



# The Geochemical News

Number 20

February 1960

## THE GEOCHEMICAL SOCIETY MINUTES OF COUNCIL MEETING

Pittsburgh, Pennsylvania, 2 November 1959

Present: J. A. S. Adams, R. Cannon, F. Daniels, A. E. J. Engel, G. T. Faust, E. W. Heinrich, K. B. Krauskopf, E. F. Osborn, J. F. Schairer (presiding).

The Council met at 9:00 A.M. in the Penn-Sheraton Hotel, Pittsburgh. Reading of the minutes was dispensed with in order to save time for the many items on the agenda.

### REPORTS OF OFFICERS

#### Secretary's Report:

Present membership of the Society is 1761, an increase of 212 since November 1958. Of this total, 505 are from countries other than the U.S., an increase of 94 during the year. The number of countries represented is 53, in contrast to 48 last year. Members deceased since November 1958: George Vibert Douglas, F. A. Paneth, Inna V. Poiré, Taisia Stadnichenko, Thorolf Vogt, and Samuel Zerfoss.

#### Treasurer's Report:

The Treasurer's report covers the fiscal year beginning August 1, 1958 and terminating on July 31, 1959.

#### Receipts

Dues	3,920.22
Grants from the National Science Foundation	
Grant G8424 - Geokhimiya for 1959	13,200.00
Grant G8480 - " " 1956	10,700.00
Grant G8481 - " " 1957	10,700.00
Grant G5782	10,780.00
Interest on the Savings Account*	235.50

\*Interest is figured by the bank on a quarterly basis and credited to the account twice a year, April 1 and October 1.

\$49,535.50

Disbursements

Printing and Lithographing	\$ 581.34
Supplies and Stationery	441.33
Postage and Stamps	447.49
Secretarial Services - Office of Secretary	162.90
"        "        "        " Treasurer	212.26
"        "        "        " Editor	390.00
Bank Charges	1.75
Returned checks	18.00
Pergamon Press - Refunds for Subscriptions	230.00
Addressograph Charge	254.69
Geochemical News	1,237.49
American Geological Institute	100.00
Railway Express	24.13
	<u>\$4,101.38</u>
Payments to the Translation Editor from the Funds of the National Science Foundation Grants	
Grant G5274 for Translation and Publishing of Geokhimiya	8,000.00
Grant G5782 for Translation and Publishing of Books	10,780.00
	<u>\$22,881.38</u>

Assets

Balance Savings Account, August 1, 1958	1,000.00
Balance Checking Account #33-1146-1, SS, August 1, 1958	15,225.17
Income from dues	3,920.22
Grants from the National Science Foundation	45,380.00
Interest on funds in the Savings Account	235.50
	<u>\$65,760.89</u>

Liabilities

Expenses incurred in conducting the business of the Geochemical Society	4,101.38
Transfer of Funds to the Translation Editor during 1958-1959	18,780.00
	<u>\$22,881.38</u>

Funds held for the Translation Editor by the Treasurer  
as follows:

Grant No. 5274	\$ 5,500.00	
"    "    5782	---	
"    "    8424	13,200.00	
"    "    8480	10,700.00	
"    "    8481	10,700.00	
	<u>\$40,100.00</u>	
		<u>\$40,100.00</u>
		<u>\$62,981.38</u>

Balance as of August 1, 1959 2,779.51

## FUNDS OF THE SOCIETY

Funds held for the Translation Editor	40,100.00
Balance as of August 1, 1959	<u>2,779.51</u>
	\$42,879.51

## Distribution of the Funds:

Balance Savings Account August 1, 1959	31,835.50
Balance Checking Account August 1, 1959	
Balance in Check Book \$11,511.06	

## Outstanding Checks

#164	\$100.00	
#165	252.45	
#166	100.60	
#167	<u>14.00</u>	
	\$467.05	467.05
		<u>\$11,044.01</u>
		11,044.01
		<u>\$42,879.51</u>

REPORTS OF COMMITTEESAuditing:

The Auditing Committee has examined and verified the accounts of the Treasurer of the Geochemical Society for the fiscal year beginning August 1, 1958 and ending July 31, 1959. The excellent condition of the books made the work of the Committee a very easy and pleasant task.

William L. Hill  
Charles R. Naeser  
J. J. Tregoning, chairman

Nominating:

From the names suggested by the Nominating Committee, the Council selected the following as tentative nominations for 1960-61:

President: H. C. Urey  
Vice-President: A. O. Nier  
Treasurer: G. T. Faust  
Secretary: F. R. Boyd  
Councilors: O. F. Tuttle and F. E. Wickman

T. G. Sahama  
C. E. Tilley  
G. Tunell  
W. T. Pecora, chairman

Publications:

The chairman, E. Wm. Heinrich, reported that his committee has been completely inactive, even when prodded to help compile a list of geochemical reference materials. He questioned the

necessity of having a Publications Committee. President Schairer expressed the opinion that an active committee would be useful in helping the editor of Geochemical News and in serving as a "watchdog" on publishing ventures of the Society. The president further recommended that the committee be reconstituted, with Heinrich as chairman, Ingerson an ex-officio member as editor of Russian translations, and other members to be appointed by the chairman. On a motion by Engel, the Council voted to accept this recommendation.

