

## Proceedings of the Fifty-fifth Annual Meeting of the Mineralogical Society of America in Miami, Florida

JOAN R. CLARK, SECRETARY

The fifty-fifth annual meeting of the Society was held on November 17–20, 1974, at the Deauville and Carillon Hotels in Miami, Florida. There were three technical sessions in mineralogy, four in petrology, and a Symposium, "Some Modern Concepts In Metamorphism," arranged by Derrill M. Kerrick. All these sessions were, as usual, integrated with those of the Geological Society of America and its other affiliated societies.

The retiring President, S. W. Bailey, addressed the Society on the morning of November 19th on the subject "Cation Ordering and Pseudosymmetry in Layer Silicates."<sup>1</sup> The annual luncheon of the Society was held in the Richelieu Room of the Deauville Hotel on November 19th. The Roebling Medal was awarded to Ralph E. Grim, who was introduced by Haydn H. Murray, and the Mineralogical Society of America Award was given to James J. Papike, who was introduced by David B. Stewart.

The annual business meeting of the Society was held on the morning of November 19th in the Empire Room, Carillon Hotel, at which time reports were presented by the Secretary, the Treasurer, and the Editor of *The American Mineralogist*. About 50 people attended and there was lively discussion, particularly about future Short Courses and the various aspects of page charges.

Prior to the meeting, a Short Course on Sulfide Mineralogy, organized by Paul H. Ribbe, was held at the Sheraton Four Ambassadors Hotel in Miami, November 15–17. The lecturers were B. J. Wuensch, C. T. Prewitt, V. Rajamani, S. D. Scott, J. R. Craig, and P. B. Barton; 77 people attended the course. The lecture notes were incorporated into a paperbound volume, *Sulfide Mineralogy*, which was on sale during the meeting at the Society's booth in the exhibits area. The booth also featured an exhibit prepared by the Managing Editor, Mary Holliman, showing how *The American Mineralogist* is assembled for publication.

### Actions of the 1974 Council

The second meeting of the 1974 Council was held

on April 9, 1974, at the Geophysical Laboratory, Washington, D. C. The third meeting was held on November 17, 1974, at the Carrillon Hotel, Miami, Florida. The principal actions taken by the Council at these two meetings are summarized here.

### Awards

The Council voted to award two Roebling Medals in 1975, one to Michael Fleischer and one to O. Frank Tuttle. The Mineralogical Society of America Award for 1975 will be given to Roger G. Burns.

### Nominations of Officers for 1976

The following slate of elective officers for 1976, based on recommendations from the Nominating Committee for Officers (Iris Y. Borg, Chairman), was chosen by the Council and will appear on the ballot to be submitted to the membership in September, 1975.

*President*—E-an Zen, U. S. Geological Survey

*Vice-President*—F. Donald Bloss, Virginia Polytechnic Institute

*Secretary*—Larry W. Finger, Geophysical Laboratory, Carnegie Institution of Washington

*Treasurer*—not on the 1976 ballot

*Councilors* (1976–1978)—Two of the four to be elected:

Wayne A. Dollase, University of California at Los Angeles

Bernard W. Evans, University of Washington, Seattle

Ian D. MacGregor, University of California at Davis

Charles T. Prewitt, State University of New York, Stony Brook

### New Honorary President

The Society has had, since its founding, three Honorary Presidents: Edward S. Dana 1925–1935, Charles Palache 1949–1954, and Edward H. Kraus 1955–1973. The Council has now voted unanimously to honor the distinguished mineralogist who is the last surviving founder, Edgar T. Wherry, by appointing him the fourth Honorary President. A biography of Professor Wherry is being prepared by Arthur

<sup>1</sup> Published in *The American Mineralogist*, 60, 175–187 (1975).

Montgomery and will be published in a forthcoming issue of this journal.

#### *Fellowship*

The Council elected 20 members to Fellowship, based on recommendations made by the Nominating Committee for Fellows (R. E. Newnham, Chairman).

The new Fellows are:

Raymond Nicholas Brothers  
 Gordon Edgar Brown  
 Howard Wilman Day  
 Harold E. Enlows  
 Richard V. Gaines  
 Charles Strachan Hutchison  
 David Edward Jensen  
 Robert Alfred Laudise  
 Kurt Nassau  
 Philip Henry Osberg  
 Richard Maxwell Pearl  
 H. Earl Pemberton  
 William Wallace Pinch  
 Willard L. Roberts  
 Paul Seel  
 R. G. J. Strens  
 David R. Waldbaum (posthumous)  
 Alan Bruce Thompson  
 Gunther Arthur Wolff  
 Neal Yedlin

#### *Executive Secretary*

By unanimous vote of the Council, A. F. Spilhaus, Jr., was appointed Executive Secretary.

#### *Scholarships*

Fifty-nine applications were received for the scholarships to students made possible by contributions from the membership. A committee composed of J. J. Finney, Cornelis Klein, Jr., and D. R. Peacor selected the 14 best applications, and the Council chose two from that group to receive scholarships of \$500 each. The winners were graduate students Michael S. Fulp, University of Tulsa, Oklahoma, and Jeffrey K. Greenberg, University of Kentucky, Lexington.

#### *Short Courses*

The Council unanimously authorized the Treasurer to handle the financial affairs of the Society, including buying and selling stocks and signing expressed the appreciation of the Society for his excellent and effective organization of the Short Course on Sulfide Mineralogy.

#### **Actions of the 1975 Council**

The first meeting of the 1975 Council was held at noon Wednesday, November 20, 1974, at the Carillon Hotel, Miami, Florida.

The Council unanimously authorized the Treasurer to handle the financial affairs of the Society, including buying and selling stocks and signing contracts; he may delegate such authority consistent with the advisory resolutions passed by the Council. In the event the Treasurer is unavailable or incapacitated, the President is authorized to sign checks subject to receiving sufficient documentation. The Executive Secretary is authorized to sign checks up to \$5,000 in amount.

