

## SHORT NOTES

### History of The Clay Minerals Society

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THE CLAY MINERALS SOCIETY is the product of a sustained and determined effort by many people from diverse disciplines. By working together they have maintained an Annual Clay Minerals Conference and have arranged publication of its proceedings.

The organization from which the Clay Minerals Society emerged was not the first of its kind. After World War II people from many disciplines organized clay mineral groups in Belgium, France, and England where, by January, 1947, regular meetings and a publication had been developed by the Clay Minerals Group of the Mineralogical Society of Great Britain. At the International Geological Congress in London the following year the *Comité International Pour l'Étude des Argiles* (CIPEA, now the ASSOCIATION INTERNATIONALE POUR L'ÉTUDE DES ARGILES, or AIPEA) was organized.

About this time the already widespread interest in clay minerals began to find application in the exploration and production efforts of the petroleum industry. This increased interest was further developed by American Petroleum Institute Project 49, Clay Minerals Standards, which made available a representative suite of analyzed clay minerals. For the February, 1951, meeting of the American Institute of Mining and Metallurgical Engineers at St. Louis, Missouri, A. F. Frederickson, at the suggestion of John J. Collins, organized a "Symposium on Problems of Clay and Laterite Genesis" which consisted of three sessions of presented papers and a seminar session. At the end of the Symposium on February 21, 1951, an informal meeting open to anyone interested in clay research was held to plan future conferences. During this meeting, at which Ralph E. Grim was chairman, the need for an inter-disciplinary clay minerals group was discussed and a committee was formed from nominations from the floor. The discussion emphasized the need for an annual conference to bring together people from all disciplines interested in clay research and that the organization should not be tied to a national society representing just one discipline. Ralph E. Grim was asked to be chairman of the committee and A. F. Frederickson to be the executive secretary.

At the meeting of the Geological Society of America in October, 1951, Grim discussed with Professor Ernst Cloos, then chairman of the Division of Earth Science of the National Academy of Sciences-National Research Council, the possibility of this division appointing a Clay Minerals Committee to organize annual conferences. Professor Cloos was receptive to the idea and thought that members of the division would look favorably on the matter because such an activity appeared to be clearly within the framework of N.A.S.-N.R.C. H. R. Gault,

who was then executive secretary of the Division of Earth Sciences, was most helpful in the preliminary discussions with N.A.S.-N.R.C.

After the St. Louis meeting, a group in California, led by J. A. Pask of Berkeley, decided to organize a Clay Minerals Conference in 1952. Although the committee organized in St. Louis had, as yet, no definite status, every encouragement was given to Pask who, with his local committee and the California Bureau of Mines, organized and held a National Clay Conference in July, 1952. This was the first Clay Conference under a National Committee which was not a symposium in a special area organized by a National Society.

At the Berkeley meeting the committee appointed at St. Louis reported its activities in a session open to everyone interested. It recommended that the N.A.S.-N.R.C. appoint a Clay Minerals Committee in the Earth Science Division and that this committee be made up of representatives of all the disciplines interested in clay mineral research. This committee would be responsible for organizing future conferences and other desirable activities to foster clay mineral research. A list of names made up of persons suggested at both St. Louis and Berkeley, supplemented to include active workers from all disciplines, was submitted to the N.A.S.-N.R.C. after much discussion among the members of the informal committee. In the fall of 1952 the N.A.S.-N.R.C. appointed the first Clay Minerals Committee in the Division of Earth Sciences with representatives of other divisions to make it an Interdivisional Committee.

Each year from 1952 until 1963 the N.A.S.-N.R.C. appointed a Clay Minerals Committee. The appointments were made on the recommendation of the chairman with the advice of the committee members. R. E. Grim was chairman and A. F. Frederickson was executive secretary until 1957 when W. D. Keller and M. L. Jackson were appointed. Keller asked R. A. Rowland and E. J. Weiss to compile by-laws for the guidance of the committee. These by-laws fixed the term of office for the chairman at two years, after which he would be succeeded by the vice-chairman who had served with him. A. F. Frederickson became chairman in 1960 with R. A. Rowland as vice-chairman and M. L. Jackson continuing as executive secretary. In the spring of 1962 the executive committee of the Earth Science Division, N.A.S.-N.R.C., decided that the Clay Minerals Committee had been so successful that affiliation with N.R.C. was no longer needed and an independent society should be formed. After considerable discussion, a plan was devised by which the group would continue as a committee of the Earth Science Division for a year, then become a society while retaining the committee status

