

## Proceedings of the Fifty-Sixth Annual Meeting of the Mineralogical Society of America in Salt Lake City, Utah

LARRY W. FINGER, SECRETARY

The fifty-sixth annual meeting of the Society was held on October 20-22, 1975, at the Salt Palace and the Salt Lake Hilton in Salt Lake City, Utah. There were three technical sessions in mineralogy, four in petrology, and a symposium, "Minerals and Rocks Under High Pressure," arranged by Subrata Ghose. The sessions were integrated with those of the Geological Society of America and its other affiliated societies.

The retiring President, Arnulf Muan, addressed the Society on the morning of October 21st on the subject "Mineral equilibria in an interdisciplinary perspective."<sup>1</sup> The annual luncheon of the Society was held in the Seasons North Room of the Salt Lake Hilton on October 21st. Roebling Medals were awarded to Michael Fleischer, who was introduced by F. Earl Ingerson, and to O. Frank Tuttle, who was introduced by Elburt F. Osborn. Unfortunately, Professor Tuttle's health did not permit him to be present at the luncheon. The Mineralogical Society of America Award was given to Roger G. Burns, who was introduced by William S. Fyfe.

The annual business meeting of the Society was held on the morning of October 21st in the Salt Palace. Reports were presented by the Secretary, the Treasurer, and the Editor of *The American Mineralogist*. The results of the election and the subject of the next Short Course were announced.

Prior to the meeting, a Short Course on Feldspar Mineralogy, organized by Paul H. Ribbe, was held at the Hotel Utah in Salt Lake City, October 17-19, with 95 people in attendance. The lecturers were Paul H. Ribbe, Joseph V. Smith, David B. Stewart, and Richard A. Yund. The lecture notes were incorporated into a paperbound volume, *Feldspar Mineralogy*, which was on sale at the Society's booth in the exhibit area. This volume and the previous year's volume on *Sulfide Mineralogy* are available from the Business Office at \$5.00 each.

### Council actions

The second meeting of the 1975 Council was held on April 12, 1975, at the Business Office. The third

meeting was held on October 19 at the Tri-Arc Travelodge in Salt Lake City, Utah. The principal actions taken by the Council at these two meetings are summarized here.

### Awards

The Council voted to award the Roebling Medal for 1976 to Carl W. Correns. The Mineralogical Society of America Award for 1976 will be given to Friedrich A. Seifert.

### Nominations of officers for 1977

The following slate of elective officers for 1977, based on recommendations from the Nominating Committee for Officers (Gordon E. Brown, Chairman) was chosen by the Council and will appear on the ballot in September, 1976.

*President*—F. Donald Bloss, Virginia Polytechnic Institute and State University

*Vice-President*—P. J. Wyllie, University of Chicago

*Secretary*—Not on the 1977 ballot

*Treasurer*—Malcolm Ross, U. S. Geological Survey  
*Councilors (1977-79)*—Two of the four to be elected:

Arden Albee, California Institute of Technology  
Subrata Ghose, University of Washington

Gerald V. Gibbs, Virginia Polytechnic Institute and State University

Paul B. Moore, University of Chicago

### Fellowship

The Council elected 12 members to Fellowship, based on the recommendations of the Nominating Committee for Fellows (Robert Newnham, Chairman). The new fellows are:

Theodore Bunch

John C. Butler

Robert T. Dodd, Jr.

Liberto de Pablo Galan

John M. Guilbert

Donald C. Harris

L. J. Patrick Muffler

Norman J. Page

Michael Seal

Thomas P. Thayer

Slade Saint-John Warne

Richard J. Williams

<sup>1</sup> See this issue, pages 355-365.

*Agreement with MSGBI*

The Council discussed the draft of the agreement with the Mineralogical Society of Great Britain and Ireland regarding the joint ownership of *Mineralogical Abstracts*. The Council discussed various possible revisions to this document and requested the incoming President, E-an Zen, to continue negotiations with MSGBI.