#### *Publications*

The honorarium for the Editor was increased to \$2,000. The appointment of Mrs. Mary Holliman as Managing Editor was renewed. The Council accepted with great regret the resignation of the Editor, to become effective in October, 1975. The Publications Committee and the Executive Committee were given responsibility for bringing to the Council names of potential candidates who could fill the vacancy. By an announcement in the November-December issue of *The American Mineralogist*, nominations were requested from the members.

#### *Spring Meeting of the Council*

The 1975 Council will hold its second meeting at its headquarters in Washington, D. C., during the month of April, 1975.

#### *Committees and Other Appointive Officers*

A list of appointive officers, prepared by the President and his Committee on Committees, was presented to the Council. With some changes made by the Council, the list was completed and approved.

#### *Charitable Fund*

The Council voted unanimously to change the name of this fund to *Scholarship Fund*.

#### **Report of the Secretary for 1974**

#### *Results of the Election*

For the first time the ballots were counted by computer, thus relieving the Secretary and some devoted members of a tedious chore at the nominal cost of about \$30. Those elected are as follows:

**President**— Arnulf Muan (1975)  
**Vice-President**—E-an Zen (1975)  
**Treasurer**— George W. Fisher (1975–1976)  
**Councilors**— Iris Y. Borg (1975–1977)  
                   Barclay Kamb (1975–1977)

### Membership Statistics

As of October 15, 1974, there were 2,612 members, divided as follows: Members 1,547; Student Members 481; Fellows 575; and Honorary Fellows, 9.

### Necrology

The Society lost two former Presidents in 1974: Joseph Murdoch, who was President in 1960, and George E. Goodspeed, who was President in 1958. Others who have died since the last report are listed below.

Douglas C. Alverson	Darrell L. Casey
Frank J. Dolesh	Aladar Foldvari
Elliot Gillerman	William T. Granquist
Herman Guntar	Otto H. Hering
Andrew J. Nalwalk	W. J. O'Leary
David R. Waldbaum	Ernest Weidhaas

### Acknowledgments

The routine business functions of the Society are progressing smoothly for most part, thanks to the capable work of our Business Office staff, coordinated by Cynthia Beadling. Special mention is due A. F. Spilhaus, Jr., for his thoughtful advice on membership matters, and Philip M. Bethke, whom it has been a pleasure to work with over the past two years.

**JOAN R. CLARK**  
*Secretary*

### Report of the Treasurer for 1974

This report covers the period January 1, 1974, through December 31, 1974, denoted FY 1974. During this period, accounting was done on the accrual basis, and the figures for this period are therefore comparable with those of FY 1973. They are not directly comparable with preceding years, when accounting was on a modified cash basis.

The financial data for the period covered are presented in Tables 1 (Combined Balance Sheet) and 2 (Statement of Income and Expense, FY 1974). Both tables are basically similar to those presented in last year's report. The only substantive changes in the Balance Sheet reflect transfer of our investment portfolio from Merrill-Lynch to Ruane, Cunniff, and

Stires, a New York-based investment counseling firm; the renaming of the Charitable Fund as the Scholarship Fund, by Council action; and the establishment of the Membership Assistance Fund. The Membership Assistance Fund was established by Council in 1973 to pay the annual dues of members for whom dues payments pose a serious financial hardship. The format of the statement of income and expense is also essentially the same as that of last year's report. Once again the Society experienced a net financial gain on its operations, but the gain was substantially less than last year's period. The principal reason for the reduced gain is the sharp increase in cost of publishing *The American Mineralogist*. This is due in part to increased costs connected with the publication process but it is largely due to the fact that we published 1377 pages in *The American Mineralogist* this year, as opposed to 1150 pages the previous year. Also notable is the substantial increase in activity of the Revolving Fund. The small net loss incurred by the Revolving Fund reflects expenditures connected with the publication of the notes for the Short Course on Sulfide Mineralogy presented at the annual meetings in November, and some of the sales reflect sales of these short course notes. But I am hap-

TABLE 1. Balance Sheet for 1974

	Dec. 31, 1973	Dec. 31, 1974
<b>Current Assets:</b>		
Cash -- Checking Accounts	\$ 65,859	\$ 45,620
Savings Accounts	17,284	18,612
Investments -- Ruane, Cunniff	238,953	306,358*
S. Cen. Bell Bond	4,977	4,977
Goodyear Stock	10,950	10,950
Short-term	19,689	--
Receivables -- Customers	11,464	17,221
Merrill-Lynch	1,422	--
Folger-Nolan	730	--
Prepaid Expense	1,000	1,545
	<u>\$ 372,328</u>	<u>\$ 405,283</u>
<b>Current Liabilities:</b>		
Accounts Payable -- Trade	\$ 14,567	\$ 16,803
Min. Abstracts	1,966	2,602
Other Payables	102	665
Prepaid Dues	24,000	27,589
Prepaid Subscriptions	44,798	45,079
Funds:		
Revolving Fund	3,809	2,045
Endowment Fund	245,611	259,652
Charitable Fund	791	1,112
Membership Assistance Fund		5,370
Kraus Crystallographic Fund	12,484	12,985
	<u>\$ 348,128</u>	<u>\$ 373,902</u>
Capital:		
Operating Reserve	24,200	31,381
	<u>\$ 372,328</u>	<u>\$ 405,283</u>