for a second year, and finally be an independent society in the third year. These discussions were between Lynn Hoover, executive secretary, Edward Espenshade and James Gilluly, chairmen, Earth Science Division, N.A.S.-N.R.C., and A. F. Frederickson, R. A. Rowland, J. W. Earley, and H. H. Murray of the Clay Minerals Committee. Accordingly, The Clay Minerals Society was incorporated as a non-profit organization on July 18, 1962, in Washington, D.C. At the Ottawa meeting in August, 1962, the Clay Minerals Committee decided to retain its committee status until the October, 1963 meeting in Atlanta. For the Ottawa meeting, with R. A. Rowland, chairman, J. W. Earley, vice-chairman, and H. H. Murray, secretary-treasurer, the committee was doubled in size in order to accomplish the many tasks involved in changing from a committee to an independent society. The results included an arrangement with the publisher to supply proceedings to members at a fixed price (arranged by R. A. Rowland), Internal Revenue Service agreement that The Clay Minerals Society is a non-profit organization (arranged by E. J. Weiss), an agreement between the editor and publisher for a schedule to insure timely publication (arranged by W. F. Bradley), and the beginning of a sustaining membership program to ensure financial stability (arranged by J. F. Burst, Jr.). At the transitional meeting of the Society in Atlanta, Georgia, September 30, 1963, membership in the Society became available to individuals. The new Society had more than 500 members when the first meeting as an independent Society was held at Madison, Wisconsin, October 5-8, 1964. In addition, the sustaining membership plan was so successful that the Society's office operations could be financed from investment income.

The by-laws of The Clay Minerals Society confer the responsibility of managing the affairs of the Society upon the Council. The Council consists of the Officers of the Society, the Immediate-Past-President, the Chairman of each Standing Committee, and 12 additional elected members. The Executive Committee, composed of the Officers of the Society, conducts the business of the Society between meetings. The President and Vice-President are elected annually by the membership, and are not eligible for re-election to their respective offices until 3 years have elapsed. The Secretary is elected for an initial 3 year term, and is eligible for re-election for terms of one year each without limitation. The Treasurer is elected for a term of three years, and is eligible for re-election without limitation. The Editor and the Standing Committees are appointed by the Executive Committee and the Council. The present members of the Standing and *ad hoc* Committees were listed in the first issue of this journal. The Presidents of the Society, since its inception, have been as follows.

- 1963-64 Richards A. Rowland
- 1964-65 James W. Earley
- 1965-66 Haydn H. Murray
- 1966-67 Marion L. Jackson
- 1967-68 Charles E. Weaver

The Annual Clay Minerals Conference is held at different locations on the invitation of a local group, which then makes the arrangements with the assistance of the Society Officers and committees. The success of these conferences has been phenomenal because of the

tremendous unselfish efforts of the local organizing committees. A listing of past Clay Conferences, their locations, and local chairmen follows.

1. July 1952—University of California, Berkeley, Joseph A. Pask.
2. October 1953—University of Missouri, Columbia. Walter D. Keller.
3. October 1954—The Rice Institute, Houston, Texas. Richards A. Rowland and W. O. Milligan.
4. October 1955—The Pennsylvania State University, University Park. Thomas F. Bates.
5. October 1956—University of Illinois, Urbana. Ralph E. Grim.
6. August 1957—University of California, Berkeley. Joseph A. Pask.
7. October 1958—U.S. National Museum, Washington, D.C. Howard F. McMurdie.
8. October 1959—University of Oklahoma, Norman. Charles G. Dodd.
9. October 1960—Purdue University, Lafayette, Indiana. Joe L. White.
10. October 1961—The University of Texas, Austin. Earl Ingerson and Edward C. Jonas.
11. August 1962—National Research Council of Canada, Ottawa. Sydney A. Forman.
12. October 1963—The Georgia Institute of Technology, Atlanta. Willis E. Moody.
13. October 1964—University of Wisconsin, Madison. Marion L. Jackson.
14. August 1965—University of California, Berkeley. Joseph A. Pask.
15. October 1966—Mellon Institute, Pittsburgh, Pennsylvania. James W. Earley.
16. August 1967—University of Denver. Leonard G. Schultz.

