

## Proceedings of the Seventy-third Annual Meeting of the Mineralogical Society of America in Cincinnati, Ohio

### REPORT OF THE SECRETARY FOR 1992

The seventy-third annual meeting of the Society was held on 26–29 October 1992 in Cincinnati, Ohio. Presentations sponsored by MSA were organized into 13 technical sessions: two on experimental petrology, three on igneous petrology, three on metamorphic petrology, three on mineralogy and crystallography, and two on volcanology. Five of these sessions involved poster presentations. There were 186 volunteered abstracts submitted and accepted for the five MSA-sponsored categories, with an acceptance rate of above 95% for all categories. The Society's representatives to the GSA Joint Technical Program Committee were D. L. Bish (Chair), J. E. Grover, and C. Schiffries. Although there was no Society symposium, one theme session was held, Transmission Electron Microscopy in Mineralogy and Petrology, which was organized by Peter R. Buseck, with 22 abstracts presented in two sections. Prior to the meeting, MSA's short course, Minerals and Reactions at the Atomic Scale: High-resolution Transmission Electron Microscopy, was organized by Peter R. Buseck.

The retiring President, Michael J. Holdaway, presented an address to the Society entitled "Geothermobarometry in Pelitic Schists: A Rapidly Evolving Field" on Tuesday, 27 October. Subsequently, President Holdaway called the annual business meeting of the Society to order.

### Council meetings

The first meeting of the 1992 Council was held on 22 October 1991 in San Diego, California; the second was on 10 May 1992 in Montreal, Canada; and the third was held on 25 October 1992 in Cincinnati, Ohio.

The first meeting of the 1993 Council was also held in Cincinnati, Ohio, on 27 October 1992.

Discussions and actions by Council, as summarized from minutes of the three 1992 Council meetings and the 1992 business meeting, are noted below.

### Results of the 1992 election

The voting for officers and Council members of the Society for 1993 was held during the summer of 1992; the following officers were elected:

<i>President:</i>	Alexandra Navrotsky (1993)
<i>Vice-President:</i>	Bernard W. Evans (1993)
<i>Treasurer:</i>	Rosalind T. Helz (1993–1994)
<i>Councillors:</i>	John B. Brady (1993–1995) Anne M. Hofmeister (1993–1995)

The ballots (805) were certified on 10 September 1992 by the Tellers, Sorena S. Sorensen and Patricia J. Loferski. Approximately 33% of the membership eligible to vote cast their ballots.

### Membership statistics

As of December 1992, the Society's 2427 members included 1521 Members (–66 or –4%), 528 Fellows (–3 or –1%), 345 Students (–47 or –12%), four Honorary Fellows (–1 or –20%), and 29 Associated Life Members and Life Fellows (+2 or +7%). Numbers in parentheses are changes from December, 1991. The losses in membership are about the same as what was gained last year.

### Necrology

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

Alvin J. Cohen (LF)  
Edward P. Henderson (LF)  
Egon Krajiček (M)  
Frederick J. Kuellmer (F)  
Harry M. Mikami (LF)  
Andrew L. Palmer (M)  
Chalmer J. Roy (LF)  
James S. Wishart (LM)  
Jean Wyart (HF)

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

### Financial affairs

Although the financial status of the Society remains good, Council has decided to seek outside support to help offset expenses. This represents a major policy change. Benefactors (both individuals and corporations) will be actively solicited. In addition, members will be asked to participate in developing ideas to market MSA products. Additional information will be given in the *Lattice*. The financial status of the Society is discussed in detail in the Report of the Treasurer.

### American Mineralogist

The 1992 Council approved appointments of the following Associate Editors, who will serve for the three-year period 1993–1995: Barbara Dutrow, George D. Guthrie, Claude Herzberg, Anthony Kampf, James F. Luhr, William P. Nash, Dexter Perkins III, and David M. Sherman.

### Awards

The 1993 Roebling Medal will be awarded to Brian H. Mason (Smithsonian Institution) and the 1993 Mineralogical Society of America Award to Lukas Baumgartner (University of Wisconsin–Madison). The Distinguished Public Service Medal of the Mineralogical Society of

America is awarded to Paul H. Ribbe (Virginia Polytechnic and State University) this year.