\* Market value at 12/31/74, \$261,249

TABLE 2. Statement of Income and Expense, FY 1974

	SOCIETY OPERATIONS	OPERATION OF AMERICAN MINERALOGIST	ENDOWMENT FUND	REVOLVING FUND	SCHOLARSHIP FUND	KRAUS CRYSTALLOGRAPHIC FUND	MEMBERSHIP ASSISTANCE FUND
<b>INCOME:</b>							
Member & Fellow Dues	41,955						
Student Dues	2,422						
Back Dues	474						
Life Memberships			1,200				
Long Term Investments	1,758		16,441	120	3	410	
Savings & Short Term Invest.	1,262					91	
Sale of Publications		67,880		11,136			
Page Charges		24,205					
Reprints		6,606					
Back Issue Sales		1,810					
Royalties		504					
Author Alteration Charges		1,371					
Advertisements		4,295					
Mailing List Sales	143						
Contributions			400		1,318		413
Miscellaneous	761						
<b>TOTAL INCOME</b>	<b>48,775</b>	<b>106,671</b>	<b>18,041</b>	<b>11,256</b>	<b>1,321</b>	<b>501</b>	<b>413</b>
<b>EXPENSES:</b>							
<b>Direct Costs:<sup>a</sup></b>							
Annual Meetings	288						
Dues & Contributions <sup>b</sup>	3,150						
Awards	758				1,000		20
Editorial Office		18,789					
Publications Costs		85,971		10,802			
Storage & Handling		1,854		213			
Reprints		5,879					
Office Expense <sup>c</sup>		4,532					
Life Membership Dues			4,000				
<b>Total Direct Costs</b>	<b>4,196</b>	<b>117,025</b>	<b>4,000</b>	<b>11,015</b>	<b>1,000</b>	<b>0</b>	<b>20</b>
<b>Indirect Costs:<sup>a</sup></b>							
Council Meetings	2,515						
Salaries	12,386						
Postage & Telephone	3,104						
Computer	2,018						
Services & Supplies	1,197						
Professional Services	856						
Travel & Official Expense	220						
Miscellaneous	1,777						
<b>Total Indirect Costs</b>	<b>24,073</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Allocation of Indirect Costs <sup>a</sup>	(23,303)	21,298		2,005			
<b>TOTAL EXPENSE</b>	<b>4,966</b>	<b>138,323</b>	<b>4,000</b>	<b>13,020</b>	<b>1,000</b>	<b>0</b>	<b>20</b>
MEMBER SUBSCRIPTION COST	(31,652)	31,652					
<b>NET GAIN (LOSS)</b>	<b>12,157</b>	<b>-0-</b>	<b>14,041</b>	<b>(1,764)</b>	<b>321</b>	<b>501</b>	<b>393</b>

<sup>a</sup> Expenses are divided into two categories: Direct Costs and Indirect Costs. Direct Costs are those incurred in direct support of a particular project and only in support of that project. Indirect Costs are those incurred in support of the various projects of the Society. Indirect Costs are allocated to the various projects on a basis proportional to their direct costs.

<sup>b</sup> Dues and Contributions consist primarily of MSA dues to the American Geological Institute.

<sup>c</sup> Office Expenses for *The American Mineralogist* are for printing and mailing labels to Byrd Press, billing for reprints and page charges, and handling orders for back issues.

py to report that a substantial portion of these sales reflect sales of previously published special papers; during the past year the inventory of special papers has declined by 20 percent.

As reported by the outgoing treasurer, Philip M. Bethke, at the November Council meeting, the financial condition of the Society is sound and we appear to be in a good position to weather the difficult economic conditions of the next several years.

However, it is clear that the days of the budget surplus are numbered and the Council and its committees must, therefore, begin to identify non-essential services, cost-cutting procedures, and methods of increasing income other than by raising dues and subscriptions. During these deliberations, we will be relying heavily on help and advice from the membership.

GEORGE W. FISHER  
*Treasurer*

### Report of Audit

#### The Council

#### Mineralogical Society of America:

I have examined the balance sheets of the Mineralogical Society of America as of December 31, 1974 and 1973, and the related statements of income for the years then ended. My examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as I considered necessary in the circumstances.

In my opinion the financial statements mentioned above present fairly the financial position of the Mineralogical Society of America at December 31, 1974 and 1973, and the results of its operations for the years then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

GARLAND C. OWENS  
Scarsdale, New York  
February 28, 1975

#### Report of the Financial Advisory Committee for 1974

As a result of a comprehensive survey by this committee of the financial needs of the Society, our internal capabilities for investment management, and alternative mechanisms of external management, in late 1973 the portfolio of the Society was entrusted on a fee basis to the supervision of Mr. Sidney H. Stires of the management firm of Ruane, Cunniff, and Stires of New York City. The performance of the portfolio is monitored by this committee on the basis of quarterly reports by Mr. Stires, and the management agreement can be terminated if the Society is not satisfied with performance. The assets of the Endowment Fund, the Revolving Fund, and the Charitable Fund have been pooled in a Consolidated Fund for efficiency of investing and accounting. Investment income and capital gains or losses from the Consolidated Fund are distributed to the individual Funds on the basis of their percentage participation.

With the exception of a few bonds, the 1973 portfolio has been completely restructured to give a larger ratio of bonds to common stocks as well as a change in the industries represented by the equities. Capital gains and losses resulting in 1974 from this restructuring are listed in Table 1. Dividends plus interest in 1974 amounted to \$13,116.36. The composition of the portfolio and its market value as of December 31, 1974, are given in Table 2. The total