#### Research:

The Committee was less active in 1959 than in 1958 because of the pressure of duties connected with the Clay Conference at Norman, Oklahoma. The survey of petroleum industrial research laboratories has been brought up-to-date. Reports from foreign correspondents have been printed in Geochemical News. A more complete report of the Committee's work will be published later in Geochemical News.

W. F. Bradley  
R. A. Rowland  
T. G. Thompson  
C. G. Dodd, chairman

#### Russian Translations:

Ingerson reported that publication of issues of Geokhimiya for 1958 is nearly complete, that translation of issues for 1956 and 1957 is finished and editorial checking is under way, and that bids are out for translation of the 1959 volume. The National Science Foundation has recently approved an \$18,500 grant for translation of five Russian books.

#### Standards:

The Standards Committee, consisting of George Switzer, Michael Fleischer, Felix Chayes, George Tilton, Lorin Stieff, John A. Maxwell and Alvin Van Valkenburg, was activated during the past year. The members, with the exception of Maxwell, are residents of the Washington, D. C., area. The Chairman chose a local group so that frequent meetings could be held and decisions made on the spot. In June, Maxwell, of the Canadian Geological Survey, accepted an appointment to the committee to advise on problems concerning Canadian geochemists. It is planned in the future to add members representing other countries where groups are active in the field of geochemistry.

Two broad objectives have been accepted as a framework for the committee, (1) Complete a list of reference standards or samples that may be of use to the membership, (2) Propose new reference standards or revise existing reference standards to meet present requirements. The committee met in January, May, and September of this year. It decided to obtain rock samples of a granite, a dolomite and a shale with the objective of making these available as reference samples. A thin section evaluation of a granite is now being made by Felix Chayes and samples of dolomite and shale are being selected by the U. S. Geological Survey's office in Denver, Colorado. The selections were made on the basis that the present granite reference sample designated as G-1 is becoming depleted and the standard dolomite sample issued by the National Bureau of Standards is out of stock. Shale was included in our program as there appears to be a substantial demand for this rock. The committee is also looking into the possibility of obtaining reference samples that can be used in age determination work and reference samples that can be used in calibrating X-ray equipment.

The committee recommended to the President, Frank Schairer, that a symposium on reference or standard samples to correlate data be considered as a topic for discussion at the International Geological Congress that will meet in Copenhagen in 1960. The purpose of this symposium will be to determine (1) What are the needs for reference samples in the various fields of the geochemical sciences, (2) To what extent can these needs be satisfied, (3) Problems of collecting, storing, distributing, etc.

The Geochemical Commission at its meeting in Munich in August 1959 approved the idea of a symposium on reference samples to be held in conjunction with a symposium on "the geochemistry of sedimentary carbonate rocks." Plans are now being formulated for the organization of the symposium.

Alvin Van Valkenburg, chairman

Tellers:

Officers elected for 1959-60: President, Barth; Vice-President, Urey; Treasurer, Faust; Secretary, Krauskopf; Councilors, Sahama and Cannon. A total of 818 votes was received. Three members voiced strong objections to ballots with a single name for each office.

C. O. Hutton  
C. Meyer, chairman

REPORT OF THE EDITOR OF GEOCHEMICAL NEWS:

During the year between the annual meetings of our Society, six numbers of the Geochemical News have appeared: No. 13, December 1958; No. 14, February 1959; No. 15, April 1959; No. 16, June 1959; No. 17, August 1959; and No. 18, October 1959. The total number of pages in these six issues was 63. With the beginning of No. 13, we have now achieved issuing the Geochemical News on a regular bi-monthly basis. The membership will also note the improved appearance of the News with the addition of the seal of the Society to the front page.

A brief summary of the contents shows that the News has reported the official business of the Geochemical Society in presenting reports of the annual meeting, nominations for officers, committee appointments, reports of various committees of which a noteworthy one was the report of the outstanding work of the Standards Committee, lists of new members, and a report on the status of our Russian translation projects. The News has also reported Geochemical activities in other countries including Australia, New Zealand, Brazil, Austria, France and Germany. Three memorials of deceased members have appeared. One general article dealing with the geochemical application of paper chromatography has also been published. 23 major books have been reviewed and 115 smaller publications have been listed. These have been selected from the many that have reached the editor, as being of particular interest to geochemists.

With the last two numbers we have endeavored to institute a service that we hope will prove of continuing benefit to Society members. For the cost of reproduction and postage, any member may obtain from the editorial office a copy of any of the publications listed under "Publications Received." This non-profit service currently costs about 50 cents a page.

It is the hope of the editor that during the coming year we can greatly expand the number of general papers dealing with various new fields and technological developments in geochemistry. This can only be done, however, if members of the Society will cooperate by sharing their knowledge of these new methods and concepts with the rest of the membership.

E. Wm. Heinrich

REPORT OF THE MANAGING EDITOR OF THE TRANSLATION OF GEOKHIMIYA:

Since the annual meeting in 1958, four numbers of the Geochemical Society's translation of GEOKHIMIYA for 1958 have appeared. These are:

- No. 2 issued February 11, 1959
- No. 3 issued March 6, 1959
- No. 4 issued April 9, 1959
- No. 5 issued June 5, 1959

Currently No. 6 is in press and will be distributed late in November 1959.