The recipient of the 1993 Mineralogy and Petrology Research Grant Award is Cambria Denison, University of Texas, Austin.

The *American Mineralogist* Undergraduate Award was presented to 16 students in 1992.

### Fellowship

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

B. Hensen  
E. Stolper

### Nominations for officers for the 1993 election

<i>President:</i>	Bernard W. Evans, University of Washington
<i>Vice-President:</i> (one to be elected)	James J. Papike, University of New Mexico H. Catherine W. Skinner, Yale University
<i>Secretary:</i>	Stephen Guggenheim, University of Illinois at Chicago
<i>Treasurer:</i> (1993–1994)	(not on ballot)
<i>Councillors:</i> (1993–1995) (two to be elected)	William D. Carlson, University of Texas John J. Hemley, U.S. Geological Survey, Reston J. G. Liou, Stanford University John W. Valley, University of Wisconsin–Madison

### Other

The journal *Mineralogical Abstracts*, jointly funded by MSA and the Mineralogical Society of Great Britain, has been operating at a loss for the past four years, with further losses predicted in the future. At the current rate, its assets will be depleted in three years. It was with regret that Council gave notice to the Mineralogical Society of Great Britain that MSA withdraws its financial commitments to *Mineralogical Abstracts*, thus requiring the Mineralogical Society to seek financial resources elsewhere to continue publication of the journal. MSA continues to commit extensive resources in marketing in North America and abstracting.

Jane Selverstone and Sorena Sorensen are the 1992–1993 lecturers for the MSA Lecture Program. This program continues to be popular; there were 65 requests for speakers from geoscience departments this past year. Each speaker expects to visit ten institutions.

STEPHEN GUGGENHEIM

### REPORT OF THE TREASURER FOR 1992

This report summarizes the financial activity of the Mineralogical Society of America for the calendar year 1992. The financial statements have been audited by Mafey Good and Associates, of Gaithersburg, Maryland. The financial statements given in this report are taken from that audit.

Table 1 shows the Statement of Assets, Liabilities, and Fund Balances, with the equivalent summary numbers from 1991 for comparison. As of the end of 1992, we had a negative balance of \$63,529 in the General Operating Fund, and positive balances of \$803,557 in the Endowment (Reserve) Fund, \$54,697 in the Kraus Crystallography Fund, and \$80,207 in the Mineralogy and Petrology Fund. Changes that occurred during 1992 itself include a \$22,872 decrease in the General Operating Fund, an increase of \$78,319 in the Reserve Fund, a decrease in the Kraus Crystallography Fund of \$629, and an increase in the Mineralogy and Petrology Fund of \$5356. All securities in the various funds are evaluated on a cost basis. Thus the Society's net worth has increased \$60,174 during 1992.

This increase is due to (1) greater efficiency in managing the *American Mineralogist* and an absence of any extraordinary projects such as special volumes, (2) a successful short course on TEM techniques at the 1992 GSA meeting in Cincinnati, (3) much greater efficiency in the publication of the *Lattice*, and (4) a substantial increase in the market value of the Society's securities portfolio.

### Breakdown by funds

The Society has four funds. The General Operating Fund, which encompasses all aspects of the Society's operations, showed a small deficiency of revenues relative to expenses of \$22,872. This amount has been transferred from the Endowment Fund to the General Operating Fund, to offset the 1992 shortfall, in accordance with Council's previous (1991) decision about handling shortfalls in the Operating Fund. This leaves a negative balance in the General Operating Fund of \$40,657, which reflects operating deficits in 1990 and earlier years.

The Endowment Fund, which is the Society's reserve, and whose income provides some support for Society operations and special projects, showed an excess of \$78,319 in income over expenses, prior to the transfer of \$22,872 to the GOF. The net increase in the Endowment Fund after the transfer is \$55,447. Some of this transfer was to offset the costs of dues for life members and of awards, and the rest (approximately \$11,500) offsets a modest deficit in the *American Mineralogist*.