*Waldbaum Conference*

The Council passed the following: "Resolved: That the Council of the Mineralogical Society of America expresses the great appreciation of the Society to James B. Thompson, Jr. and Alan B. Thompson for their outstanding organization and scientific direction of the excellent and successful Gordon Research Conference on Thermodynamics in Petrology dedicated to the late David R. Waldbaum and honoring Clark C. Stephenson."

*Short Course*

The Council voted to endorse the proposal for a Short Course on Opaque, Rock-forming Oxide Minerals to be held at the Denver meeting, with Douglas Rumble III as the Short Course Convenor for 1976.

**Actions of the 1976 Council**

The first meeting of the 1976 Council was held on October 22, 1975, at the Salt Lake Hilton, Salt Lake City, Utah.

The Council unanimously appointed Brian Mason as Editor and Miss Ann Garlington as Managing Editor of *The American Mineralogist*.

*Committees*

The report of the Committee on Committees (E-an Zen, Chairman) was presented to the Council. After discussion and suggested changes, the list of appointments was approved.

*Spring meeting of the Council*

The 1976 Council will hold its second meeting at the Sheraton Park Hotel on April 11, 1976.

**Report of the Secretary for 1975***Results of the election*

The ballots were again counted by computer. Those elected were as follows:

*President*—E-an Zen (1976)

*Vice-President*—F. D. Bloss (1976)

*Secretary*—Larry W. Finger (1976–77)

*Councilors*—Ian D. MacGregor (1976–78)

Charles T. Prewitt (1976–78)

*Membership statistics*

As of September 1, 1975, there were 2,384 members, divided as follows: Members, 1,396; Student Members, 413; Fellows, 566; and Honorary Fellows, 9.

*Necrology*

The Society lost its former President and Roebling Medalist, Clarence Samuel Ross. Others who have died since the last report are listed below:

Walter C. Allen  
George Baker  
Wilbur S. Burbank  
Frank Cuttitta  
R. D. DeRudder  
Philip C. Foster  
Marcel Gysin  
John B. Hanley  
Walter F. Hunt  
J. Harlan Johnson

C. W. Lamont  
Davis M. Lapham  
William Lodding  
Robert L. Parker  
Lewis S. Ramsdell  
Charles I. Rich  
Karl Schwartzwalder  
Clinton E. Trimble  
Gilbert A. Wehr

*Honorary President*

A special scroll was prepared for Edgar T. Wherry to commemorate his appointment as Honorary President. The scroll was presented to him personally by the President on June 26, 1975. The text of the scroll was as follows: *The Mineralogical Society of America honors its Founder and Life Fellow, Edgar Theodore Wherry, by appointment for life as Honorary President from 1975 in grateful recognition of his numerous distinguished contributions to the mineralogical sciences* (signed by the President and the Secretary). A basket of fruit was sent to Professor Wherry for his 90th birthday September, 10, 1975.

*Directory*

A 1975 Directory of the membership, listed both alphabetically and geographically, was prepared from the computer-maintained roster under the supervision of Patricia Streb. The proof was checked insofar as possible by myself and (above and beyond the call of duty) E-an Zen, and the Directory was distributed to all members with Newsletter No. 5 in June, 1975. I thank the members who then took the time to notify us of errors they discovered; this help is invaluable and is greatly appreciated.

### Meeting announcements

For the first time in the past four years, two mailings about the annual meeting went to our members. Included with Newsletter No. 5 to all members were preliminary announcements of both the Salt Lake City and the Tucson meetings. A second special mailing, to U.S.A. and Canadian members only, contained the Geological Society of America pre-registration brochure plus a complete schedule of MSA events and titles for all MSA technical sessions, a pre-registration form for the Short Course on Feldspars, and a pre-registration form for the Tucson meeting. Hopefully this service for our members, made possible by the cooperation of the Geological Society of America in supplying negatives of its announcements, of our Representative to the GSA Joint Technical Program Committee, Daniel S. Barker, of our Short Course Organizer, Paul H. Ribbe, and of our Representative to Friends of Mineralogy, Paul B. Moore, can be continued in future years.