October 30, 1959:

Total subscriptions . . . . .	342
Renewals for 1959 . . . . .	136
Receipts from subscriptions:	
For 1958 . . . . .	\$4135.17
1959 . . . . .	293.00
	<u>\$4428.17</u>

E. Wm. Heinrich

#### APPOINTMENTS

The chairman announced that E. W. Roedder had been reappointed to the Advisory Board of the Office of Critical Tables, to serve until June 1962, and that T. F. W. Barth had been appointed as official delegate to the International Geological Congress in Copenhagen in 1960. The Council reappointed Schairer as a director of the American Geological Institute for a two-year period.

The chairman noted the necessity for appointing a successor to W. S. Fyfe as regional Vice-president for Southeast Asia, inasmuch as Fyfe has moved to the University of California. Fyfe strongly recommended J. F. Lovering as his successor, and the Council voted to accept this choice. Lovering is not at present a member of the Society, but the Council felt that he should be urged to join.

Appointment of two new members of the editorial board of *Geochimica et Cosmochimica Acta* was deferred, pending a decision as to the future status of the journal at the forthcoming international meetings in Copenhagen and Helsinki.

#### OLD BUSINESS

1. Committee on geologic time: The chairman reported that he had discussed the advisability of establishing a committee on geologic time with several workers in the field, and he described briefly a specific proposal for such a committee by Henry Faul. On the basis of his discussions he recommended against establishing a committee at this time. On a motion by Engel, the Council concurred in his recommendation, although Cannon felt that such a committee in the future might serve a useful purpose in organizing information and in encouraging the active interest of geologists in the problems of setting standards for time measurements.

2. Royalties from "Researches in Geochemistry": Faust reported that royalties for the first three months of sales of the Abelson volume amounted to more than \$1000. According to the provisions of Abelson's gift, this money is to be used for future publications by the Society. On a motion by Osborn, the Council agreed that the royalties should be put in a special fund, to be called "Royalties for Research in Geochemistry Fund" and not to be used without specific authorization by the Council.

3. Dues: Faust reported that expenses for the past year had exceeded income from dues by about \$180, and that this amount had been taken from interest on a savings account in which grants from the NSF had been placed. The Council discussed the advisability of increasing dues, but the question was tabled on a motion by Adams. The consensus of opinion was that dues should not be increased as long as the Society has a backlog of close to \$2000.

#### NEW BUSINESS

1. International relations of the Geochemical Society: The chairman reviewed the efforts of the Geochemical Society to become a truly international organization, and reported recent suggestions

that the Society either change its name or become an American group affiliated with a new international society. The most recent suggestion for a change in name to International Geochemical Society has come from Vinogradov, who has proposed further that *Geochimica et Cosmochimica Acta* be combined with *Geokhimiya* and published in both a Russian and an English (or Western European) version. Tuzo Wilson has noted that geochemists are becoming increasingly active in the American Geophysical Union, and suggests that the meeting of the International Union of Geodesy and Geophysics in Helsinki in the summer of 1960 would be a good time for geochemists to meet with geophysicists and discuss problems of organization. Perhaps geochemists should play a larger role in the Union, and perhaps this larger role should be indicated by changing the name to International Union of Geochemistry and Geophysics. Or perhaps geochemists should organize separately as an International Association of Geochemistry. Schairer pointed out also that chemists in the United States generally regard geochemistry as a minor appendage of the American Chemical Society, and that geochemistry has the same sort of minor role internationally in the International Union of Pure and Applied Chemistry. Schairer emphasized that the Society must decide very soon just what relations with other organizations it wishes to establish.

From the resulting discussion, there seemed to be general agreement on several points. (1) The Geochemical Society, despite vigorous efforts to make it truly international, is still predominantly American. A slowly increasing minority of members from countries other than the United States now constitutes 29 per cent of the membership. (2) An alternative has been suggested that the Society become an affiliate of an international organization, in which the Society might represent the English-speaking community, the western hemisphere, or possibly just the United States. The Council generally favored this suggestion, although some members expressed reservations. (3) Representatives of the Society should take an active part in organizing geochemistry on an international basis at the meetings next summer in Copenhagen and Helsinki. (4) The name of the Society should not be changed while these matters are pending. (5) Whatever arrangement is made, the Society should be careful not to jeopardize its relationships with the Geological Society of America, the American Geological Institute, and Pergamon Press.

On a motion by Engel, the Council unanimously voted that representatives of the Council (officers, councilors, and past presidents) should go to Helsinki empowered to take a positive approach toward international cooperation, to make any reasonable arrangement that will promote the welfare of international geochemistry, and to report back to the members of the Society.

2. Garrels' conference on carbonates: The chairman noted that the conference, organized by R. M. Garrels, had been held in September and had been very successful. Some annoyance had been expressed by geochemists who were not invited to the conference, but such dissatisfaction is inevitable when a conference must be limited to a small number of participants.

3. Organic geochemistry section: The chairman noted that members of the Society interested in organic geochemistry have decided to organize a section devoted to this subject. Several members of the Council expressed approval of this intention, but hoped that organization of the section would not be elaborate.