The Kraus Crystallography Fund and the Mineralogy and Petrology Fund make biennial research grants to promising young scientists, in alternate years. The Kraus Crystallography Fund, which made an award in 1992, experienced a slight decrease of \$629, which was offset by transfer of \$3500 from the General Operating Fund,

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

	1991 total	1992 total	Unrestricted			Restricted		
			General Operating Fund	Reserve Fund	Total	Edward H. Kraus Crystallographic Research Fund	Mineralogy and Petrology Fund	Total
<b>Assets</b>								
Current assets:								
Cash	\$197,052	\$203,687	\$203,687	\$ —	\$203,687	\$ —	\$ —	\$ —
Investments	876,377	949,329	—	817,256	817,256	54,056	78,017	132,073
Accounts receivable	24,885	16,423	16,423	—	16,423	—	—	—
Prepaid expenses and deposits	13,982	15,444	15,444	—	15,444	—	—	—
Interfund borrowings	—	—	10,868	(13,699)	(2,831)	641	2,190	2,831
Total current assets	1,112,296	1,184,883	246,422	803,557	1,049,979	54,697	80,207	134,904
Furniture and equipment, net of accumulated depreciation	13,037	12,337	12,337	—	12,337	—	—	—
Total assets	1,125,333	1,197,220	258,759	803,557	1,062,316	54,697	80,207	134,904
<b>Liabilities and fund balance</b>								
Current liabilities:								
Accounts payable	9,207	7,131	7,131	—	7,131	—	—	—
Accrued expenses	13,496	11,283	11,283	—	11,283	—	—	—
Deferred revenues:								
Due to other publishers	23,416	19,369	19,369	—	19,369	—	—	—
Dues	67,460	68,535	68,535	—	68,535	—	—	—
Subscriptions	199,205	215,970	215,970	—	215,970	—	—	—
Total liabilities	312,784	322,288	322,288	—	322,288	—	—	—
Fund balance	812,549	874,932	(63,529)	803,557	740,028	54,697	80,207	134,904
Total liabilities and fund balance	\$1,125,333	\$1,197,220	\$258,759	\$803,557	\$1,062,316	\$54,697	\$80,207	\$134,904

to cover the cost of the award. The Mineralogy and Petrology Fund grew by \$4727 during 1992.

### Discussion

The Society's financial performance in 1992 was slightly better than anticipated in the original 1992 budget. That budget projected a deficit of \$35,722 for 1992, and the actual deficit was \$22,872, or \$12,850 less than expected. Savings of about \$6000 were achieved by changes in the production and printing of the *Lattice*, thanks to Marta Flohr's management. In addition some savings relative to projected expenses were achieved at the *American Mineralogist*, due to tight but excellent management by Editors Steve Bohlen and Don Peacor, and by Managing Editor Vicki Lawrence.

These and some other modest economies were enough to offset the decline in projected revenue from losses in individual members and institutional members and from page charges. The total shortfall of revenue from these sources was about \$14,000. The outlook for 1993 suggests that we can expect the Society's budget to show a 3–7% deficit for the coming year, in the absence of major changes in plans. The attrition rate in membership during the last two years suggests that further dues increases in the immediate future would be counterproductive.

### Summary

To summarize, in 1992 the Mineralogical Society of America experienced a respite from the financial problems of recent years. (This was fortunate, as the Society's

assets, though substantial, do not permit the frequent occurrence of \$100,000 deficits.) Outgoing Treasurer Jim Whitney is to be congratulated for his efforts to restore the Society to its present sound condition. In 1992 the Society's interest income decreased because of low interest rates. The performance of its investment portfolio, on the other hand, continued to be strong (as documented in the Report of the Financial Advisory Committee below). The total net worth of the Society, as shown in Table 1, has increased from \$1,125,333 in 1991 to \$1,197,220 in 1992.

