

Proceedings of the Seventieth Annual Meeting of the Mineralogical Society of America in St. Louis, Missouri

REPORT OF THE SECRETARY FOR 1989

The seventieth annual meeting of the Society was held on November 6–9 in St. Louis, Missouri. Oral presentations sponsored by MSA were organized into 15 technical sessions: one on experimental petrology, five on igneous petrology, four on metamorphic petrology, three on mineralogy and crystallography, and two on volcanology. Poster presentations made up four of these sessions. The number of volunteered abstracts was 270, with acceptance rates ranging from 83 to 96% for the various categories. MSA's representatives to the GSA Joint Technical Program Committee were Richard N. Abbott, Jr., Mark S. Ghiorso, and Robert J. Tracy. MSA's symposium, "Application of Modern Powder Diffraction Techniques to Problems in Mineralogy and Geology," was organized by Larry Finger. Prior to the meeting, MSA's Short Course, "Modern Powder Diffraction," was organized by D. L. Bish and J. E. Post.

The retiring President, C. W. Burnham, presented an address to the Society entitled "The Ionic Model: Perceptions and Realities in Mineralogy" on Tuesday, November 7. Subsequently, President Burnham called the annual business meeting of the Society to order.

Council meetings

The first meeting of the 1989 Council was held on November 1, 1988 in Denver, Colorado; the second was on May 10, 1989 in Baltimore, Maryland; and the third was on November 5, 1989 in St. Louis, Missouri.

The first meeting of the 1990 Council was also held in St. Louis, Missouri, on November 7, 1989.

Discussions and actions by Council, as summarized from minutes of the three 1989 Council meetings and the 1989 business meeting, are noted below.

Results of the 1989 election

The voting for officers and Council members of the Society for 1990 was held during the summer of 1989; the following persons were elected:

<i>President:</i>	Peter Robinson (1990)
<i>Vice-President:</i>	Malcolm Ross (1990)
<i>Secretary:</i>	Maryellen Cameron (1990–1991)
<i>Councillors:</i>	Rosemary V. Buden (1990–1992) Maria L. Crawford (1990–1992)

The ballots (810) were certified on August 21, 1989 by the Tellers Marta J. K. Flohr and Bjorn O. Mysen. Approximately 32% of the members eligible to vote cast their ballots.

Membership statistics

As of December 1989 the Society's 2622 members included 1637 Members (–56), 558 Fellows (+44), 400 Students (–65), 7 Honorary Fellows (+2), and 20 Associated Life Members and Life Fellows (+5). Numbers in parentheses are changes from December 1988.

Necrology

It is with regret that the Society announces the deaths of the following Fellows and Members:

Charles D. Campbell (LF)
Arthur F. Eadie (M)
Thomas F. Johnston (M)
Alfred W. Joliff (LF)
Dana R. Kelley (M)
Charles T. Kendall (M)
Gunnar Kullerud (LF)
Harris Dent Mathewson (LM)
John S. Stevenson (LF)
Ralph E. Taylor (LM)
Alice Weeks (LF)

Anyone who wishes to honor a deceased Fellow or Member by preparing a memorial should contact Memorialist B. H. Mason.

Financial affairs

The 1990 membership dues for the Society and subscription rates for the *American Mineralogist* remained the same as the previous year. The Society is in sound financial shape, and its programs continue to benefit from member contributions. The financial status of the Society is discussed in detail in the Report of the Treasurer.

American Mineralogist

Council approved the appointment of two new Editors, Donald R. Peacor and Steven R. Bohlen, a new Managing Editor, Vicki Lawrence, and an Assistant to the Editors, Roland Rouse. It also approved appointments of the following Associate Editors, who will serve for the four-year period 1990–1993: C. R. Bacon, J. M. Hughes, T. C. McCormick, R. C. Reynolds, Jr., D. J. Weidner, and R. F. Wendlandt.

Awards

The 1990 Roebling Medal will be awarded to Sturges W. Bailey (University of Wisconsin, Madison), the 1990 Mineralogical Society of America Award to Russell J. Hemley (Geophysical Laboratory, Washington, DC), and

the first Public Service Award of the Mineralogical Society of America to Malcolm Ross (U.S. Geological Survey, Reston, Virginia).

The recipient of the 1990 Crystallography Research Grant Award is Ross Angel of University College, London.

Fifteen students received the *American Mineralogist* Undergraduate Award in 1989.