4. Reference standards: The president reported that the Standards Committee has been re-vitalized by its new chairman, A. Van Valkenburg. The committee, now composed entirely of men in and near Washington, has been active in obtaining data on standard rocks and standards for isotope analysis. On a motion by Engel, the Council voted that the committee should be empowered to organize a symposium on reference standards in Copenhagen and that the Society should actively support the symposium.

5. Geochemical table of the elements for 1959: On a motion by Ingerson, the Council agreed that the secretary should write letters of appreciation to the North American Aviation Corporation for distributing copies of Jack Green's geochemical table to all members of the Society.

6. Roy's letter protesting GSA meetings on Election Day: The chairman read a letter from Rustum Roy protesting the scheduling of geological meetings in a period including the first Tuesday in November. The Council expressed sympathy with the objection, but several members noted that scheduling is in the hands of the GSA and that the Council of the GSA has discussed at length the conflict of meetings with election days.

7. Distribution of Geochemical News to foreign libraries: The Council discussed briefly a request from the library of the University of Prague that Geochemical News be sent in exchange for geological publications from the university. The Council approved this arrangement, and empowered Heinrich to dispose of the reprints received in exchange.

Konrad B. Krauskopf  
Secretary

THE GEOCHEMICAL SOCIETY  
MINUTES OF ANNUAL BUSINESS MEETING  
Pittsburgh, Pennsylvania, 4 November 1959

The meeting was called to order at 10:15 A. M. by President Schairer, with about 50 members present. At the suggestion of the chairman, reading of the minutes was dispensed with.

Reports of Officers:

Treasurer: See minutes of Council meeting.

Secretary: See minutes of Council meeting.

President: The president reviewed briefly the work of the Council on 2 November, and noted the organization meeting of the Organic Geochemistry Group which had been held earlier in the morning.

Old Business

Russian Translation: Ingerson reported on the current status of Russian translations. All numbers of the translation of Geokhimiya for 1958 are published or in press; numbers for 1956 and 1957 have been translated, and those for 1956 are being edited; contracts for translation of the 1959 volume have not yet been let. Two Russian books have been translated, and a grant has been received from NSF for the translation of five others. Ingerson asked for volunteers to serve as editors for the book translations and to take over his duties as editor of the translation of Geokhimiya. A suggestion was made from the floor that much editorial time could be saved by asking a secretary to check references and bibliographies.

New Business

Standards Committee: Chairman van Valkenburg gave a brief report on the recent activities of his committee and on plans for the symposium on reference standards to be held in Copenhagen. Several comments were made from the floor about places where certain reference standards are available and about the urgent need for other reference standards.

Cost of past volumes of Geochimica et Cosmochimica Acta: The chairman reported a protest by W. W. Rubey against the high price charged to members for the purchase of past volumes of Geochimica et Cosmochimica Acta. Since members are given a special low rate for the purchase of current numbers of the journal, Rubey feels that past volumes should be made available at a comparable price. A motion was unanimously carried that the secretary should send a letter of inquiry to Pergamon Press.



Geochemical Table of the Elements: The chairman announced that additional copies of Jack Green's Geochemical Table for 1959 were available at the office of the editor of Geochemical News. Brian Mason suggested that an announcement to this effect be published in an early issue of Geochemical News. Ingerson reported that Green plans to publish the next revision of the Geochemical Table in 1966, and asked for volunteers to help in compiling data for the revision.

Barth's presidency: Abelson asked if any difficulties would arise from the fact that the Society's president for the coming year would be in Europe. The chairman replied that no difficulty was anticipated since Barth planned to attend both the International Congress in Copenhagen and the meeting of the GSA in Denver next fall.

MINUTES OF THE ORGANIZATIONAL MEETING  
OF THE ORGANIC GEOCHEMISTRY GROUP OF THE  
GEOCHEMICAL SOCIETY  
Pittsburgh, Pennsylvania, 4 November 1959

The meeting was held on Wednesday, November 4, 1959, in the Terrace Room of the Penn Sheraton Hotel, as announced in the Program of the Annual Meeting of the Society. The meeting was called to order at 8:40 a. m. by Dr. J. F. Schairer, President (1958-59) of the Geochemical Society. There were approximately thirty persons present at the meeting.

Dr. Schairer noted that the Geochemical Society needed the establishment of a division of organic geochemistry to provide a common forum for all interested research workers and to attract organic geochemists not now affiliated with the Geochemical Society. Dr. Schairer turned the meeting over to Dr. Bartholomew Nagy (Fordham University) who summarized the events leading to the organizational meeting.

Dr. Nagy noted that on June 3 and 4, 1959, two petroleum geochemistry symposia were held in New York City during the 5th World Petroleum Congress. One was arranged by Drs. M. Louis (Institut du Petrole, Paris, France) and W. E. Hanson (Mellon Institute) and the other one by Drs. E. G. Baker (Esso Research and Engineering Company), Paul A. Witherspoon (University of California) and Bartholomew Nagy (Fordham University). The program committee of The General Petroleum Geochemistry Symposium was, consequently, asked by a group of geochemists to explore the possibility of holding similar meetings in the future. Dr. Nagy reported that the possibility of affiliation with various scientific organizations was discussed at that time and an Interim Executive Committee of an Organic Geochemistry Group was established including the following members: Drs. E. G. Baker, Earl Ingerson (The University of Texas), Bartholomew Nagy (Chairman) and Paul A. Witherspoon. The organizational meeting in Pittsburgh was arranged by the Interim Executive Committee.