ROSALIND TUTHILL HELZ

### REPORT OF THE FINANCIAL ADVISORY COMMITTEE FOR 1992

The Mineralogical Society of America's endowment is divided into three funds. The largest of these, the Endowment Fund, is for unrestricted use authorized by the MSA Council and the two smaller funds, the Mineralogy and Petrology Fund and the Kraus Crystallography Fund, are restricted to providing financial assistance toward future research in their respective fields. This report summarizes the fiscal-year financial history of those funds. It does not include monies, such as recent contributions, not yet transferred to the endowment from the General Operating Fund (GOF).

TABLE 2. Mineralogical Society of America endowment

	1992 cost	1992 market	1991 cost	1991 market
		<b>Fund type</b>		
Endowment	\$817,256	\$1,007,258	\$750,571	\$943,340
Mineralogy and Petrology	78,017	85,109	73,385	72,746
Kraus Crystallography	54,056	57,938	54,630	53,060
		<b>Investment type</b>		
U.S. Treasury note	40,000	40,000	40,000	40,000
Mutual funds and equities	590,835	791,810	498,702	689,262
Cash equivalents	318,494	318,494	339,884	339,884

The Society's Endowment Fund is invested in a \$40,000 U.S. Treasury note, two mutual fund money-market accounts, and two mutual fund equity accounts, one in the Fidelity Magellan Fund and the other in the Reich and Tang Equity Fund. Two significant actions were taken with respect to the Endowment Fund during 1992. First, in addition to the transfer of \$120,000 in 1991, another \$30,539 was moved to the GOF following the recent decision by Council that funds would be transferred between the Endowment and GOF before the end of the following fiscal year to offset any deficit or surplus in the operating budget. Second, on the recommendation of the Financial Advisory Committee during the Fall Council Meeting, Council voted to gradually reinvest \$150,000 from the money-market accounts back into the Equity Funds. A total of \$20,000 was reinvested during November and December, and the process will continue throughout 1993, barring any major changes in the market. At year end the Endowment Fund was invested 64% in equities, 32% in cash equivalents, and 4% in a U.S. Treasury note.

No reallocations occurred in the two restricted funds for 1991. The Mineralogy and Petrology Fund and the Kraus Crystallography Fund are each 100% invested in separate Fidelity Equity-Income Fund accounts.

Table 2 shows that the Society registered small net gains for 1992 in all areas of its endowment. The market value of the Endowment Fund increased nearly 7%, to \$1,007,258, while the market values of the Mineralogy and Petrology and Kraus Crystallography Funds increased approximately 17 and 9% to \$85,109 and \$57,938, respectively. Actions taken by Council during 1991 and 1992 to decrease costs and to increase revenues were successful in bringing the operating budget into balance for 1992. Continuation of that success will ensure the continuation of the Society's strong financial position.

Respectfully submitted,  
D. A. HEWITT, Chair  
G. W. FISHER, Chair of the  
Management Committee  
R. T. HELZ, Treasurer  
D. RUMBLE  
J. H. STOUT

### REPORT OF THE EDITORS FOR 1992 (OCTOBER 1, 1991–SEPTEMBER 30, 1992)

For the first time since taking over the editorship, we believe that we are no longer in crisis. We have made progress in dealing with numerous problems, not the least of which is the continuing rapid rate of manuscript submission, and, as a result, we believe that the journal is in excellent shape.

At this time last year, we reported that we had completed an unprecedented year in journal operations, having published the largest volume in the history of the journal. We reported further that the journal was back on schedule and that there was no backlog of papers. Although the immediate crises brought about by the publication of the Thompson issue were resolved at the time, there was still a need for improvement in other areas of journal operations, such as the time required for publication (the submission to publication rate). We have worked this year to improve this situation, and the results of our efforts should start to appear in the coming issues.