Fellowship

Council approved Fellowship status for the following members of the Society:

Georg Amthauer	G. R. McCormick
Hans Annersten	H. Y. McSween, Jr.
W. R. Baragar	D. J. Milton
V. J. Bouska	I. S. Oen
G. H. Brimhall	S. Y. O'Reilly
Georges Calas	Heikki Papunen
J. I. Drever	Sam Rosenblum
R. F. Dymek	J. D. Scott
C. M. Graham	M. F. Sheridan
R. I. Grauch	J. E. Shigley
P. C. Grew	W. B. Simmons
W. R. Griffitts	Eiichi Takahashi
S. J. Guggenheim	B. E. Taylor
R. L. Hervig	R. N. Thompson
M. A. Lagache	S. R. Titley
R. G. Luedke	M. Vuagnat
S. E. Mahlburg-Kay	Eduard Woermann
A. N. Mariano	P. C. Zwann

Nominations for officers for the 1990 election

<i>President:</i>	Malcolm Ross, U.S. Geological Survey
<i>Vice-President:</i> (one to be elected)	Michael J. Holdaway, Southern Methodist University Henry O. A. Meyer, Purdue University
<i>Secretary:</i>	(Not on 1991 ballot)
<i>Treasurer:</i> (1991–1992)	James A. Whitney, University of Georgia
<i>Councillors:</i> (1991–1993; two to be elected)	R. James Kirkpatrick, University of Illinois Jo Laird, University of New Hampshire James L. Munoz, University of Colorado E. Bruce Watson, Rensselaer Polytechnic Institute

Other

The MSA Lecture Program, which was established last year, has been extremely well received within the geoscience community. Inaugural lecturers Maryellen Cameron and Edwin Roedder presented a variety of lectures at a

total of 11 universities within the United States and Canada in the 1989–1990 academic year.

MSA and the American Geophysical Union have agreed to continue their joint Spring meeting. At the first joint meeting in 1989 MSA was identified as the lead organization for four sessions and as a cosponsor for five oral sessions with AGU's Planetology section, Tectonophysics section, and Volcanology, Geochemistry and Petrology section.

During 1989 Council discussed extensively the future of *Mineralogical Abstracts* and continuance of the sponsorship agreement between MSA and the Mineralogical Society of Great Britain. At the third 1989 Council meeting, Professor R. A. Howie updated Council on activities within the editorial office and the budgetary situation of the journal.

Council also voted to approve a one-year, ad hoc committee on national science policy issues. The charge to this committee is to examine the means by which MSA could be more effective in promoting the geosciences within the federal bureaucratic system.

Finally, Council recognized the many contributions of retiring *American Mineralogist* Editor James L. Munoz and Managing Editor Mary C. Eberle.

MARYELLEN CAMERON

REPORT OF THE TREASURER FOR 1989

This report summarizes the financial activity of the Mineralogical Society of America for the calendar year 1989. The financial statements have been audited by Massey Good and Associates of Gaithersburg, Maryland. The financial statements given in this report are taken from the audit report.

The Statement of Assets, Liabilities, and Fund Balances (Table 1) shows a balance of \$42,729 in the General Operating Fund, \$812,340 in the Endowment Fund, \$50,777 in the Crystallography Fund, and \$64,484 in the Mineralogy and Petrology Fund. The second table, Statement of Revenue and Expense, demonstrates that these balances represent a \$28,517 decrease in the General Operating Fund, a \$100,351 increase in the Endowment Fund, and increases of \$6,103 and \$2,462 in the Crystallography and Mineralogy and Petrology Funds, respectively. The Society's net worth therefore increased by a total of \$80,399, or 6.9%.

The apparent loss in the General Operating Fund needs further discussion. A transfer from the Endowment Fund to cover the expenses of Life Members and other approved expenses accounts for \$13,571 of this apparent deficit. This transfer was more than covered by the \$100,351 increase in the Endowment Fund. In addition, \$5,909 of the deficit is depreciation of equipment and not a real cash outlay. Therefore, the actual decrease in cash value of the General Operating Fund for operations dur-

TABLE 1. Statement of assets, liabilities, and fund balances

	Unrestricted			Restricted			Grand total
	General Operating Fund	Endowment Fund	Total	Crystallography Fund	Mineralogy and Petrology Fund	Total	
Assets							
Current assets:							
Cash	\$267,302	\$ —	\$ 267,302	\$ —	\$ —	\$ —	\$ 267,302
Accounts receivable	19,656	—	19,656	—	—	—	19,656
Prepaid expenses and deposits	12,516	—	12,516	—	—	—	12,516
Total current assets	299,474	—	299,474	—	—	—	299,474
Investments (note C)	—	819,875	819,875	49,973	62,341	112,314	932,189
Furniture and equipment, net of accumulated depreciation (note D)	14,797	—	14,797	—	—	—	14,797
Total assets	314,271	819,875	1,134,146	49,973	62,341	112,314	1,246,460
Liabilities and Fund balance							
Current liabilities							
Accounts payable	39,537	—	39,537	—	—	—	39,537
Due to other publishers	22,898	—	22,898	—	—	—	22,898
Deferred revenues:							
Dues	58,445	—	58,445	—	—	—	58,445
Subscriptions	155,250	—	155,250	—	—	—	155,250
Due (from) to other funds	(4,588)	7,535	2,947	(804)	(2,143)	(2,947)	—
Total current liabilities	271,542	7,535	279,077	(804)	(2,143)	(2,947)	276,130
Commitments (note E)							
Fund balance	42,729	812,340	855,069	50,777	64,484	115,261	970,330
Total liabilities and fund balance	\$314,271	\$819,875	\$1,134,146	\$49,973	\$62,341	\$112,314	\$1,246,460