TABLE 1. Capital Gains and Losses for 1974

Portfolio	No. of Shares	Adjusted Cost	Gain or (Loss)
<b>Preferred Stocks</b>			
City Investing, \$2	260	\$10,202.59	\$ (4,742.52)
FMC Corp., \$2.25	150	4,792.90	(294.12)
General Tel. & El., 5%	300	12,584.25	(3,095.33)
Sun Oil, \$2.25	100	2,342.63	2,990.01
<b>Common Stocks</b>			
Amer. Re-Insurance	400	10,004.85	(3,887.44)
Amer. Tel. & Tel.	570	14,880.93	14,514.86
AT&T warrants	34	---	136.47
Chessie System	150	8,643.57	(1,908.08)
Continental Can	225	4,051.56	1,119.82
Control Data Corp.	100	5,927.50	(2,157.27)
Denison Mines	150	3,096.00	3,421.35
Emhart Corp.	316	4,805.33	951.01
General Motors	285	23,413.92	(9,214.03)
General Portland	150	2,934.69	(1,250.18)
Greyhound	8	148.67	(39.29)
IU International	500	7,637.43	(2,520.43)
Jefferson Pilot	400	11,722.48	(922.88)
Kimberly Clark	300	8,841.49	1,018.54
Kroger Company	300	3,245.35	2,449.62
Lincoln National	500	15,707.64	(4,659.11)
Marriott Corp.	840	1,828.53	13,865.00
Melville Shoe	500	4,475.51	(1,513.10)
Moore McCormack Res.	1,700	30,448.62	11,013.58
National Cash Reg.	200	6,581.12	915.70
Philadelphia Life Ins.	525	9,784.42	(3,312.89)
PPG Industries	220	6,312.83	(293.01)
Union Carbide	175	10,719.41	(3,853.08)
U. S. Fidelity & Guar.	300	10,654.68	(3,664.57)
<b>TOTALS</b>		<b>\$235,788.90</b>	<b>\$5,068.63</b>

TABLE 2. Endowment Fund, December 31, 1974

Portfolio	No. of Shares	Adjusted Cost	Market Value 12/31/74
<b>Bonds</b>			
American Tel. & Tel., 8.75	17	\$ 1,719.16	\$ 1,670
Chesapeake & Potomac Tel., 7.75	200	19,675.14	17,125
Consolidated Edison, 8.4	300	26,175.00	18,113
Frontier Airlines, 6.0	250	15,625.00	11,875
W. R. Grace, 4.25	100	6,550.00	5,800
Macy Credit Corp., 4.75	200	16,300.00	13,800
Northwest Industries, 7.5	150	12,375.00	10,200
Tenneco, 6.0	150	13,425.00	12,656
Transcont. Gas Pipe, 5.875	170	13,153.75	11,178
<b>Common Stocks</b>			
Automatic Data Processing	100	5,712.25	2,688
Control Data Corp.	500	7,890.01	5,313
Electronic Data Systems	3,000	42,358.47	37,500
Eltra Corporation	400	9,739.63	7,800
General Tire & Rubber	900	12,552.82	9,563
International Bus. Machines	50	12,331.00	8,400
MCA, Inc.	1,300	32,673.62	36,888
Moore & McCormack Resources	500	10,186.05	14,063
Sealed Air	4,000	31,615.91	27,000
Xerox Corporation	100	12,512.01	5,150
Cash Balance			4,467
<b>GRAND TOTALS</b>		<b>\$302,570.06</b>	<b>\$261,249</b>

market value of \$261,249, after allowance for reinvestment of income and the addition of \$50,000 in cash to the fund during March, represents a decrease of 21 percent from the 1973 year-end total. During this same period the Dow Jones Industrial Average declined by 28 percent and the Standard & Poor 500 Stock Average by 30 percent. If the portfolio had not been restructured, its market value would have declined by 46 percent during 1974.

The present portfolio is considered relatively conservative with 41 percent of the present market value in corporate bonds, convertible bonds, and cash. Several of the bonds are medium-term discount bonds that provide a yield to maturity of about 10 percent. The equities are concentrated in data processing and certain other stocks that appear to offer above average growth potential. Because of the depressed and sometimes erratic nature of both the stock market and of economic prospects, these holdings will be reviewed periodically.

This report for 1974 was prepared by the 1975 committee. We wish to acknowledge the debt of the Society to the three retiring committee members, H. S. Yoder, Jr., Daniel E. Appleman, and Philip M. Bethke, who were primarily responsible for the reorganization of investment procedures described herein.

Respectfully submitted,  
 S. W. BAILEY, *Chairman*  
 LARRY W. FINGER  
 GEORGE W. FISHER, *Treasurer*  
 WILLIAM C. KELLY  
 ELBURT F. OSBORN  
 PRIESTLEY TOULMIN, 3RD

### Report of the Editor for 1974

The Editor is pleased to report that there was no backlog of papers awaiting publication at any time during 1974. Papers that had passed our review process and were ready for publication were submitted to the printer for whatever issue was then in preparation. All 1974 issues were published and mailed in 1974, the former delays of the November-December issues having been eliminated by preparing the annual index in the Editorial Office. Work continues on the Decennial Index (1966-1975), which should be ready for publication before the end of 1975.

By action of the 1974 Council, our Business Office will act as our own depository for such extensive data

tables as author and Editor agree are best not printed along with the article.

It is with regret that the Editor announces his resignation, effective in late 1975. It has been a privilege to act as Editor, but the lure of participating more actively in research and writing of my own choosing has proved too much. The term has been marked by relative smoothness, for which I must thank both the editors that preceded me, and in particular those who have worked so hard (and without recompense) as Associate Editors. These include Robert E. Newnham, Hugo Steinfink, Paul H. Ribbe, J. Jeffrey Fawcett, Arden L. Albee, William B. White, Arthur Boettcher, Wayne A. Dollase, Charles T. Prewitt, Priestley Toulmin, James R. Craig, J. J. Finney, William D. Johns, Jen-Ho Fang, and Charles T. Burnham. I have also benefited greatly from suggestions made to me by Secretary Clark and Treasurers Bethke and Fisher, members of the various Councils of the Society, and those readers whose interest in *The American Mineralogist* prompted them to write.