### Farewell

During my two terms as Secretary, it has been a privilege and a pleasure to work with so many wonderful people on behalf of the mineralogical sciences. Many have generously helped with problems and daily chores, far too many for me to acknowledge each one individually. However, I do want to mention these members of the Business Office staff who have been a strong right arm for the Secretary: Cynthia Beadling, Ellen Czerwenka, and Patricia Streb. My sincere thanks go to them as well as each and every one of all the others.

JOAN R. CLARK  
Secretary

### Report of the Treasurer for 1975

This report covers the period January 1, 1975, through December 31, 1975, denoted FY 1975. During this period, accounting was done on the accrual basis, and the figures presented are therefore comparable with those for FY 1973 and FY 1974. They are not directly comparable with those for preceding years, when accounting was on a modified cash basis. The figures have been audited by Touche, Ross and Company, and, in their opinion, present a fair picture of the Society's financial position. A copy of the full audit report is on file at the Society's business office, at 1909 K Street, NW, Washington, D.C., 20006, and is available for inspection by any member who wishes to do so.

The financial data for the period covered are pre-

sented in Tables 1 (Combined Balance Sheet) and 2 (Statement of Income and Expense, FY 1975). Both tables are basically similar to those presented last year. The only substantive change in the Balance Sheet reflects transfer of our investment portfolio from Ruane, Cuniff and Stires to Stires and Company, Inc. The format of the Statement of Income and Expense is also basically similar to that of last year's report. Once again, the Society experienced a net gain on its operations. It should be noted, however, that the gain was due entirely to the extraordinarily strong performance of the Society's investment portfolio. Without this additional income, the Society would probably have incurred a small deficit. This income is, of course, extremely vulnerable to fluctuations in general economic conditions, and we cannot assume that income in this amount will continue to be available; accordingly, the M.S.A. Council has begun to consider options available to us if financial conditions should worsen.

I am particularly gratified to report the increase in activity of the Revolving Fund, due largely to the Society's program of Short Courses, and sales of Short Course Notes. This program is clearly financially sound, as well as scientifically valuable.

At present, the Society's financial condition appears sound, and we appear to be in a good position to weather whatever financial difficulties the next years may offer.

TABLE 1. Mineralogical Society of America balance sheet

	Dec. 31, 1974	Dec. 31, 1975
<i>Current Assets:</i>		
Cash - Checking Accounts	\$ 45,620	\$ 51,751
Cash - Savings Accounts	18,612	11,942
Investments - Stires & Co.	306,358	384,509
Investments - S. Cen. Bell Bond	4,977	4,977
Investments - Goodyear Stock	10,950	10,950
Receivables - Customers	17,221	10,681
Prepaid Expense	1,545	1,966
<b>Total Assets</b>	<b>\$405,283</b>	<b>\$476,776</b>
<i>Current Liabilities:</i>		
Accounts Payable - Trade	16,803	17,095
Mineralogical Abstracts	2,602	3,911
Other Payables	665	232
Prepaid Dues	27,589	27,302
Prepaid Subscriptions	45,079	44,587
<i>Funds:</i>		
Revolving Fund	2,045	6,192
Endowment Fund	259,652	312,842
Scholarship Fund	1,112	1,174
Membership Assistance Fund	5,370	5,782
Kraus Crystallographic Fund	12,985	13,546
<b>Total Liabilities</b>	<b>\$373,902</b>	<b>\$432,663</b>
<i>Capital:</i>		
Operating Reserve	31,381	44,113
<b>Total Liabilities &amp; Capital</b>	<b>\$405,283</b>	<b>\$476,776</b>

In closing, I would like to thank all with whom I have been associated for their help during my term as Treasurer. I especially thank Philip Bethke and Joan Clark for the gentle manner in which they introduced me to the job and Mrs. Juanita Barber and the entire Accounting Section at M.S.A. Headquarters for their fast, accurate, and friendly assistance.