ing 1989, subtracting the transfer from endowment and depreciation, was \$9,037.

The cash position of the Society, therefore, remains strong. Despite the sharp drop of the stock market on October 13, the Endowment Fund regained the last of losses suffered in the October 1987 fall. Since the market value of investments at the close of 1989 was approximately 12% above the cost, it is not anticipated that the Society will realize any unrealized loss on investments during 1990, unless there is a major downturn in the stock market.

Breakdown by funds

The Society has four Funds. The General Operating Fund, which accounts for all aspects of the Society's operations, showed a deficiency of revenues over expenses of \$28,517, with a balance as of 31 December 1988 of \$42,729 (Tables 1 and 2, column 1). As previously discussed, \$13,571 of this decrease was covered by a transfer from the Endowment Fund, and \$5,909 was depreciation of equipment. The Endowment Fund, which acts as a reserve for the Society and whose income provides some support for Society operations and special projects, showed a growth of \$100,351 to yield a balance of \$819,875 (Tables 1 and 2, column 2). The Crystallography Fund and the Mineralogy and Petrology Fund, which provide biennial research grants to promising young scientists, increased by \$6,103 and \$2,462, respectively, to yield balances of \$50,777 and \$64,484 (Table 2, columns 4 and 5).

Summary of changes

Significant changes in costs during 1988 included increases in business office costs due to increased salaries and related fringe benefits, increases in printing and publication costs, increases in the cost of the Editor's office of the *American Mineralogist*, and the cost of distributing two volumes of *Reviews in Mineralogy* to subscribers. A sharp increase in the receipt of page charges and reprint payments helped offset the increased cost of the *American Mineralogist*.

Therefore, at the end of 1989 the Society is in strong financial health. The deficiency in the General Operating Fund is a small percent of the operating budget. Our goal continues to be to keep dues low so that the members are receiving value for their dues, to keep library subscription rates reasonable, and to keep student rates as low as possible so they can afford the journal and the *Reviews in Mineralogy*.

JAMES A. WHITNEY

REPORT OF THE FINANCIAL ADVISORY COMMITTEE FOR 1989

The endowments of the Mineralogical Society of America consist of three parts: one large unrestricted fund, the Endowment Fund, and two smaller restricted funds, the Crystallography Fund and the Mineralogy and Pe-

TABLE 2. Statement of revenue and expense

	Unrestricted			Restricted			Grand total
	General Operating Fund	Endowment Fund	Total	Crystallography Fund	Mineralogy and Petrology Fund	Total	
Revenue:							
Publications							
<i>American Mineralogist</i>	\$237,735	\$ —	\$237,735	\$ —	\$ —	\$ —	\$237,735
<i>Reviews in Mineralogy</i>	102,432	—	102,432	—	—	—	102,432
	340,167	—	340,167	—	—	—	340,167
Income from investments	15,523	98,149	113,672	5,046	6,496	11,542	125,214
Dues	85,425	—	85,425	—	—	—	85,425
Short courses	19,022	—	19,022	—	—	—	19,022
Contributions	—	2,202	2,202	1,057	2,966	4,023	6,225
GSW	4,131	—	4,131	—	—	—	4,131
Total revenue	464,268	100,351	564,619	6,103	9,462	15,565	580,184
Expense:							
Publications:							
<i>American Mineralogist</i>	240,790	—	240,790	—	—	—	240,790
<i>Reviews in Mineralogy</i>	48,197	—	48,197	—	—	—	48,197
Lattice	16,900	—	16,900	—	—	—	16,900
	305,887	—	305,887	—	—	—	350,887
Business office	105,282	—	105,282	—	—	—	105,282
Research grant	—	—	—	—	7,000	7,000	7,000
Membership Svcs. and awards	11,783	5,821	17,604	—	—	—	17,604
Short courses	30,796	—	30,796	—	—	—	30,796
Depreciation	5,909	—	5,909	—	—	—	5,909
GSW	3,661	—	3,661	—	—	—	3,661
Meetings	23,646	—	23,646	—	—	—	23,646
Total expense	486,964	5,821	492,785	—	7,000	7,000	499,785
Excess revenue over expense	(\$ 22,696)	\$ 94,530	\$ 71,834	\$ 6,103	\$ 2,462	\$ 8,565	\$ 80,399
Balance, January 1, 1988	\$ 57,675	\$725,560	\$783,235	\$42,222	\$58,424	\$100,646	\$883,881
Transfer	7,750	(7,750)	—	—	—	—	—
Reduction in unrealized loss on investments	—	—	—	2,452	3,598	6,050	6,050
Balance, December 31, 1989	\$ 42,719	\$812,340	\$855,069	\$50,777	\$64,484	\$115,261	\$970,330