The meeting was next turned over to Dr. Earl Ingerson.

Ad Interim Actions

1. VOTED that an organic division be formed within the Geochemical Society to provide a common forum for researchers in soil geochemistry, oceanography, petroleum geochemistry, coal geochemistry, microbiology and other fields.
2. VOTED that the name of the division be Organic Geochemistry Group.
3. VOTED that the Interim Executive Committee (Baker, Ingerson, Nagy and Witherspoon) continue in office until the 1960 annual meeting of the Geochemical Society as the Executive Committee of the Organic Geochemistry Group. The Committee was empowered (a) to enlarge itself as required, (b) to organize the Organic Geochemistry Group as necessary and (c) to present a set of by-laws and a slate of officers prior to the 1960 annual meeting.

Following the Ad Interim actions, Dr. Schairer suggested that the Committee arrange (a) the formation of a membership list through appropriate publicity and (b) the inclusion of an application blank for membership in the group in the Geochemical News.

The meeting adjourned at 9:30 a. m.

Irving A. Breger, Acting Secretary

(Those who are interested in organic geochemistry and desire affiliation with the new group should fill out the application enclosed with this issue of the Geochemical News and send it to Professor Nagy. No dues are contemplated; the only requirement is membership in the Geochemical Society and interest in organic processes.)

Report on CARBONATE CONFERENCE  
Coonamesset, Massachusetts  
September 14-18, 1959

Introduction

In November 1958, a small group of scientists attending the Annual Meeting of the Geological Society of America, held an informal meeting to discuss problems of mutual interest related to the genesis of carbonate minerals. This group consisted of Philip Bethke, Preston Cloud, Farrington Daniels, Robert Garrels, and Raymond Siever. It was decided to ask the Geochemical Society to sponsor a request for a grant to have a conference of a relatively small group under conditions permitting detailed interchange of information. The Council of the Society acted favorably on the request. R. Garrels agreed to organize the group and the request for a grant.

After informal communication established a tentative list of attendees, who were selected for diversity of interest in problems related to carbonate mineral genesis, a request for a grant was submitted through the Geochemical Society in April, 1959. Thanks to prompt and effective action by President Schairer, and through efficient screening and decisions by the Earth Science Division of the National Science Foundation, a grant was made in July, 1959.

Location

The Conference was held at Clauson's Inn, Coonamesset, Massachusetts. The twenty-odd attendees were housed comfortably in small groups in cottages, and the meetings were held in a room reserved for the group at the Inn. It was possible for the group to operate continuously as a unit, one tremendous advantage over an urban location. Also, the Inn is a few miles from Wood's Hole Oceanographic Institute, which permitted visits in both directions. All in all, physical facilities were excellent.

Participants

Paul B. Barton, Vaughan Bowen, Preston E. Cloud, Jr., Farrington Daniels, Robert M. Garrels, Robert Ginsburg, Stina Gripenberg, Donald Graf, Heinrich Holland, Donald Hood, John Jamieson, John Kanwisher, Richard Leahy, Heinz Lowenstam, John Lyman, Richard Robie, Raymond Siever, Frederick Sisler, Brian Skinner, Karl Turekian, Peter Weyl, John Winchester and E-an Zen.

Procedure

Meetings were held starting Monday morning, September 14, and continued through Friday noon, September 18. Each day a session including all attendees was held from 9:00 - 12:00 AM, and from 8:00 - 10:30 or 11:00 PM. Afternoons were free for individual consultations, trips around Cape Cod, or whatever was of interest. The members of the group, one by one, discussed their research

during the five day period. An earlier plan had been to break into small groups for the evening session, but it was found that twenty people, all with a strong interest in the general topic, could function quite effectively in continuous general session. In fact, the Conference was continuous during all waking hours.

Each speaker had the floor for 1 - 1 1/2 hours. The talks were entirely informal, with free and nearly continuous discussion from the floor. Despite the frankness of comments, the objectivity of the group was such that no personal heat was generated. Also, there was active interest at all times by all participants, despite the variety of topics covered.

### Topics

It is difficult to summarize or assess the result of five days of continuous give and take on carbonate problems. The following brief statement of topics discussed by individuals really gives little idea of the scope accomplished by the continuous reaction from the floor.

Barton - Determination of activity coefficients of magnesium ion in solution.

Cloud - Carbonate deposition near Andros Island, Bahamas. Hypothesis of inorganic deposition of much carbonate. Discussion of problems encountered in attempts to determine saturation of sea water by calcium carbonate.

Daniels - Thermoluminescence in carbonates; controls in the formation of calcite and aragonite; importance of kinetics in mineral relations.

Garrels - Sodium and magnesium carbonate complexes in sea water; stability of various carbonate minerals.

Graf - Crystal structure of huntite. Interrelations of structures of compounds in the  $\text{CaCO}_3$ - $\text{MgCO}_3$  system. Special reference to relation of magnesium calcite and protodolomite.

Holland - Experiments on Sr-Ca relations in carbonates. Determination of Sr/Ca ratio in solution and in solid at temperatures from 90°-150°C. Solubility of calcite at elevated temperatures and pressures.

