineralogy in many occurrences and applications, the problem is only half solved, and much remains to be done.

With the development of space shots and the predicted landing of men on the moon, perhaps we shall soon have samples of its surface. Then we will know whether clay is truly ubiquitous. So where do we go from here? *Ad astra*—to the stars!