trology Fund. It is important to emphasize that the following report reflects the fiscal-year history of monies actually invested in the MSA endowment accounts, including net transfers made during 1989. It does not include any new endowment contributions or budgeted expenditures residing in the Society's General Operating Fund at year end pending transfer by the Treasurer in 1990.

No significant reallocation of investment instruments occurred during 1989. The Society's Endowment Fund was divided among two U.S. Treasury bills, two cash money-market funds, and two stock mutual funds, Fidelity Magellan Fund and Reich and Tang Equity Fund. At year end, the Endowment Fund was 26% in cash or cash equivalents and 74% in equities. The two smaller restricted funds were 100% in equity-income mutual funds.

Growth in the market value of the MSA endowments was substantial during 1989. The market value of all of the endowments increased from \$867,226 in 1988 to \$1,046,899 in 1989, with the costs of the endowments increasing from \$831,531 in 1988 to \$934,346 in 1989. The market value of the endowments increased 20.7%

while the costs increased by 12.4%. Growth was realized in the Endowment Fund, which increased in market value from \$768,495 in 1988 to \$934,585 in 1989, as the costs increased from \$724,593 in 1988 to \$819,875 in 1989. The market value of the Crystallography Fund increased from \$41,799 in 1988 to \$49,973 in 1989, as the costs increased from \$45,719 in 1988 to \$51,441 in 1989. The market value of the Mineralogy and Petrology Fund increased from \$56,932 in 1988 to \$62,341 in 1989, as the costs increased from \$61,219 in 1988 to \$63,030 in 1989. A summary of income to and expenses charged against the endowment funds for 1989 may be found in the Report of the Treasurer for 1989.

At the end of 1989, the Society is in a strong and healthy financial position.

Respectfully submitted,
 B. S. HEMINGWAY, Chair
 D. A. HEWITT
 G. L. NORD, JR. (Chair, Management Committee)
 J. H. STOUT
 J. A. WHITNEY (Treasurer)

**REPORT OF THE EDITOR FOR 1989
(OCTOBER 1, 1988-SEPTEMBER 30, 1989)**

During the 1989 editorial year (October 1, 1988, to September 30, 1989) 239 manuscripts were submitted to *American Mineralogist*, which represents a 13% increase compared to submissions in 1988 and a 24% increase compared to 1987. These data may be compared with the number of scientific articles actually published (and the corresponding number of pages) in comparable 12-month periods (September-October through July-August issues): 181 articles (1480 pages) in 1988-1989, 148 articles (1304 pages) in 1987-1988, and 170 articles (1306 pages) in 1986-1987. Further information concerning journal operations is given in Table 1.

The average publication time for manuscripts is about one year. As has been true in past years, the standard deviation associated with publication time is large. This number could be significantly reduced if all authors were able to revise their reviewed manuscripts in a shorter time.

The Letters section of the journal is off to a good start. At the time of the annual MSA business meeting, 18 manuscripts had been submitted for consideration as Letters. Of this number, 9 were accepted, 4 were rejected outright, 3 were shifted to consideration as regular articles, and 2 were in review. The mean publication time for the published Letters is 3.6 months. This very short time is possible only with the virtually instantaneous cooperation of authors, reviewers, the editorial office, and the production staff at Allen Press. The only persistent problem with Letters is that they are commonly too long when submitted. The 15-page limit includes title page, figures and tables (each considered one page), references, and figure legends. Wide margins, average font size, and real double spacing of all copy are assumed in defining the 15-page limit. The latter two requirements have for some reason been particularly challenging to Macintosh users! These requirements are not arbitrary, but must be imposed because of the strict production requirements associated with lightning-fast publication that limit the maximum printed page area; we have concocted the 15-page manuscript limit as our "best guess" to remain within the allotted area.