GEORGE W. FISHER  
Treasurer

TABLE 2. Mineralogical Society of America statement of income and expense, FY 1975

	SOCIETY OPERA- TIONS	OPERATION OF AMERICAN MINERALOGIST	ENDOW- MENT FUND	REVOLV- ING FUND	SCHOLAR- SHIP FUND	KRAUS CRYSTALLO- GRAPHIC FUND	MEMBERSHIP ASSISTANCE FUND
<b>INCOME:</b>							
Member & Fellow Dues	40,068						
Student Dues	2,704						
Back Dues	292						
Life Memberships			800				
Long Term Investments	21,419		55,680	944	108	440	413
Savings & Short Term Invest.	769					121	
Sale of Publications		68,381		11,552			
Page Charges		17,226					
Reprints		6,466					
Back Issue Sales		2,929					
Royalties		326					
Author Alteration Charges		862					
Advertisements		2,827					
Mailing List Sales	499						
Contributions			750		954		
Miscellaneous	1,648	107					
Short Course Registration				5,136			
<b>TOTAL INCOME</b>	<b>67,399</b>	<b>99,124</b>	<b>57,230</b>	<b>17,632</b>	<b>1,062</b>	<b>561</b>	<b>413</b>
<b>EXPENSES:</b>							
<b>Direct Costs:<sup>a</sup></b>							
Annual Meetings	582						
Dues & Contributions <sup>b</sup>	3,150						
Awards	1,386				1,000		
Editorial Office		22,784					
Publications Costs	3,254	79,899		4,334			
Storage & Handling		922		1,128			
Reprints		6,596					
Office Expense <sup>c</sup>		5,840					
Life Membership Dues			4,040				
Public Relations	1,597						
Short Course Admin..				5,587			
<b>Total Direct Costs</b>	<b>9,969</b>	<b>116,041</b>	<b>4,040</b>	<b>11,049</b>	<b>1,000</b>	<b>0</b>	<b>0</b>
<b>Indirect Costs:<sup>a</sup></b>							
Council Meetings	2,206						
Salaries	15,343						
Postage & Telephone	2,761						
Computer	1,887						
Services & Supplies	4,361						
Professional Services	850						
Travel & Official Expense	1,137						
Miscellaneous	1,672						
<b>Total Indirect Costs</b>	<b>30,217</b>						
Allocation of Indirect Costs <sup>a</sup>	(28,023)	25,587	0	2,436			
<b>TOTAL EXPENSE</b>	<b>12,163</b>	<b>141,628</b>	<b>4,040</b>	<b>13,485</b>	<b>1,000</b>	<b>0</b>	<b>0</b>
<b>MEMBER SUBSCRIPTION COST</b>	<b>(42,504)</b>	<b>42,504</b>					
<b>NET GAIN (LOSS)</b>	<b>12,732</b>		<b>53,190</b>	<b>4,147</b>	<b>62</b>	<b>561</b>	<b>413</b>

a) 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.

b) Dues and Contributions consist primarily of MSA dues to the American Geological Institute.

c) 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.

### Report of the Financial Advisory Committee for 1975

During 1975 the market value of the Mineralogical Society of America investment portfolio increased 22.9 percent from \$261,249 to \$320,977 (Table 1), and thereby regained the loss suffered in 1974. The common stock portion of the portfolio was increased gradually during the year from 57.8 percent of the total on a cost basis at the start of the year to 77.3 percent at the end, and the market value of the common stocks increased from \$154,365 to \$235,686 during this period. Capital gains totalled \$54,189, primarily in MCA and in Moore McCormack Resources (Table 2). Dividends and interest amounted to \$25,204 (Table 3). The latter figure is larger than normal as a result of a \$6,000 special dividend received from Electronic Data Systems.

Mr. Sidney H. Stires, who served as MSA investment manager during 1973-75, has resigned in order to concentrate on the production of research reports. He has been replaced by Mr. William G. Campbell of New York City. This committee agrees with Mr. Campbell that it is in the best long term interests of the Society to take a more conservative approach to the market in the future so that our recent gains can be consolidated. We are concerned that the market valuation of Table 1, although representing the largest year-end total in MSA history, actually has declined considerably in the past six months and is now less than the cost value. We anticipate that Mr. Campbell will seek greater diversification than at present and will concentrate on the equities of companies that are well-established but

that still show the potential for continued growth and market leadership.