Hood - Organic constituents in sea water and complexes with bicarbonate. Design of experiments to test direct use of  $\text{HCO}_3^-$  in metabolism of plants.

Jamieson - Present version of PT relations of calcite and aragonite. General discussion of aragonite-calcite stability relations.

Kanwisher -  $\text{CO}_2$  pressure in equilibrium with sea water as a function of total dissolved carbon dioxide species.

Leahy -  $\text{CO}_2$  content of the atmosphere; vertical, horizontal, and secular variations.

Lowenstam - Correlation of temperature of formation with Sr content of aragonite shells, Mg content of calcite shells, and  $\text{O}^{18}/\text{O}^{16}$ . Use of these interlocking criteria in obtaining paleotemperatures.

Lyman - Composition of sea water, alkalinity and its determination.

Siever - Problems related to carbonate cements in rocks. Consideration of temperature, pressure, solubility relations as sediments are buried and related movement of particles and pore fluids occurs. Attempt to assess sequence of cementing agents.

Sisler - Role of microorganisms in carbonate precipitation.

Skinner - Details of dolomite deposition in South Australia. Documentation in terms of salinity, pH, etc.

Turekian - Minor element content of recent shells as a function of species and carbonate phase.

Weyl - Apparatus for determining degree of saturation of minerals in sea water; new techniques for determining  $K'$  values for boric and carbonic acids in sea water.

Winchester - Use of neutron activation techniques for analyses of small concentrations of elements; possible application to carbonate problems.

Zen - Origin of dolomitic patches in limestones. A test of the validity of activity coefficients.

Evaluation

Any real evaluation of the conference would have to come from the group as a whole. However, it is probably safe to say that the five days provided each of us with a knowledge of material that it would have taken at least a half year to accumulate through the usual channels of correspondence, regularly scheduled meetings of societies, reading, and infrequent personal visits. Manuscripts were traded, visits were arranged, samples were promised. I think I voice the feelings of the group when I say the money was well spent. We recommend the general procedure used. The morning and evening sessions, with the afternoon open, is highly recommended. The break provided prevents that rapid decline observed at annual meetings of various societies.

We are also in agreement that the group could not have been any larger, and that the most important consideration is to have the maximum diversion of skills and training represented.

Robert M. Garrels  
Harvard University

## IUGG - IGC SUMMER OF 1960

The International Union of Geodesy and Geophysics will meet in Helsinki, July 25-30, 1960, and the International Geological Congress in Copenhagen, August 15-25, 1960. A geochemical symposium has been proposed for the Helsinki meeting, but the subject has not yet been announced. At Copenhagen the Geochemical Society and the International Geochemical Commission will join in sponsoring two symposia, one on Geochemical Standards and the other on the Geochemistry of Sedimentary Carbonates.

After the symposium at Helsinki there will be a discussion as to the role that Geochemistry should play in the IUGG. The Society and the Commission have both appointed representatives to the meeting, but as many other members of the Society as possibly can should attend because the decisions reached at that meeting could have very far reaching consequences for the immediate future of international relations in geochemistry.

## CHEMICAL ABSTRACTS, SEC. 8, IN 1959

The following is a summary of the work of Sec. 8, Mineralogical and Geological Chemistry, of Chemical Abstracts for Vol. 53 (1959). Previous reports were published in Geochemical News, Nos. 9 and 14. Abstracts of 3626 papers were published, a new record for the eighth consecutive year, with a sharp increase over 1958 (3069), 1957 (2904), 1956 (2280). The number of abstracts has doubled since 1953 and tripled since 1948.

Speed of abstracting was nearly the same in 1959; 78.8% of the abstracts were of papers published in 1959 and 1958. The comparable figures are 78.6% in 1958, 80.6% in 1957, and 79.6% in 1956. I believe, however, that we are now more nearly current than ever before; if this is correct, we may show some improvement in 1960.

The 3626 abstracts were prepared by 245 abstractors, but 30 of these contributed 78% of all the abstracts. We are deeply indebted to these and especially to those who covered the Russian, Japanese, Polish, and Chinese literature.

Last year's spurt in publication in the U.S.S.R. continued. The table below shows this clearly; it reflects some clearing of backlog, but this was only a minor factor. The table gives the data for the leading 7 countries; these are followed in order by Czechoslovakia, India, Italy, Canada, and Australia, the same as the preceding year.

Abstracts from leading countries  
(by country of origin in 1959, by country of publication in other years)

	1959		1958		1957	
	No.	%	No.	%	No.	%
U.S.S.R.	1112	30.7	816	26.6	542	18.6
U.S. A.	584	16.1	482	15.7	579	19.9
Japan	270	7.5	225	7.3	267	9.2
Germany (W & E)	242	6.7	178	5.8	172	5.9
Great Britain	118	3.3	168	5.5	217	7.5
France	116	3.2	106	3.5	118	4.1
Poland	125	3.5	97	3.2	26	0.9
Total all countries	3626		3069		2908	

We need help, as always, in doing a job of this size. Chemical Abstracts pays its abstractors, but the small amount received is not as important as the satisfaction of helping others. Anyone interested please write to me or to Dr. C. L. Bernier, Chemical Abstracts, Ohio State University, Columbus 10, Ohio.