In October, Mary Eberle and I had the good fortune of working closely with new Editors Don Peacor and Steve Bohlen and with Vicki Lawrence, the new Managing Editor. Because of the increase in journal size and complexity over the past four years, I think the change from one

TABLE 1. Summary of *American Mineralogist* operations

Volume	No.	Number of scientific articles	Pages of scientific articles	Pages of miscellaneous	Total pages	Signatures*
October 1, 1988, to September 30, 1989						
73	9-10	32	268	12	280	8.75
73	11-12	36	270	42	312	9.75
74	1-2	32	280	0	280	8.75
74	3-4	25	220	12	232	7.25
74	5-6	21	196	12	208	6.5
74	7-8	35	246	2	248	7.75
74	9-10	32	256	8	264	8.25
74	11-12	27	171	53	224	7.00
Total (v. 74)		172	1369	87	1456	45.50
For comparison: 1988						
Total (v. 73)		173	1461	71	1532	47.875
For comparison: 1987						
Total (v. 72)		148	1211	91	1302	40.688
For comparison: 1986 (including the Jahns Memorial Issue)						
Total (v. 71)		171	1465	107	1572	49.125
Manuscripts submitted, 10/1/88 to 9/30/89						239
Manuscripts submitted, 10/1/87 to 9/30/88						212
Manuscripts submitted, 10/1/86 to 9/30/87						193
Manuscripts under review for 1990**						117
Manuscripts under review for 1989**						87
Manuscripts under review for 1988**						120
Manuscripts rejected, 10/1/88 to 9/30/89						29
Manuscripts rejected, 10/1/87 to 9/30/88						31
Manuscripts rejected, 10/1/86 to 9/30/87						20
Manuscripts withdrawn, 10/1/88 to 9/30/89						13
Manuscripts withdrawn, 10/1/87 to 9/30/88						17
Manuscripts withdrawn, 10/1/86 to 9/30/87						20

* One signature = 32 pages.

** As of September 30 of the preceding year.

to two editors was a wise decision. I expect that *American Mineralogist* will continue to grow and will be the journal of choice to publish the best papers in crystallography, mineralogy, and petrology (my prejudice is showing!). I know Don and Steve will enjoy much success during their editorial tenure.

As we draw our operations in Boulder to a close, Mary and I want to express our sincere appreciation to all the authors, reviewers, associate editors, councillors and officers of MSA, and the business office staff, most of whom have contributed substantially to whatever success the journal has experienced in the past four years.