Mary Holliman has served effectively as the Managing Editor, and the job would not have been possible for me without her. My secretary Vera Good has developed considerable skill in reorganizing and retyping author-submitted tables, and has thus contributed to the general improvement of the published

### Status of Manuscripts, 1974

	Major MSS*	Notes**	Abstr.	Book Reviews	Total MSS
STATUS, January 1, 1974					
In press (58, 11-12; 59, 1-4)	54	38	30	25	92
Accepted, awaiting press					10
MSS in process					
Editorial Office					0
Associate Editors, Referees, Authors					110
Total MSS on hand					120
OPERATIONS, January 1 to December 31, 1974					
Published <sup>†</sup> (58, 11-12; 59, 1-12)	152	50	57	63	202
Sent to Press (59, 5-12; 60, 1-4)	134	34	27	65	168
Received					219
Accepted					163
Rejected or Withdrawn					51
STATUS, December 31, 1974					
In press (60, 1-4)	36 <sup>††</sup>	17	--	17	53
Accepted, awaiting press					19
MSS in process					
Editorial Office					0
Associate Editors, Referees, Authors					112
Total MSS on hand					131

\* Includes Indexes for 1974 and 1975.

\*\* Includes Awards, Memorials, Errata, Proceedings, Reports, Instructions to Authors.

† Note that this year all the 1974 numbers were completed and mailed in 1974.

†† Includes one paper withdrawn by authors.

tables. To Wen Huang and Maureen Foulds goes much of the credit for the development and preparation of the Indexes, and to Andrea Ross for the accuracy of the one for 1974. Dave Wilson, Jr., and Butch Burton of the William Byrd Press, and the staff of our Business Office in Washington, have been helpful at all times.

Although the number of journals which publish papers without review has increased, *The American Mineralogist* continues its tradition of at least two careful reviews of each manuscript. Those persons who have graciously reviewed manuscripts during 1974 at the request of the Editor or of the Associate Editors include:

### 1974 Referees

- |                    |                      |                        |                      |
|--------------------|----------------------|------------------------|----------------------|
| Sidney C. Abrahams | Robert Coe           | Henry Hall             | J. G. Liou           |
| Arden L. Albee     | A. J. Cohen          | Martha Hamil           | Gary Lofgren         |
| G. M. Anderson     | A. F. Cooper         | Moyle Harward          | T. P. Loomis         |
| J. W. Anthony      | J. M. Cowley         | R. L. Hay              | S. Luddington        |
| Daniel E. Appleman | James R. Craig       | Carter Hearn           | J. A. Mandarino      |
| Joel Arem          | G. K. Czamanske      | E. W. Heinrich         | P. G. Manning        |
| S. W. Bailey       | H. W. Day            | Rosalind Helz          | Robert H. Mariner    |
| Anatoli Baktin     | W. H. Dennen         | Bruce Hemingway        | R. F. Martin         |
| G. Bancroft        | George Desborough    | Donald M. Henderson    | Brian Mason          |
| P. B. Barton       | F. Dickson           | Roger H. Hewins        | Robert McCallister   |
| Louis J. Basile    | John Dillard         | David A. Hewitt        | J. McCarthy          |
| Werner H. Baur     | Robert T. Dodd       | H. D. Holland          | Duncan McConnell     |
| Peter Bayliss      | Wayne A. Dollase     | John R. Hollen         | Alex C. McLaren      |
| A. D. Beck         | R. Doman             | Lincoln Hollister      | W. J. McLean         |
| Melvin H. Beeson   | J. D. H. Donnay      | John Holloway          | E. P. Meagher        |
| Peter M. Bell      | Eric Dowty           | William T. Holser      | Henry O. A. Meyer    |
| A. E. Bence        | Gary Ernst           | Arthur Howland         | Gary D. Millhollen   |
| J. H. Berg         | Bernard Evans        | Hans G. Huckenholz     | Paul B. Moore        |
| Robert Berner      | Howard T. Evans, Jr. | J. Stephen Huebner     | S. A. Morse          |
| A. E. Beswick      | Jen Ho Fang          | Jack Huencke           | J. L. Munoz          |
| Philip M. Bethke   | Victor C. Farmer     | C. S. Hurlbut, Jr.     | Robert Newnham       |
| A. L. Boettcher    | George T. Faust      | Earl Ingerson          | Gary Novak           |
| Bruce Bohor        | J. Jeffrey Fawcett   | Jun Ito                | W. Nowacki           |
| Iris Y. Borg       | Gordon Faye          | Dale Jackson           | Edward W. Nuffield   |
| Michael Bown       | Larry Finger         | M. L. Jackson          | Yoshi Ohashi         |
| William F. Bradley | J. J. Finney         | John Jamieson          | Peter Okamura        |
| Steven A. Brawer   | A. G. Fischer        | William D. Johns       | Adolf Pabst          |
| P. R. Brett        | D. W. Fischer        | W. T. Jolly            | Norman J. Page       |
| Owen Bricker       | J. R. Fisher         | J. B. Jones            | James J. Papike      |
| George W. Brindley | Michael E. Fleet     | R. E. Jones            | R. B. Parker         |
| Bruce E. Brown     | Michael Fleischer    | Barclay Kamb           | M. W. Phillips       |
| Gordon E. Brown    | F. F. Foit           | K. Kase                | A. Piwinski          |
| Glen R. Buckley    | R. Fournier          | Miriam Kastner         | Robert W. Potter, II |
| Martin J. Buerger  | Carl Francis         | Klaus Keil             | Dean C. Presnall     |
| Charles W. Burnham | W. P. Freeborn       | Derrill M. Kerrick     | Charles T. Prewitt   |
| Roger G. Burns     | Clifford Frondel     | S. E. Kesler           | Martin Pring         |
| R. C. Burruss      | R. M. Garrels        | Aijaz A. Khan          | P. Raitain           |
| L. J. Cabri        | E. Ghent             | Cornelis Klein         | V. Radcliffe         |
| S. E. Calvert      | Subrata Ghose        | J. A. Kohn             | V. Rajamani          |
| E. Cameron         | G. V. Gibbs          | J. A. Konnert          | Arthur L. Reesman    |
| K. L. Cameron      | R. F. Giese, Jr.     | Otto C. Kopp           | Robert C. Reynolds   |
| A. B. Carpenter    | R. Gooley            | A. F. Koster van Groos | Paul H. Ribbe        |
| P. Černý           | Donald L. Graf       | A. Kostiner            | Paul D. Robinson     |
| Pamela Champness   | Timothy L. Grove     | R. Kretz               | Peter Robinson       |
| E. T. C. Chao      | H. D. Grundy         | Gunnar Kullerud        | Edwin W. Roedder     |
| A. H. Chidester    | A. J. Gude           | George Lager           | G. W. Roland         |
| C. L. Christ       | Stefan Hafner        | D. M. Lapham           | S. Romberger         |
| John M. Christie   | Stephen Haggerty     | Gerhard Lehmann        | A. Rosenzweig        |
| Joan R. Clark      | E. Haines            | D. H. Lindsley         | Malcolm Ross         |