Respectfully submitted,

S. W. BAILEY, *Chairman*

LARRY W. FINGER

GEORGE W. FISHER, *Treasurer*

WILLIAM C. KELLY

ELBURT F. OSBORN

PRIESTLEY TOULMIN, 3RD

TABLE 2. Capital gains and losses for 1975

Portfolio	No. of Shares	Adjusted Cost	Gain or (Loss)
<b>Senior Securities</b>			
Amer. Tel. & Tel., 8.75%	17	\$ 1,719.16	\$ (70.16)
Ches. & Pot. Tel., 10.75%	200	19,675.14	(3,080.14)
Consol. Edison, 8.4%	300	26,175.00	(6,982.89)
Frontier Airlines, 6%	350	20,977.50	(1,086.25)
W. R. Grace & Co., 4.25%	100	6,550.00	(350.07)
Macy Credit Co., 4.75%	200	16,300.00	(1,100.31)
Northwest Ind., 7.5%	150	12,375.00	(1,228.75)
Tenneco, Inc. 6%	150	13,425.00	149.71
Western Union, 10.75%	500	36,950.00	1,549.84
<b>Common Stocks</b>			
Automatic Data Proc.	100	5,712.25	(1,211.85)
Control Data Corp.	500	7,890.01	307.86
Datapoint Corp.	300	7,575.00	(598.08)
Eltra Corp.	400	9,739.63	120.69
General Tire & Rubber Co.	700	10,301.96	660.30
MCA, Inc.	1,300	32,673.62	35,923.62
Moore McCormack Resources	500	9,393.71	26,876.88
Sealed Air Corp.	4,000	32,958.04	8,376.26
TI Corp.	500	7,269.23	866.85
John Wiley & Sons	500	6,562.50	664.05
Xerox Corp.	100	12,512.25	(5,598.12)
TOTALS		\$296,735.00	\$54,189.44

TABLE 3. Dividends and interest received in 1975

Portfolio	No. of Shares	Adjusted Cost	Market Value 12/31/75
<b>Senior Securities</b>			
Amer. Tel. & Tel., 8.75%		\$ 61.57	
Chesapeake & Potomac Tel., 7.75%		1,502.64	
Consolidated Edison, 8.4%		2,751.00	
Fedders Corp., conv. deb., 5% (int. due)		(275.27)	
Frontier Airlines, 6%		1,638.33	
Georgia Power Co., 7.625%		563.41	
W. R. Grace & Co., 4.25%		390.64	
Lykes Youngstown, 7.5%		200.00	
Macy Credit Corp., 4.75%		757.36	
Northwest Industries, 7.5%		1,018.75	
Tenneco, Inc., 6%		645.83	
Transcontinental Gas Pipeline, 4.875%		433.73	
Western Union, 10.75%		3,395.21	13,083.20
<b>Common Stocks</b>			
Automatic Data Processing		10.00	
Electronic Data Systems		8,225.00	
Eltra Corporation		325.00	
General Tire & Rubber Co.		1,750.54	
International Business Machines		500.00	
MCA, Inc.		650.00	
Moore McCormack Resources		350.00	
Sealed Air Corporation		265.00	
Xerox Corporation		50.00	12,120.54
TOTALS			\$25,203.74

TABLE 1. Endowment Fund, December 31, 1975

Portfolio	No. of Shares	Adjusted Cost	Market Value 12/31/75
<b>Senior Securities</b>			
Fedders Co. cv., 5%, 1996	500	\$19,547.00	\$19,750
Georgia Power, 7.625%, 2001	350	25,550.00	24,850
Lykes Youngstown, 7.5%, 1994	300	19,132.50	19,088
Transcont. Gas Pipeline, 4.875%, 1982	300	22,452.00	21,150
<b>Common Stocks</b>			
Electronic Data Systems	8,400	148,762.93	103,950
General Tire & Rubber Co.	2,000	29,434.16	36,250
International Bus. Mach.	85	19,424.86	19,061
Interpool Ltd.	4,600	65,521.34	44,850
Sealed Air Corp.	1,000	8,239.51	8,125
Transco Companies, Inc.	2,800	25,990.85	23,450
Cash Balance		452.82	453
TOTALS		\$384,508.47	\$320,977