We also need to know what kind of a job we are doing. Presumably the members of the Geochemical Society include many who use Chemical Abstracts, Sec. 8. But you don't tell us how we could do a better job. I received one letter in 1958 and one in 1959 pointing out errors. If you have suggestions, let me have them.

Michael Fleischer  
U. S. Geological Survey  
Washington 25, D. C.

GEOCHEMISTRY IN ISRAEL  
by Dan H. Yaalon

A geochemical symposium organized jointly by the Israel Geological Society and the Israel Chemical Society was held October 19th in Haifa, under the auspices of the Association for the Advancement of Science in Israel. About sixty persons attended.

Contributions included a talk on the principles of geochemical prospecting by W. Bodenheimer (Geological Survey of Israel) and papers on the occurrence of radioactivity in rocks and springs in Israel by E. Mazor (Israel Atomic Energy Commission), the geochemical evaluation of groundwaters in Israel by Dan H. Yaalon (Dept. of Geology, Hebrew University of Jerusalem), and problems in trace element analysis by A. Alon (Israel Mining Industries Laboratories, Haifa). Several papers outlining new or improved procedures of trace analysis of beryllium, uranium, thorium and gold were also presented during the Convention of the Association for the Advancement of Science.

Geochemical research in Israel is conducted at the four institutes mentioned above, mainly in the fields of geochemistry of sediments (limestone, gypsum and nitrate deposits), geochemical prospecting, and geochemistry of water (origin of salts, Dead Sea, tracer methods).

## BOOK REVIEWS

GEOCHEMISTRY, by the late V. M. Goldschmidt. Edited by Alex Muir. 730 pp, 96 tables. Oxford University Press, 417 Fifth Avenue, New York 16, N. Y. 1954. \$11.20. Price in the United Kingdom, 70s.

This is one of the publications in the International Series of Monographs on Physics under the general editorship of N. F. Mott and Sir Edward Bullard. The book is the last major work of the late world-renowned geochemist and petrologist, V. M. Goldschmidt, Professor of Geology, Frederiks University and Museum, Director of the Statens Rastofflaboratorium, Oslo. Professor Goldschmidt, who fled Norway and the Nazis in 1942, was engaged on completion of this work at the time of his death. It represents the culminations of his life-time researches in the field of geochemistry.

The book is divided into two parts: Part I, a section on general geochemistry, and Part II, a geochemistry of the individual elements. Part I contains six chapters: Scope and Development of Geochemistry; Distribution of the Elements during the Evolution of the Earth; Evolution of Magmatic Rocks; Quantitative Treatment of Geochemical Processes: Some Fundamental Data; Chemical Composition of the Cosmos and of its Various Separate Mass Concentrations; Some Principles of Crystal Chemistry in relation to Geochemistry. Most of Part I had not been begun at the time that Goldschmidt had nearly completed Part II, and as the editor notes, "If the author had lived, he would undoubtedly have modernized the presentation of much of what he had written in Part I, in particular the chapter dealing with crystal structure." Most of the material contained in Part I, therefore, has been compiled from Goldschmidt's earlier writings.

In Part II there have also been noteworthy additions to Goldschmidt's work by his friends and associates, particularly with respect to the sections on phosphorus, selenium, aluminum, iron, cobalt, nickel, and sulfur. The book concludes with three indexes: Name Index and References, Index of Rocks and Minerals, and General Index.

The book is a "must" for all geochemists; no geochemical library is complete without it. Not only does it give all the authoritative data of Goldschmidt's earlier work, but the editor has succeeded in bringing it up to date. No better recommendation can be made by a reviewer than to quote the following note which appears in the corrected reprinting: "The reception given to this book suggests that it has been accepted not only as an authoritative account of geochemistry, but also as a fitting memorial to a great man."

ewh

## CALENDAR

Feb.

- 4-5 AGU: Pacific SW Regional Meeting, Los Angeles, Calif.
- 8-10 AAPG: Rocky Mountain Sect., 10th Ann. Mtg., Billings, Mont.
- 10-11 Gas-Cooled Reactors Symposium, Am. Nuclear Soc., Philadelphia, Pa.
- 14-18 AIME: Ann. Mtg., Hotel Statler and Hotel McAlpin, New York, with SEcG.
- 16-19 Australasian Inst. of Mining and Metallurgy, Symposium on Hydrometallurgy, "Wet Processing of Minerals and Industrial Products," Adelaide, Australia.
- 25-26 Scintillation Counter Symposium, Washington, D. C.
- 26 11th Ann. Symposium on Highway Geology, Florida State Univ., Tallahassee, Fla.

Mar.

- 24-26 GSA: Southeastern Section meeting, sponsored jointly by Univ. of Kentucky Geol. Dept., Kentucky Geol. Survey, and Kentucky Geol. Soc., Lexington, Ky.

Apr.

- 20-24 Symposium on Microbial Reactions in Marine Environments, with Soc. of American Bacteriologists. Auspices of Office of Naval Research. Write C. H. Oppenheimer, Institute of Marine Science, Port Aransas, Texas.

July

25-30 International Union of Geodesy and Geophysics, Helsinki, Finland.

Aug.

15-25 International Geological Congress, Copenhagen, Denmark. Write Mineralogical-Geological Museum, Univ. of Copenhagen, Oster Voldgade 7, Copenhagen K, Denmark.