George R. Rossman  
J. D. Rucklidge  
Douglas Rumble  
Malcolm J. Rutherford  
M. Sato  
Surrendra Saxena  
J. Schlenker  
Cecil J. Schneer  
Robert N. Schock  
S. D. Scott  
Thomas J. Shankland  
Robert Shannon  
B. J. Skinner  
George G. Skippen

Maynard Slaughter  
D. W. G. Smith  
Deane Smith  
Douglas Smith  
Joseph R. Smyth  
Karl E. Spear  
James Steele  
David B. Stewart  
Robert Stull  
P. Tarte  
L. A. Taylor  
Rodney Tettenhorst  
Thomas P. Thayer  
Alan B. Thompson

James B. Thompson, Jr.  
Jack Tossel  
Priestley Toulmin, III  
D. R. Uhlman  
Gene C. Ulmer  
David Vaughan  
David Virgo  
Ernest E. Wahlstrom  
David R. Waldbaum  
D. Walker  
D. H. Watkinson  
Glen Waychunas  
Charles Weaver  
A. F. Wells

Eugene White  
J. L. White  
William B. White  
Ray Wilcox  
Thomas Wildman  
R. W. T. Wilkins  
S. A. Williams  
C. Wroe Wolfe  
Michael Wood  
G. Woodsworth  
Thomas Wright  
Bernard J. Wuensch  
E-an Zen

## List of Former Officers and Meeting Places

### Honorary Presidents

Edward S. Dana 1925–1935  
Charles Palache 1949–1954  
Edward H. Kraus 1955–1973  
Edgar T. Wherry 1974–

### Presidents

1920 Edward H. Kraus	1934 John E. Wolff	1948 M. A. Peacock	1962 Ian Campbell
1921 Charles Palache	1935 Clarence S. Ross	1949 John W. Gruner	1963 C. S. Hurlbut, Jr.
1922 Thomas L. Walker	1936 William S. Bayley	1950 George Tunell	1964 Leonard G. Berry
1923 Edgar T. Wherry	1937 Norman L. Bowen	1951 A. Pabst	1965 George T. Faust
1924 Henry S. Washington	1938 Ellis Thomson	1952 Michael Fleischer	1966 Brian H. Mason
1925 Arthur S. Eakle	1939 Max N. Short	1953 J. D. H. Donnay	1967 Felix Chayes
1926 Waldemar T. Schaller	1940 William F. Foshag	1954 Sterling B. Hendricks	1968 James B. Thompson
1927 Austin F. Rogers	1941 Frederick E. Wright	1955 Harry H. Hess	1969 Francis J. Turner
1928 Esper S. Larsen	1942 Arthur F. Buddington	1956 Clifford Frondel	1970 William F. Bradley
1929 Arthur L. Parsons	1943 John F. Schairer	1957 D. Jerome Fisher	1971 Julian R. Goldsmith
1930 Herbert E. Merwin	1944 R. C. Emmons	1958 George E. Goodspeed	1972 Hatten S. Yoder, Jr.
1931 Alexander H. Phillips	1945 Kenneth K. Landes	1959 Ralph E. Grim	1973 Joseph V. Smith
1932 Alexander N. Winchell	1946 Paul F. Kerr	1960 Joseph Murdoch	1974 S. W. Bailey
1933 Herbert P. Whitlock	1947 M. J. Buerger	1961 E. F. Ósborn	

### Vice Presidents

1920 Thomas L. Walker	1934 William A. Tarr	1948 A. Pabst	1962 C. S. Hurlbut, Jr.
1921 Waldemar T. Schaller	1935 Ellis Thomson	1949 J. D. H. Donnay	1963 Leonard G. Berry
1922 Frederick A. Canfield	1936 Harold L. Alling	1950 Ralph E. Grim	1964 George T. Faust
1923 George F. Kunz	1937 H. V. Ellsworth	1951 Michael Fleischer	1965 Brian H. Mason
1924 Washington A. Roebbling	1938 Kenneth K. Landes	1952 J. D. H. Donnay	1966 Felix Chayes
1925 Herbert P. Whitlock	1939 Burnham S. Colburn	1953 Sterling B. Hendricks	1967 James B. Thompson
1926 George Vaux, Jr.	1940 Ian Campbell	1954 Harry H. Hess	1968 Francis J. Turner
1927 George L. English	1941 William J. McCaughey	1955 Clifford Frondel	1969 William F. Bradley
1928 Lazard Cahn	1942 Martin J. Buerger	1956 D. Jerome Fisher	1970 Julian R. Goldsmith
1929 Edward Wigglesworth	1943 John W. Gruner	1957 George E. Goodspeed	1971 Hatten S. Yoder, Jr.
1930 John E. Wolff	1944 Harry Berman	1958 Ralph E. Grim	1972 Joseph V. Smith
1931 William F. Foshag	1945 George Tunell	1959 Joseph Murdoch	1973 S. W. Bailey
1932 Joseph L. Gillson	1946 S. B. Hendricks	1960 E. F. Osborn	1974 Arnulf Muan
1933 Frank B. Guild	1947 Carl Tolman	1961 Ian Campbell	