In comparison with 1991, 1992 was a relatively calm year, but not without new challenges. As a result of Council decisions to limit the size of the journal to 42 signatures (1344 pages), the rejection rate rose to over 45% of manuscripts submitted. The number of rejections is unprecedented and is as many in this year alone as in the entire period 1980–1985. Such a high rejection rate has led to a number of comments from Society members who believe that their own subdisciplines are underrepresented in the journal. We have received such comments from members representing almost every area of the science: mineralogists, petrologists, mineral physicists, crystallographers, and so on. The Editors continue to strive to maintain balance in the breadth of topics presented and to publish the highest quality science, as determined cooperatively by the Editors, Associate Editors, and reviewers. This is not an easy chore, and it is one that consumes a very large portion of the Editors' time, as such judgments require careful consideration and often lengthy consultations with Associate Editors, reviewers, and other experts in various fields. However, considering our breadth, there are bound to be differences of opinion over what is considered important.

A summary of journal operations is in Table 3. As can be seen, 252 manuscripts were submitted, a number second only to 1990, when 269 manuscripts were submitted.

**TABLE 3.** Summary of *American Mineralogist* operations

Vol.	No.	Number of scientific articles	Pages of scientific articles	Pages of miscellaneous	Total pages	Signatures*
<b>September–December 1991</b>						
76	9–10	34	307	25	332	10.375
76	11–12	25	246	42	288	9.000
<b>January–December 1992</b>						
77	1–2	26	221	3	224	7.000
77	3–4	26	232	0	232	7.250
77	5–6	29	227	1	228	7.125
77	7–8	23	189	27	216	6.750
77	9–10	27	229	3	232	7.250
77	11–12	18	177	31	208	6.500
Total (v. 77)		149	1275	65	1340	41.875
<b>For comparison: 1991</b>						
Total (v. 76)		195	1996	72	2068	64.625
<b>For comparison: 1990</b>						
Total (v. 75)		161	1422	52	1474	46.0625
<b>For comparison: 1989</b>						
Total (v. 74)		172	1369	87	1456	45.50
Manuscripts submitted, 10/1/91 to 9/30/92:						252
Manuscripts submitted, 10/1/90 to 9/30/91:						220
Manuscripts submitted, 10/1/89 to 9/30/90:						269
Manuscripts rejected, 10/1/91 to 9/30/92:						115
Manuscripts rejected, 10/1/90 to 9/30/91:						59
Manuscripts rejected, 10/1/89 to 9/30/90:						45
Manuscripts withdrawn, 10/1/91 to 9/30/92:						9
Manuscripts withdrawn, 10/1/90 to 9/30/91:						26
Manuscripts withdrawn, 10/1/89 to 9/30/90:						17
* One signature equals 32 pages.						

The number of manuscripts submitted over the past four years is much greater than in any four-year period in the journal's history. Certainly the trend is one of increasing submissions, but such numbers tell only part of the story. What is not obvious from the numerical data is that the breadth of topics and average length of papers are also greater than ever before. These trends, combined with limitations on the amount that can be published, will certainly create challenges for the future and need to be addressed in a timely manner.

The journal is published with the help of very dedicated people. This year the following Associate Editors are retiring: C. R. Bacon, William Carlson, Thomas D. Hoisch, John M. Hughes, John Longhi, Tamsin C. McCormick, Glenn A. Waychunas, and Richard F. Wendlandt. They are thanked for their years of service, much of which encompassed a hectic and turbulent period. In addition, we are thankful that the following have agreed to serve as Associate Editors for the period 1993 through 1995: Barbara Dutrow, George Guthrie, Claude Herzberg, Anthony Kampf, James Luhr, William Nash, Dexter Perkins III, and David Sherman.

At the Cincinnati meeting, Steve Bohlen and Don Peacor requested that they be relieved of their duties as Editors, effective no later than the GSA meeting in 1993.

STEVEN R. BOHLEN, Editor  
DONALD R. PEACOR, Editor  
VICKI LAWRENCE, Managing Editor