J. L. MUNOZ

REVIEWERS OF MANUSCRIPTS EITHER PRINTED OR REJECTED IN 1989

- | | | | |
|---------------------|----------------------|------------------|----------------------|
| Abbott, R. N. | Eby, G. N. | Leavens, P. B. | Prewitt, C. T. |
| Ague, J. | Echevaria, L. | Lehmann, G. | Putnis, A. |
| Allen, F. M. | Effenberger, H. E. | Le Maitre, R. W. | Raudsepp, M. |
| Andersen, M. E. | Emslie, R. F. | Levien, L. | Reeder, R. J. |
| Anderson, G. R. | Essene, E. J. | Levy, S. | Reynolds, Jr., R. C. |
| Angel, R. J. | Evans, H. T., Jr. | Lindsley, D. H. | Ribbe, P. H. |
| Anovitz, L. M. | Fallick, A. E. | Liou, J. G. | Rice, J. M. |
| Appleman, D. E. | Fleet, M. E. | Litvin, D. B. | Roeder, P. L. |
| Arculus, R. J. | Florke, O. W. | Lofgren, G. E. | Rosenberg, P. E. |
| Bailey, S. W. | Foit, F. F., Jr. | Longhi, J. | Ross, II, C. R. |
| Bancroft, G. W. | Fritsch, E. | Lumpkin, G. R. | Rossi, G. G. |
| Barnes, C. G. | Ganguly, J. | Manghnani, M. H. | Rossman, G. R. |
| Baur, W. H. | Ghent, E. D. | Maniar, P. D. | Rouse, R. C. |
| Beard, J. S. | Ghiorso, M. S. | Mason, B. H. | Rumble, III, D. |
| Berg, J. H. | Ghose, S. | Mazo, R. M. | Ryerson, F. J. |
| Berman, R. | Gibbs, G. V. | McCormick, T. C. | Sack, R. O. |
| Besancon, J. R. | Giese, R. F. | McLelland, J. | Salje, E. |
| Biasi, R. S. | Glassley, W. E. | McMillan, P. | Saxena, S. K. |
| Bish, D. L. | Gold, D. P. | Means, W. D. | Scott, S. D. |
| Bishop, F. C. | Goldsmith, J. R. | Meike, A. | Selverstone, J. |
| Bloss, F. D. | Goodwin, L. | Mellini, M. | Shelton, K. L. |
| Blount, A. M. | Grew, E. S. | Merlino, S. | Sheppard, R. A. |
| Bohlen, S. R. | Griffen, D. T. | Miller, D. S. | Sherman, D. M. |
| Boudreau, A. | Grove, T. L. | Mitchell, R. H. | Smith, D. K. |
| Brearley, A. J. | Grundy, H. D. | Modreski, P. J. | Smyth, J. R. |
| Bricker, III, O. P. | Guggenheim, S. J. | Moore, P. B. | Spear, F. S. |
| Brodie, K. H. | Guidotti, C. V. | Morimoto, N. | Speer, J. A. |
| Brookins, D. G. | Haggerty, S. E. | Morse, S. A. | Spera, F. J. |
| Brown, G. E., Jr. | Harlow, G. E. | Mossotti, V. | Spinnler, G. E. |
| Brown, W. L. | Haskin, L. | Mumpton, F. | Stebbins, J. F. |
| Broxton, D. | Hauff, P. | Munoz, J. L. | Steele, I. M. |
| Bryndzia, L. T. | Hawthorne, F. C. | Mysen, B. O. | Swanson, S. E. |
| Burnham, C. W. | Hayman, R. | Naney, M. T. | Takeuchi, Y. |
| Burns, R. G. | Hehre, W. J. | Nash, W. P. | Tossell, J. A. |
| Busing, W. R. | Hem, J. D. | Nassau, K. | Treiman, A. |
| Calas, G. | Hemingway, B. S. | Navrotsky, A. | Tullis, J. |
| Cameron, M. | Heubner, S. | Newton, R. C. | Turner, S. A. |
| Candela, P. A. | Hewitt, D. A. | Nichols, M. C. | Valley, J. W. |
| Carlson, W. D. | Hickey-Vargas, R. | Nickel, E. H. | Vance, J. A. |
| Černý, P. | Hochella, M. F., Jr. | Nord, G. L., Jr. | Vaughan, D. J. |
| Chang, L.L.Y. | Hodges, K. V. | Ohashi, Y. | Veblen, D. R. |
| Chao, G. Y. | Hofmeister, A. M. | O'Keefe, M. | Velde, B. |
| Charles, R. | Holland, T.J.B. | Olsen, E. J. | Von Dreele, R. B. |
| Cheetham, A. K. | Hollister, L. S. | Osborne, M. | Vry, J. K. |
| Chen, C. Y. | Holloway, J. R. | Papike, J. J. | Watson, B. |
| Chou, I. | Holser, W. T. | Paque, J. M. | Weaver, C. E. |
| Clague, D. | Howell, D. A. | Parks, G. A. | Wechsler, B. A. |
| Clauer, N. | Hughes, J. M. | Peacor, D. R. | Weed, H. |
| Clayton, R. | Ilton, E. | Pearce, T. H. | Weidner, D. J. |
| Cohen, R. E. | Jambor, J. L. | Peckett, A. | Westrich, H. |
| Craig, J. R. | Jefferson, D. | Perkins, III, D. | White, W. B. |
| Czank, M. | Kampf, A. R. | Perry, D. | Wicks, F. J. |
| Davidson, P. M. | Kieffer, S. W. | Petersen, E. | Wiebe, R. A. |
| Dellinger, D. A. | King, A. | Pevear, D. R. | Williams, M. L. |
| Dollase, W. A. | Kirkpatrick, R. J. | Phillips, B. L. | Williams, Q. |
| Domeneghetti, M. C. | Kitamura, M. | Phillips, L. V. | Wise, W. S. |
| Dove, M. T. | Kohn, M. | Phillips, M. W. | Woessner, D. E. |
| Dowty, E. | Kubicki, J. | Philpotts, A. R. | Wood, B. J. |
| Duncan, T. M. | Lobotka, T. C. | Popp, R. K. | Wright, A. C. |
| Dymek, R. F. | Lager, G. A. | Post, J. E. | Wylie, A. G. |
| Ebel, D. | Law, A. D. | | |

LIST OF FORMER OFFICERS, MEDAL RECIPIENTS, AND MEETING PLACES

Honorary Presidents

Edward S. Dana
1925–1935

Charles Palache
1949–1954

Edward H. Kraus
1955–1973

Edgar T. Wherry
1974–1982

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1974 Arnulf Muan
1975 E-an Zen
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- 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.
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- 1945 Adolf Pabst, Michael Fleischer, S. J. Shand, R. E. Grim.
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- 1947 S. J. Shand, R. E. Grim, Joseph Murdoch, H. H. Hess.
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- 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.
- 1976 Arthur L. Boettcher, Philip M. Orville, Iris Y. Borg, Barclay Kamb, Ian MacGregor, Charles T. Prewitt.
- 1977 Iris Y. Borg, Barclay Kamb, Ian MacGregor, Charles T. Prewitt, Gerald V. Gibbs, Paul B. Moore.
- 1978 Ian MacGregor, Charles T. Prewitt, Gerald V. Gibbs, Paul B. Moore, Arden Albee, Bernard W. Evans.
- 1979 Gerald V. Gibbs, Paul B. Moore, Arden L. Albee, Bernard W. Evans, Roger Burns, H. Catherine W. Skinner.
- 1980 Arden L. Albee, Bernard W. Evans, Roger Burns, H. Catherine W. Skinner, Paul Ribbe, Peter Robinson.