### Secretaries

1920–1922 Herbert P. Whitlock  
1923–1933 Frank R. Van Horn  
1933–1934 Albert B. Peck  
1934–1944 Paul F. Kerr  
1944–1959 C. S. Hurlbut, Jr.  
1959–1966 George Switzer  
1966–1969 Ralph J. Holmes  
1970–1971 Arnulf Muan  
1972– Joan R. Clark

### Treasurers

1920–1923 Albert B. Peck  
1924–1929 Alexander H. Phillips  
1929–1930 Albert B. Peck  
1930–1940 Waldemar T. Schaller  
1941–1958 Earl Ingerson  
1958–1968 Marjorie Hooker  
1969–1972 Alvin Van Valkenburg, Jr.  
1973–1974 Philip M. Bethke  
1975– George W. Fisher

### Editors

1920–1921 Edgar T. Wherry  
1922–1956 Walter F. Hunt  
1957–1961 Lewis S. Ramsdell  
1961–1966 E. Wm. Heinrich  
1966–1972 William T. Holser  
1972– F. Donald Bloss

PROCEEDINGS

Councilors

- 1920 Arthur S. Eakle, Frank R. Van Horn, Frederick E. Wright, Alexander H. Phillips.
- 1921 Frank R. Van Horn, Frederick E. Wright, Alexander H. Phillips, Austin F. Rogers.
- 1922 Frederick E. Wright, Alexander H. Phillips, Austin F. Rogers, Thomas L. Watson.
- 1923 Alexander H. Phillips, Austin F. Rogers, Thomas L. Watson, Esper S. Larsen.
- 1924 Austin F. Rogers, Thomas L. Watson, Esper S. Larsen, Arthur L. Parsons.
- 1925 Thomas L. Watson, Esper S. Larsen, Arthur L. Parsons, William F. Foshag.
- 1926 Esper S. Larsen, Arthur L. Parsons, William F. Foshag, William A. Tarr.
- 1927 Arthur L. Parsons, William F. Foshag, William A. Tarr, Alexander N. Winchell.
- 1928 William F. Foshag, William A. Tarr, Alexander N. Winchell, Ellis Thomson.
- 1929 William A. Tarr, Alexander N. Winchell, Ellis Thomson, Clarence S. Ross.
- 1930 Alexander N. Winchell, Ellis Thomson, Clarence S. Ross, Paul F. Kerr.
- 1931 Ellis Thomson, Clarence S. Ross, Paul F. Kerr, William S. Bayley.
- 1932 Clarence S. Ross, Paul F. Kerr, William S. Bayley, William J. McCaughey.
- 1933 Paul F. Kerr, William S. Bayley, William J. McCaughey, Kenneth K. Landes.
- 1934 William S. Bayley, William J. McCaughey, Kenneth K. Landes, E. P. Henderson.
- 1935 William J. McCaughey, Kenneth K. Landes, E. P. Henderson, J. F. Schairer.
- 1936 Kenneth K. Landes, E. P. Henderson, J. F. Schairer, Arthur F. Buddington.
- 1937 E. P. Henderson, J. F. Schairer, Arthur F. Buddington, Arthur P. Honess.
- 1938 J. F. Schairer, Arthur F. Buddington, Arthur P. Honess, R. C. Emmons.
- 1939 Arthur F. Buddington, Arthur P. Honess, R. C. Emmons, Carl Tolman.
- 1940 Arthur P. Honess, R. C. Emmons, Carl Tolman, D. Jerome Fisher.
- 1941 R. C. Emmons, Carl Tolman, D. Jerome Fisher, Martin A. Peacock.
- 1942 Carl Tolman, D. Jerome Fisher, Martin A. Peacock, Adolf Pabst.
- 1943 D. Jerome Fisher, Martin A. Peacock, Adolf Pabst, C. S. Hurlbut, Jr.
- 1944 Martin A. Peacock, Adolf Pabst, Michael Fleischer, S. J. Shand.
- 1945 Adolf Pabst, Michael Fleischer, S. J. Shand, R. E. Grim.
- 1946 Michael Fleischer, S. J. Shand, R. E. Grim, Joseph Murdoch.
- 1947 S. J. Shand, R. E. Grim, Joseph Murdoch, H. H. Hess.
- 1948 R. E. Grim, Joseph Murdoch, H. H. Hess, Clifford Frondel.
- 1949 Joseph Murdoch, H. H. Hess, Clifford Frondel, Lewis S. Ramsdell.
- 1950 H. H. Hess, Clifford Frondel, Lewis S. Ramsdell, E. F. Osborn.
- 1951 Clifford Frondel, Lewis S. Ramsdell, E. F. Osborn, George T. Faust.
- 1952 Lewis S. Ramsdell, E. F. Osborn, George T. Faust, Victor T. Allen.
- 1953 E. F. Osborn, George T. Faust, Victor T. Allen, C. Osborne Hutton.
- 1954 George T. Faust, Victor T. Allen, C. Osborne Hutton, Felix Chayes.
- 1955 Victor T. Allen, C. Osborne Hutton, Felix Chayes, L. G. Berry.
- 1956 C. Osborne Hutton, Felix Chayes, L. G. Berry, C. B. Slawson, A. O. Woodford.
- 1957 Felix Chayes, L. G. Berry, C. B. Slawson, A. O. Woodford, S. S. Goldich.
- 1958 L. G. Berry, C. B. Slawson, A. O. Woodford, S. S. Goldich, B. H. Mason, R. H. Jahns, C. Milton.
- 1959 S. S. Goldich, B. H. Mason, R. H. Jahns, C. Milton, W. R. Foster, E. W. Nuffield.
- 1960 R. H. Jahns, C. Milton, W. R. Foster, E. W. Nuffield, J. R. Goldsmith, Horace Winchell.
- 1961 W. R. Foster, E. W. Nuffield, J. R. Goldsmith, Horace Winchell, R. M. Garrels, O. F. Tuttle.
- 1962 J. R. Goldsmith, Horace Winchell, R. M. Garrels, O. F. Tuttle, Francis J. Turner, Hatten S. Yoder, Jr.
- 1963 R. M. Garrels, O. F. Tuttle, Francis J. Turner, Hatten S. Yoder, Jr., W. F. Bradley, Howard T. Evans, Jr.
- 1964 Francis J. Turner, Hatten S. Yoder, Jr., W. F. Bradley, Howard T. Evans, Jr., Harold L. James, Joseph V. Smith.
- 1965 W. F. Bradley, Howard T. Evans, Jr., Harold L. James, Joseph V. Smith, William T. Pecora, William S. Fyfe, Walter D. Keller.
- 1966 Harold L. James, Joseph V. Smith, William S. Fyfe, Walter D. Keller, Eugene N. Cameron, William S. MacKenzie.
- 1967 Eugene N. Cameron, Robert G. Coleman, William S. Fyfe, Donald L. Graf, Walter D. Keller, William S. MacKenzie.
- 1968 F. Donald Bloss, Eugene N. Cameron, Charles L. Christ, Robert G. Coleman, Donald L. Graf, William S. MacKenzie.
- 1969 Robert G. Coleman, Donald L. Graf, F. Donald Bloss, Charles L. Christ, W. Gary Ernst, Gunnar Kullerud.
- 1970 F. Donald Bloss, Charles L. Christ, W. Gary Ernst, Gunnar Kullerud, David R. Wones, Peter J. Wyllie.
- 1971 W. Gary Ernst, Gunnar Kullerud, David R. Wones, Peter J. Wyllie, Sturges W. Bailey, George Switzer.
- 1972 David R. Wones, Peter J. Wyllie, Sturges W. Bailey, George Switzer, George W. Brindley, Edwin Roedder.
- 1973 Donald H. Lindsley, George Switzer, George W. Brindley, Edwin Roedder, Daniel E. Appelman, David B. Stewart.
- 1974 George W. Brindley, Edwin Roedder, Daniel E. Appelman, David B. Stewart, Arthur L. Boettcher, Philip M. Orville.