Oct.

6-8 Ninth National Clay Conference, Purdue University, Lafayette, Indiana. Auspices Clay Minerals Committee, National Academy of Sciences-National Research Council. Write Dr. J. L. White, Agronomy Dept., Purdue University, Lafayette, Indiana.

## ION EXCHANGE COLUMN

Dr. Tadashiro Koyama, Professor of the Water Research Lab, Faculty of Science of Nagoya University, Nagoya, Japan, has spent a two-year period doing research at the Department of Oceanography at the University of Washington, Seattle, Washington. He returned to Japan early in November of 1959.

-----

The Pergamon Press has announced the preparation of Volume 3 of its series "Physics and Chemistry of the Earth." Volume 3 is the translation by V. P. Sokoloff of I. I. Ginsburg's "Principles of Geochemical Prospecting", which is published by the Geochemical Society. Volume 3, which will retail for \$15.00, may now be ordered from Pergamon Press, 122 East 55th St., New York 22, N. Y.

-----

The Oxford University Press, Amen House, Warwick Square, London E.C. 4, announces a new journal, the Journal of Petrology, edited by T. F. W. Barth, C. E. Tilley, L. R. Wager, and H. S. Yoder, with the Managing Editors G. M. Brown and S. R. Nockolds. The journal will be published at first in volumes of 3 numbers per year, February, June and October, the first to appear in February of 1960. The journal will concern itself with the physics and chemistry of rocks, their mineralogy and textures, with certain aspects of radioactive dating of rocks, quantitative studies of rock-forming minerals, physical chemistry of petrology, and isotope studies in petrology. The subscription price for the year will be 80 shillings (\$12 in the U.S.A. and Canada).

-----

Another new publication, a quarterly, has appeared. It is called Southeastern Geology, and is published by the Geology Department of Duke University, Box 6665, College Station, Durham, North Carolina. The first issue contains studies of the clay mineralogy of some North Carolina sediments; studies in the Pleistocene of the South Atlantic Coastal Plain; rock salt in the Upper Silurian limestones of West Virginia; geochemical prospecting for metallic minerals, chiefly zinc, copper and lead; and differential compaction in Pottsville sediments of Tennessee.

-----

Foote Prints, the technical magazine published by Foote Mineral Company, 18 W. Cheltenham Ave., Philadelphia 44, Pa., has in its Vol. 31, No. 1, 1959, an interesting article by E. H. Kraus entitled "Albert E. Foote, M.D., Naturalist." This is, of course, the founder of the Foote Mineral Company, who was one of the leading suppliers of mineral specimens to universities for many years. The journal also contains an article on Professor H. H. Willard, one of the pioneers in analytical chemistry.

-----

Advanced Materials Technology, published by the Carborundum Company, Niagara Falls, New York, contains an article on the properties and applications of boron nitride, particularly in the field of high temperature electronics. For those of our readers who are interested in the use of soil, earth, adobe, and similar materials in the construction of homes and other buildings, reference

should be made to an entertaining and complete survey of the subject in Screenings from the Soil Research Lab, published by the Iowa Engineering Experiment Station, Iowa State University, Ames, Iowa. The article appears in the September-October issue, 1959, Vol. 3, No. 5.

The increasing importance of ultrasonics in science is emphasized in a survey article that appears in Industrial Laboratories, the Magazine of Research and Development, December 1959, entitled "Current Trends in Ultrasonics" by S. R. Rich.

\*\*\*\*\*

Sand-in-the-Gears-of-Learning Department

From first year geology examinations:

Spelling errors:

Andraluchite	Hemmitite	Placioglase
Appartite	Magnusium	Solomenite (for Sillimanite)
Apertite	Orthoglase	Silercate
Dodechahedricon	Plaignoglase	

A monoclinic crystal "Has 6 diad axes coinciding with the a, b, and c crystallographic axes at right angles to them."

A monoclinic crystal: "Model has 2 b diad axes, a centre, an orthorhombic prism, a tetragonal prism parallel to the hexad axis, several c domes and a monoclinic system."

A cubic crystal: "Hexagonal with 3 tetradanes. Three equal axes at  $160^{\circ}$  to each other in the same plane and the fourth at right angles in a larger or shorter plane."

Tourmaline: "Used to make very fine suspension apparatus for suspending things."

Talc: "Used as a lubricant in industry and toilet."

Calcite: " $\text{CaCO}_3$ . Cubic system. Cleavage rhombohedral system. Effervesces with HCl. Used in the manufacture of  $\text{H}_2\text{SO}_4$  for blast furnaces."

Hematite: " $\text{SnO}_2$ , used as a source of titanium."

According to the catalog of Henry George Fiedler, the book seller, Professor B. Gutenberg's contribution to the Physics of the Earth Series is the "International Constitution of the Earth."

We have long wondered what compels people to turn to earth science, and finally the columnist George E. Sokolsky has provided an answer, at least for geophysicists. He writes in the 29 October 1959 issue of the Washington Post, "Today, there are squares with their noses to the grindstone, who, having despaired of doing much to this world, seek out its physical composition." We still need to know why they become chemists!

HAPPY NEW YEAR!

E. Wm. Heinrich  
Editor

Department of Mineralogy  
The University of Michigan  
Ann Arbor, Michigan