- 1981 Roger Burns, H. Catherine W. Skinner, Paul Ribbe, Peter Robinson, Charles W. Burnham, P. R. Buseck.
- 1982 Paul Ribbe, Peter Robinson, Charles Burnham, P. R. Buseck, James J. Papike, Donald R. Peacor.
- 1983 Charles Burnham, P. R. Buseck, James J. Papike, Donald R. Peacor, James R. Craig, Alexandra Navrotsky.
- 1984 James J. Papike, Donald R. Peacor, James R. Craig, Alexandra Navrotsky, Gordon E. Brown, Jr., Hugh P. Taylor, Jr.
- 1985 Gordon E. Brown, Jr., James R. Craig, Cornelis Klein, Anthony J. Naldrett, Alexandra Navrotsky, Hugh P. Taylor, Jr.
- 1986 Gordon E. Brown, Jr., J. Stephen Huebner, Cornelis Klein, Anthony J. Naldrett, Robert C. Newton, Hugh P. Taylor, Jr.
- 1987 James R. Craig, Michael J. Holdaway, J. Stephen Huebner, Cornelis Klein, Robert C. Newton, Douglas Rumble, III.
- 1988 M. Charles Gilbert, Robert M. Hazen, Michael J. Holdaway, J. Stephen Huebner, Robert C. Newton, Douglas Rumble III.
- 1989 M. Charles Gilbert, Frank C. Hawthorne, Robert M. Hazen, Michael J. Holdaway, Douglas Rumble, III, David R. Veblen.

Recipients of the Roebbling Medal

- | | | |
|-----------------------------|--------------------------|-------------------------------------|
| 1937 Charles Palache | 1959 Felix Machatchki | 1975 Michael Fleischer |
| 1938 Waldemar T. Schaller | 1960 Tom F. W. Barth | 1975 O. Frank Tuttle |
| 1940 Leonard James Spencer | 1961 Paul Ramdohr | 1976 Carl W. Correns |
| 1941 Esper S. Larsen, Jr. | 1962 John W. Gruner | 1977 Raimond Castaing |
| 1945 Edward H. Kraus | 1963 John Frank Schairer | 1978 James B. Thompson |
| 1946 Clarence S. Ross | 1964 Clifford Frondel | 1979 W. H. Taylor |
| 1947 Paul Niggli | 1965 Adolf Pabst | 1980 Dmitrii Sergeevich Korzhinskii |
| 1948 William Lawrence Bragg | 1966 Max H. Hey | 1981 Robert M. Garrels |
| 1949 Herbert E. Merwin | 1967 Linus Pauling | 1982 Joseph V. Smith |
| 1950 Norman L. Bowen | 1968 Tei-ichi Ito | 1983 Hans P. Eugster |
| 1952 Frederick E. Wright | 1969 Fritz Laves | 1984 Paul B. Barton, Jr. |
| 1953 William F. Foshag | 1970 George W. Brindley | 1985 Francis J. Turner |
| 1954 Cecil Edgar Tilley | 1971 J.D.H. Donnay | 1986 Edwin Roedder |
| 1955 Alexander N. Winchell | 1972 Elburt F. Osborn | 1987 Gerald V. Gibbs |
| 1956 Arthur F. Buddington | 1973 George Tunell | 1988 Julian R. Goldsmith |
| 1957 Walter F. Hunt | 1974 Ralph E. Grim | 1989 Helen D. Megaw |
| 1958 Martin J. Buerger | | |

Recipients of the Mineralogical Society of America Award

- | | | |
|---------------------------|---------------------------|---------------------------|
| 1951 Orville F. Tuttle | 1964 William S. Fyfe | 1977 J. G. Liou |
| 1952 Frederick H. Stewart | 1965 Peter J. Wyllie | 1978 J. Stephen Huebner |
| 1953 L. H. Ahrens | 1966 David B. Stewart | 1979 Ho-Kwang Mao |
| 1954 Hatten S. Yoder, Jr. | 1967 Alfred E. Ringwood | 1980 Susan Werner Kieffer |
| 1955 Julian R. Goldsmith | 1968 Barclay Kamb | 1981 Alexandra Navrotsky |
| 1956 George C. Kennedy | 1969 W. Gary Ernst | 1982 Robert M. Hazen |
| 1957 Rustum Roy | 1970 Bernard W. Evans | 1983 David R. Veblen |
| 1958 Charles E. Weaver | 1971 Robert A. Berner | 1984 Bernard J. Wood |
| 1959 Harry F. W. Taylor | 1972 Arthur L. Boettcher | 1985 John M. Ferry |
| 1960 Donald L. Graf | 1973 Paul Brian Moore | 1986 Antonio C. Lasaga |
| 1961 Joseph V. Smith | 1974 James J. Papike | 1987 Donald J. DePaolo |
| 1962 Douglas S. Coombs | 1975 Roger G. Burns | 1988 Raymond Jeanloz |
| 1963 Nobuo Morimoto | 1976 Friedrich A. Seifert | 1989 Michael A. Carpenter |