An accomplishment almost as great as the 16 successful Clay Minerals Conferences has been the publication of the proceedings of each conference. The proceedings volume of the first Conference at Berkeley was published by the California Bureau of Mines. This volume has been reprinted and is still in demand. Volumes 2-5 were published by the National Research Council with a member of the local committee acting as editor. Because there were no rules or cut-off dates, an unduly long time elapsed between the conference and the publication of the papers. This was partially solved when Ada Swineford became editor, but even with her effort some authors and reviewers would not follow a schedule. In 1956, beginning with Volume 6, Pergamon Press became the publisher as a part of their Earth Science Series. When the independent Society commenced operating, a fixed time schedule was arranged with Pergamon Press, manuscripts became due when the paper was given, reviewers were prodded to promptness, and revising authors were given a cut-off date. With this help, W. F. Bradley from Volumes 11-13 and S. W. Bailey since then have been able to maintain a reasonable elapsed time between the conference date and the publication date. Nevertheless, this system was difficult for everyone and the Committee on Publications, E. W. Tooker, chairman, recommended a bi-monthly periodical that would spread the Editor's work over 12 months instead of 2, permit quick publication of papers that are ready, and let other authors be as

slow as they choose. Through the efforts of M. L. Jackson and S. W. Bailey an arrangement has now been completed with Pergamon Press to publish a bi-monthly periodical, *Clays and Clay Minerals*, beginning in 1968 with the papers from the Denver Conference. Manuscripts not

presented at the annual conferences will also be published.

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### Preparation of sodium-degraded mica\*

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INTEREST in the processes and products of mica weathering and in the exchangeability of interlayer cations in micaceous minerals with high layer charge has created a need for K-depleted (degraded) mica samples. To prepare these degraded samples, mica particles are often leached or equilibrated with salt solutions, but the extraction of K is slow and generally limited to a small part of the total K. With dioctahedral micas, these methods are particularly ineffective. On the other hand, an exchange of Na for most of the K in micas can be achieved rather easily by placing the mica particles in NaCl-NaTPB solutions (Scott and Smith, 1966). However, this NaTPB treatment produces a mixture of Na-degraded mica and KTPB precipitate that has limited use in degraded-mica investigations. Thus, the utility of the NaTPB method of preparing Na-degraded mica depends upon the success with which the degraded mica can be separated from the KTPB.

Since KTPB is soluble in acetone, KTPB in a mica-KTPB mixture can be removed by adding acetone,

filtering and washing the mica with increments of salt-acetone-water solutions. If the KTPB is dissolved with a NaCl solution, some of the K may be reabsorbed by the degraded mica. Even so, this method yields mica samples that can be used for layer charge determinations (Scott and Smith, 1966). On the other hand, the re-adsorption of K can be blocked by adding  $\text{NH}_4$  with the acetone (Reed and Scott, 1966). This procedure insures a quantitative separation of the replaced K but the degraded mica is then saturated with a combination of Na and  $\text{NH}_4$  ions. Thus, to use this approach in the preparation of Na-degraded mica, the  $\text{NH}_4$  must now be removed. The possibility of doing so, despite the fact that  $\text{NH}_4$  ions are fixed by degraded micas, is considered in this paper.

Large samples of  $<50\mu$  biotite and muscovite were K-depleted with a 2N NaCl-0.2N NaTPB-0.01M EDTA solution. Details regarding these mica samples and the exchange of Na for K attained with similar NaTPB treatments have been reported earlier (Scott and Smith, 1966). The NaTPB treatment was terminated by adding enough  $\text{NH}_4\text{Cl}$  to make the solution 0.5N in respect to  $\text{NH}_4$  and the KTPB was removed by adding an equal volume of acetone, filtering and washing the mica with a 0.5N  $\text{NH}_4\text{Cl}$ -60 per cent acetone-water solution. The resultant samples of degraded mica (referred to as  $\text{NH}_4$ -degraded mica despite the presence of

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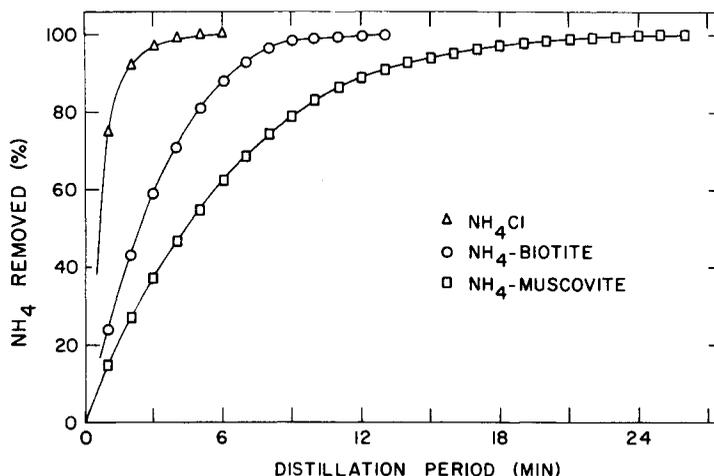


Fig. 1. Removal of  $\text{NH}_4$  in degraded biotite and muscovite particles by steam distillation.