### Report of the Editor for 1975

Of the papers received by the Editor between August 15 of the prior year to August 14 of the calendar year, those accepted usually constitute *The American Mineralogist* of that calendar year. So computed, 151 (66.8%) of 226 manuscripts received were accepted and printed in 1973, 155 (78.7%) of 197 in 1974, and 152 (72.4%) of 210 in 1975. For the three-year period this becomes 458 (72.4%) of 633.

To stay within the number of pages budgeted by Council for the 1975 volume of *The American Mineralogist*, 7 completed papers, although ready, were withheld from the November-December issue and will be sent to press for the January-February 1976 issue instead. Two other papers, also ready for press, await resolution of questions of nomenclature by the IMA Commission. This backlog of nine papers or approximately one-third of an issue proved temporary because the influx of papers, rapid during July, abated somewhat during August and September.

As I retire as Editor, I wish to reiterate my indebtedness to the Boards of Associate Editors for 1972, 1973, 1974, and 1975. These include Arden L. Albee, Werner H. Baur, Arthur Boettcher, Charles W. Burnham, James R. Craig, Wayne A. Dollase, Jen Ho Fang, J. Jeffrey Fawcett, Joseph J. Finney, Donald M. Henderson, William D. Johns, Robert E. Newnham, Charles T. Prewitt, Paul H. Ribbe, Peter Robinson, Hugo Steinfink, Priestley Toulmin III,

Rosemary J. Vidale, David R. Waldbaum, and William B. White. Their hard and dedicated work resulted in important improvements and corrections to the papers submitted. They have helped us to maintain a high standard of quality.

Mary Holliman has served with great distinction and efficiency as Managing Editor. Her tendency toward orderliness admirably offset my own toward entropy. I thank my secretary, Vera Good, for cheerfully suffering (but not in silence) the increased work load and responsibilities that my term as Editor brought her. I am grateful to Wen Huang, Andrea Ross, and Carl Francis, who, with Mary Holliman, are bringing the 1966-1975 decennial index and the 1975 annual index to completion. I am pleased to thank several Councils of the Society for their unflinching support and rest secure in their selection of so eminent a scientist as Brian Mason to succeed me as Editor. Several Publications Committees of the Society—chaired by George W. Fisher, William C. Kelly, Gene C. Ulmer, E-an Zen—have also given unflinching support.

The quality of *The American Mineralogist* also depends on the conscientiousness of those who review papers at the request of the Editor or Associate Editors; their names are listed below.