**Annual Meeting Places**

1920 Chicago, Illinois	1939 Minneapolis, Minnesota	1958 St. Louis, Missouri
1921 Amherst, Massachusetts	1940 Austin, Texas	1959 Pittsburgh, Pennsylvania
1922 Ann Arbor, Michigan	1941 Boston, Massachusetts	1960 Denver, Colorado
1923 Washington, D. C.	1942 No meeting held	1961 Cincinnati, Ohio
1924 Ithaca, New York	1943 No meeting held	1962 Houston, Texas
1925 New Haven, Connecticut	1944 No meeting held	1963 New York, New York
1926 Madison, Wisconsin	1945 Pittsburgh, Pennsylvania	1964 Miami Beach, Florida
1927 Cleveland, Ohio	1946 Chicago, Illinois	1965 Kansas City, Missouri
1928 New York, New York	1947 Ottawa, Canada	1966 San Francisco, California
1929 Washington, D. C.	1948 New York, New York	1967 New Orleans, Louisiana
1930 Toronto, Canada	1949 El Paso, Texas	1968 Mexico City, Mexico
1931 Tulsa, Oklahoma	1950 Washington, D. C.	1969 Atlantic City, New Jersey
1932 Cambridge, Massachusetts	1951 Detroit, Michigan	1970 Milwaukee, Wisconsin
1933 Chicago, Illinois	1952 Boston, Massachusetts	1971 Washington, D. C.
1934 Rochester, New York	1953 Toronto, Canada	1972 Minneapolis, Minnesota
1935 New York, New York	1954 Los Angeles, California	1973 Dallas, Texas
1936 Cincinnati, Ohio	1955 New Orleans, Louisiana	1974 Miami Beach, Florida
1937 Washington, D. C.	1956 Minneapolis, Minnesota	
1938 New York, New York	1957 Atlantic City, New Jersey	

**Recipients of the Roebling Medal**

1937 Charles Palache	1953 William F. Foshag	1964 Clifford Frondel
1938 Waldemar T. Schaller	1954 Cecil Edgar Tilley	1965 Adolf Pabst
1940 Leonard James Spencer	1955 Alexander N. Winchell	1966 Max H. Hey
1941 Esper S. Larsen, Jr.	1956 Arthur F. Buddington	1967 Linus Pauling
1945 Edward H. Kraus	1957 Walter F. Hunt	1968 Tei-ichi Ito
1946 Clarence S. Ross	1958 Martin J. Buerger	1969 Fritz Laves
1947 Paul Niggli	1959 Felix Machatschki	1970 George W. Brindley
1948 William Lawrence Bragg	1960 Tom F. W. Barth	1971 J. D. H. Donnay
1949 Herbert E. Merwin	1961 Paul Ramdohr	1972 Elburt F. Osborn
1950 Norman L. Bowen	1962 John W. Gruner	1973 George Tunell
1952 Frederick E. Wright	1963 John Frank Schairer	1974 Ralph E. Grim

**Recipients of the Mineralogical Society of America Award**

1951 Orville F. Tuttle	1959 Harry F. W. Taylor	1967 Alfred E. Ringwood
1952 Frederick H. Stewart	1960 Donald L. Graf	1968 Barclay Kamb
1953 L. H. Ahrens	1961 Joseph V. Smith	1969 W. Gary Ernst
1954 Hatten S. Yoder, Jr.	1962 Douglas S. Coombs	1970 Bernard W. Evans
1955 Julian R. Goldsmith	1963 Nobuo Morimoto	1971 Robert A. Berner
1956 George C. Kennedy	1964 William S. Fyfe	1972 Arthur L. Boettcher
1957 Rustum Roy	1965 Peter J. Wyllie	1973 Paul Brian Moore
1958 Charles E. Weaver	1966 David B. Stewart	1974 James J. Papike