Annual Meeting Places

- | | | |
|-------------------------------|-------------------------------|--------------------------------|
| 1920 Chicago, Illinois | 1944 No meeting held | 1967 New Orleans, Louisiana |
| 1921 Amherst, Massachusetts | 1945 Pittsburgh, Pennsylvania | 1968 Mexico City, Mexico |
| 1922 Ann Arbor, Michigan | 1946 Chicago, Illinois | 1969 Atlantic City, New Jersey |
| 1923 Washington, D.C. | 1947 Ottawa, Canada | 1970 Milwaukee, Wisconsin |
| 1924 Ithaca, New York | 1948 New York, New York | 1971 Washington, D.C. |
| 1925 New Haven, Connecticut | 1949 El Paso, Texas | 1972 Minneapolis, Minnesota |
| 1926 Madison, Wisconsin | 1950 Washington, D.C. | 1973 Dallas, Texas |
| 1927 Cleveland, Ohio | 1951 Detroit, Michigan | 1974 Miami Beach, Florida |
| 1928 New York, New York | 1952 Boston, Massachusetts | 1975 Salt Lake City, Utah |
| 1929 Washington, D.C. | 1953 Toronto, Canada | 1976 Denver, Colorado |
| 1930 Toronto, Canada | 1954 Los Angeles, California | 1977 Seattle, Washington |
| 1931 Tulsa, Oklahoma | 1955 New Orleans, Louisiana | 1978 Toronto, Canada |
| 1932 Cambridge, Massachusetts | 1956 Minneapolis, Minnesota | 1979 San Diego, California |

1933 Chicago, Illinois	1957 Atlantic City, New Jersey	1980 Atlanta, Georgia
1934 Rochester, New York	1958 St. Louis, Missouri	1981 Cincinnati, Ohio
1935 New York, New York	1959 Pittsburgh, Pennsylvania	1982 New Orleans, Louisiana
1936 Cincinnati, Ohio	1960 Denver, Colorado	1983 Indianapolis, Indiana
1937 Washington, D.C.	1961 Cincinnati, Ohio	1984 Reno, Nevada
1938 New York, New York	1962 Houston, Texas	1985 Orlando, Florida
1939 Minneapolis, Minnesota	1963 New York, New York	1986 San Antonio, Texas
1940 Austin, Texas	1964 Miami Beach, Florida	1987 Phoenix, Arizona
1941 Boston, Massachusetts	1965 Kansas City, Missouri	1988 Denver, Colorado
1942 No meeting held	1966 San Francisco, California	1989 St. Louis, Missouri
1943 No meeting held		

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1130 Seventeenth Street NW, Suite 330, Washington, DC 20036

Membership in the Mineralogical Society of America is open to persons interested in the fields of mineralogy, petrology, crystallography, and allied sciences. Membership application forms may be obtained from the address given above. Annual dues are \$40.00 (\$20.00 for students), which includes a subscription to *American Mineralogist*. Members may also subscribe to *Mineralogical Abstracts* at the reduced rate of \$25.00, *Journal of Metamorphic Geology* at the reduced rate of \$102.50, *Journal of Petrology* at the reduced rate of \$137.00, and *Physics and Chemistry of Minerals* at the reduced rate of \$250.00.

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1989–1991

Frank C. Hawthorne, University of Manitoba, Winnipeg, Manitoba, Canada

1988–1990

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1989–1991

David R. Veblen, The Johns Hopkins University, Baltimore, Maryland

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J. G. Liou
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D. Walker

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A. M. Gaines (1990–1992)
L. Levien (1989–1991)
C. J. Mankin (1989–1990)

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 R. T. Helz (1990–1992)

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 A. G. Wylie (1990–1991)

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 M. Cameron, Secretary
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 [Vice President Candidate]
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 M. C. Gilbert (term ends in 1991)
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 D. M. Sherman (1989–1991)

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H. Belkin

Memorialist

B. Mason (appointed 1985)

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Clay Minerals Society: D. Bish (appointed 1988)
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Abstracts: K. A. Riggs

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