F. DONALD BLOSS  
*Editor*

## 1975 Referees

- H. H. Adler  
 Arden L. Albee  
 Gary C. Allen  
 J. W. Anthony  
 Daniel E. Appleman  
 S. W. Bailey  
 G. M. Bancroft  
 Katherine Barrows  
 Paul Barton  
 Louis J. Basile  
 T. F. Bates  
 Werner H. Baur  
 Richard M. Beger  
 Peter M. Bell  
 F. Donald Bloss  
 Arthur Boettcher  
 Iris Y. Borg  
 Richard Bradt  
 Steven Brawer  
 Robin Brett  
 G. W. Brindley  
 Gordon E. Brown  
 I. D. Brown  
 B. J. Burley  
 Charles W. Burnham  
 Roger G. Burns  
 Don Burt  
 Peter R. Buseck  
 C. Calvo  
 Kenneth L. Cameron  
 Mary Ellen Cameron  
 P. E. Champness  
 Luke L. Y. Chang  
 E. C. T. Chao  
 Robert W. Charles  
 A. A. Chodos  
 C. L. Christ  
 John M. Christie  
 J. Christie  
 A. H. Clark  
 Joan R. Clark  
 Alvin J. Cohen  
 J. M. Cowley  
 James R. Craig  
 Gerald K. Czamanske  
 Gordon Davis  
 H. W. Day  
 M. R. Dence  
 George Desborough  
 Frank Dickson  
 Allan F. Divis  
 Frank Dodge  
 Wayne A. Dollase  
 Eric Dowty  
 Gary Ernst  
 Howard Evans  
 Rodney C. Ewing  
 Jen Ho Fang  
 J. Jeffrey Fawcett  
 Philip Fenn  
 Larry Finger  
 Joseph J. Finney  
 Michael E. Fleet  
 F. F. Foit, Jr.  
 W. C. Forbes  
 Robert O. Fournier  
 Carl A. Francis  
 W. P. Freeborn  
 Clifford Frondel  
 R. M. Garrels  
 P. Garvin  
 E. Ghent  
 S. Ghose  
 G. V. Gibbs  
 P. Goodell  
 T. M. Gordon  
 J. Graham  
 Timothy L. Grove  
 John Grover  
 A. J. Gude  
 Steven J. Guggenheimer  
 Stephen Haggerty  
 Martha Hamil  
 R. L. Hay  
 R. M. Hazen  
 Rosalind T. Helz  
 Bruce S. Hemingway  
 David A. Hewitt  
 Lincoln S. Hollister  
 John Holloway  
 Arthur W. Hounslow  
 Arthur Howland  
 J. Stephen Huebner  
 Jack Huencke  
 Rudolf von Huene  
 C. S. Hurlbut, Jr.  
 M. L. Jackson  
 William D. Johns  
 R. E. Jones  
 Miriam Kastner  
 K. Keil  
 Aijaz A. Khan  
 R. James Kirkpatrick  
 Stephen A. Kissin  
 J. A. Kittrick  
 Cornelis Klein  
 Ralph Kretz  
 D. L. Kohlstedt  
 Otto C. Kopp  
 K. Krauskopf  
 G. Kullerud  
 Gerhard Lehmann  
 Donald H. Lindsley  
 J. G. Liou  
 Gary Lofgren  
 S. John Louisnathan  
 S. Ludington  
 W. C. Luth  
 Emil Makovicky  
 P. G. Manning  
 Doug McDowell  
 Dan McLachlan  
 Alex C. McLaren  
 E. P. Meagher  
 William G. Melson  
 Henry O. Meyer  
 Charles Milton  
 J. M. Moore, Jr.  
 Paul B. Moore  
 Stearns A. Morse  
 L. N. Mulay  
 Frederick A. Mumpton  
 J. L. Munoz  
 Bjørn O. Mysen  
 A. J. Naldrett  
 Robert E. Newnham  
 Donald C. Noble  
 Gary Novak  
 W. Nowacki  
 E. W. Nuffield  
 Yoshikazu Ohashi  
 Adolf Pabst  
 J. J. Papike  
 Don Peacor  
 N. W. Phillips  
 Gasper J. Piermarini  
 A. J. Pivinski  
 Charles O. Pollard, Jr.  
 Robert W. Potter  
 Russell Potter II  
 J. L. Powell  
 Dean C. Presnall  
 Charles T. Prewitt  
 Edwin L. Prien  
 V. Rajamani  
 Robert Reynolds  
 P. H. Ribbe  
 P. B. Robertson  
 Richard A. Robie  
 Paul D. Robinson  
 Edwin W. Roedder  
 P. L. Roeder  
 G. Roland  
 Samuel B. Romberger  
 Art Rose  
 Harry Rose  
 Phil Rosenberg  
 John L. Rosenfeld  
 Malcolm Ross  
 Della M. Roy  
 George R. Rossman  
 J. C. Rucklidge  
 Douglas Rumble  
 Surendra Saxena  
 M. Schnapfe  
 L. G. Schultz  
 Stephen D. Scott  
 Marjorie Senechal  
 D. M. Shaw  
 Richard Sheppard  
 Brian Skinner  
 Dean K. Smith  
 J. V. Smith  
 J. R. Smyth  
 R. K. Sorem  
 Karl E. Spear  
 I. Steele  
 Hugo Steinfink  
 Arthur Tauber  
 Larry A. Taylor  
 M. R. Thorner  
 C. P. Thornton  
 Jack A. Tossell  
 Priestley Toulmin III  
 M. G. Townsend  
 Donald R. Uhlman  
 Gene C. Ulmer  
 Alvin Van Valkenburg  
 David J. Vaughan  
 Rosemary J. Vidale  
 David Virgo  
 David Walker  
 Charles E. Weaver  
 Robert Webb  
 R. A. Weeks  
 Jerry R. Weidner  
 H. R. Wenk  
 Eugene W. White  
 J. L. White  
 John S. White, Jr.  
 William B. White  
 Ray E. Wilcox  
 Thomas Wildeman  
 R. W. T. Wilkins  
 S. A. Williams  
 Horace Winchell  
 C. Wroe Wolfe  
 Michael Wood  
 B. J. Wuensch  
 Ann G. Wylie  
 E-an Zen  
 John Zimmerman  
 Tibor Zoltai