### REVIEWERS OF MANUSCRIPTS EITHER ACCEPTED OR REJECTED IN 1992

Abbott, R. N., Jr.	Burns, R. G.	Dixon, J. E.	Gellman, A.
Anderson, A. T.	Burruss, R.	Dollase, W. A.	Ghiorso, M. S.
Angel, R. J.	Burt, D. M.	Donahoe, R. J.	Ghose, S.
Anovitz, L. M.	Buseck, P. R.	Downs, J. W.	Giovanoli, R.
Ansell, G.	Calas, G.	Downs, R. T.	Gramaccioli, C. M.
Aranovich, L.	Cameron, E. N.	Dowty, E.	Grant, J. A.
Armbruster, T.	Carpenter, M. A.	Drury, M.	Green, D. H.
Baerlocher, C.	Casey, W.	Dunbar, N. W.	Grew, E. S.
Bailey, S. W.	Cemič, L.	Dunn, P. J.	Grice, J. D.
Banfield, J. F.	Černý, P.	Ercit, T. S.	Griffen, D. T.
Barnes, H. L.	Chacko, T.	Erd, R. C.	Grimsditch, M.
Baur, W. H.	Chakraborty, S.	Evans, B. W.	Groat, L.
Beard, J. S.	Chamberlain, C. P.	Ewing, R. C.	Guggenheim, S. J.
Berg, J. H.	Charles, R. W.	Farnam, I.	Guthrie, G. D.
Bergantz, G.	Chopelas, A.	Farver, J. R.	Guven, N.
Berman, R.	Chou, I.-M.	Felmy, A. R.	Haggerty, S. E.
Bickle, M. J.	Christiansen, E.	Fenn, P. M.	Harlow, G. E.
Bish, D. L.	Christoffersen, R.	Finger, L. W.	Harrison, W. J.
Blum, A. E.	Clayton, R. N.	Fleet, M. E.	Haselton, H. T.
Borsill, L. A.	Clyne, M. A.	Foord, E. E.	Hatch, D.
Boudreau, A.	Cohen, R. E.	Francis, C. A.	Hawthorne, F. C.
Brow, R. K.	Crowley, K. D.	Freed, R. L.	Hay, D.
Brown, I. D.	Dai, Y.	Fritsch, E.	Hazen, R.
Brown, P. E.	Deagren, S.	Frost, B. R.	Hemingway, B. S.
Burnham, C. W.	Dingwell, D. B.	Gaite, J. M.	Hemley, R. J.

Henry, D. J.	Liou, J. G.	Palmer, D. C.	Simon, S.
Hervig, R. L.	Lipin, B.	Parise, J. B.	Smelik, E. A.
Hewitt, D. A.	Livi, K. J.	Pary, W.	Smith, D.
Hirschmann, M. M.	Loferski, P.J.F.	Perkins, D., III	Smyth, J. R.
Hlava, P. F.	Lofgren, G. E.	Peterson, J. W.	Spear, F. S.
Hochella, M. F., Jr.	London, D.	Peterson, R. C.	Spera, F. J.
Hoernes, S.	Ludington, S.	Peterson, T.	Spinnler, G.
Hofmeister, A. M.	MacInnis, I. N.	Petrov, I.	Stebbins, J. F.
Holdaway, M. J.	Manghnani, M. H.	Pevear, D. R.	Stormer, J. C., Jr.
Holland, T.J.B.	Mao, H. K.	Phillips, B. L.	Swapp, S.
Hollister, L. S.	Maresch, W. V.	Phillips, M. W.	Swope, J.
Holloway, J. R.	Mathez, E. A.	Pilati, T.	Symonds, R.
Hovis, G. L.	Mazdab, F. K.	Post, J. E.	Thompson, J. B., Jr.
Huebner, J. S.	Mäder, U. K.	Price, G. D.	Tillmanns, E.
Hughes, J. M.	McCammon, C. A.	Ramik, R.	Tomeoka, K.
Hurford, A. J.	McClelland, J.	Rancourt, D. G.	Tossell, J. A.
Ingalls, R.	McMillan, P.	Raymond, L. A.	Toulmin, P., III
Jackson, M. D.	McNeil, L. E.	Redfern, S. A.	Tracy, R. J.
Jackson, R.	Meade, C.	Reeder, R. J.	Ulmer, P.
Jambor, J. L.	Miller, C. F.	Regis, A. J.	Ungaretti, L.
Jenkins, D. M.	Miner, B.	Reynard, B.	Virgo, D.
Johnson, M. C.	Montana, A.	Reynolds, R. C.	Viswanathan, K.
Kampf, A. R.	Moore, P. B.	Richet, P.	Vlassopoulos, D.
Kerrick, D. M.	Morse, S. A.	Rivers, M.	Walker, D.
King, H. E., Jr.	Murphy, W. M.	Roberts, A. C.	Walter, F.
Kinzler, R. J.	Myers, J. D.	Roeder, P. L.	Wannamaker, B. J.
Kirkpatrick, R. J.	Mysen, B. O.	Rosenberg, P. E.	Watson, E. B.
Kissin, S. A.	Nash, W. P.	Ross, C. R., II	Waychunas, G. A.
Knittle, E.	Naslund, H. R.	Ross, M.	Wechsler, B. A.
Kohn, M. J.	Navrotsky, A.	Rossman, G. R.	Weidner, D.
Koziol, A.	Neilson, R. L.	Rutherford, M. J.	Wendlandt, R. F.
Kunz, M.	Nekvasil, H.	Sack, R. O.	Wicks, F. J.
Labotka, T. C.	Nord, G. L., Jr.	Sassani, D. C.	Windom, K. E.
Lager, G. A.	O'Day, P. A.	Sato, R. K.	Wolf, G.
Lamb, W.	O'Hanley, D. S.	Schiffries, C. M.	Wood, B. J.
Lander, R.	Oberhäsli, R.	Scott, K.	Wood, I. G.
Lange, R. A.	Oberti, R.	Seifert, F.	Yamanaka, T.
Langer, A. M.	Oelkers, E. H.	Sharma, S. K.	Yardley, B.W.D.
Lasaga, A. C.	Orr, B.	Simmons, C.	Yund, R. A.
Linneman, S.	Owen, M.	Simmons, W. B., Jr.	