# 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. Osborn	1975 Arnulf Muan

## 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. Roebling	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	1975 E-an Zen

## 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  
 1972–1975 Joan R. Clark  
 1976– Larry W. Finger

## 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. Holsler  
 1972–1975 F. Donald Bloss  
 1976– Brian Mason



## 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. Appleman, David B. Stewart.
- 1974 George W. Brindley, Edwin Roedder, Daniel E. Appleman, David B. Stewart, Arthur L. Boettcher, Philip M. Orville.
- 1975 Daniel E. Appleman, David B. Stewart, Arthur L. Boettcher, Philip M. Orville, Iris Y. Borg, Barclay Kamb.

**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	1975 Salt Lake City, Utah
1938 New York, New York	1957 Atlantic City, New Jersey	

**Recipients of the Roebling Medal**

1937 Charles Palache	1954 Cecil Edgar Tilley	1965 Adolf Pabst
1938 Waldemar T. Schaller	1955 Alexander N. Winchell	1966 Max H. Hey
1940 Leonard James Spencer	1956 Arthur F. Buddington	1967 Linus Pauling
1941 Esper S. Larsen, Jr.	1957 Walter F. Hunt	1968 Tei-ichi Ito
1945 Edward H. Kraus	1958 Martin J. Buerger	1969 Fritz Laves
1946 Clarence S. Ross	1959 Felix Machatschki	1970 George W. Brindley
1947 Paul Niggli	1960 Tom F. W. Barth	1971 J. D. H. Donnay
1948 William Lawrence Bragg	1961 Paul Ramdohr	1972 Elburt F. Osborn
1949 Herbert E. Merwin	1962 John W. Gruner	1973 George Tunell
1950 Norman L. Bowen	1963 John Frank Schairer	1974 Ralph E. Grim
1952 Frederick E. Wright	1964 Clifford Frondel	1975 Michael Fleischer
1953 William F. Foshag		1975 O. Frank Tuttle

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

1951 Orville F. Tuttle	1959 Harry F. W. Taylor	1968 Barclay Kamb
1952 Frederick H. Stewart	1960 Donald L. Graf	1969 W. Gary Ernst
1953 L. H. Ahrens	1961 Joseph V. Smith	1970 Bernard W. Evans
1954 Hatten S. Yoder, Jr.	1962 Douglas S. Coombs	1971 Robert A. Berner
1955 Julian R. Goldsmith	1963 Nobuo Morimoto	1972 Arthur L. Boettcher
1956 George C. Kennedy	1964 William S. Fyfe	1973 Paul Brian Moore
1957 Rustum Roy	1965 Peter J. Wyllie	1974 James J. Papike
1958 Charles E. Weaver	1966 David B. Stewart	1975 Roger G. Burns
	1967 Alfred E. Ringwood	