## 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

### Presidents

1920 Edward H. Kraus  
1921 Charles Palache  
1922 Thomas L. Walker  
1923 Edgar T. Wherry  
1924 Henry S. Washington  
1925 Arthur S. Eakle  
1926 Waldemar T. Schaller  
1927 Austin F. Rogers  
1928 Esper S. Larsen  
1929 Arthur L. Parsons  
1930 Herbert E. Merwin  
1931 Alexander H. Phillips

1932 Alexander N. Winchell  
1933 Herbert P. Whitlock  
1934 John E. Wolff  
1935 Clarence S. Ross  
1936 William S. Bayley  
1937 Norman L. Bowen  
1938 Ellis Thomson  
1939 Max N. Short  
1940 William F. Foshag  
1941 Frederick E. Wright  
1942 Arthur F. Buddington  
1943 John F. Schairer

1944 R. C. Emmons  
1945 Kenneth K. Landes  
1946 Paul F. Kerr  
1947 M. J. Buerger  
1948 M. A. Peacock  
1949 John W. Gruner  
1950 George Tunell  
1951 A. Pabst  
1952 Michael Fleischer  
1953 J.D.H. Donnay  
1954 Sterling B. Hendricks  
1955 Harry H. Hess

1956 Clifford Frondel  
1957 D. Jerome Fisher  
1958 George E. Goodspeed  
1959 Ralph E. Grim  
1960 Joseph Murdoch  
1961 E. F. Osborn  
1962 Ian Campbell  
1963 C. S. Hurlbut, Jr.  
1964 Leonard G. Berry  
1965 George T. Faust  
1966 Brian H. Mason  
1967 Felix Chayes

1968 James B. Thompson	1975 Arnulf Muan	1981 Gerald V. Gibbs	1987 Paul H. Ribbe
1969 Francis J. Turner	1976 E-an Zen	1982 Donald H. Lindsley	1988 David B. Stewart
1970 William F. Bradley	1977 F. Donald Bloss	1983 Edwin Roedder	1989 Charles W. Burnham
1971 Julian R. Goldsmith	1978 Peter J. Wyllie	1984 Charles T. Prewitt	1990 Peter Robinson
1972 Hatten S. Yoder, Jr.	1979 David R. Wones	1985 Hans P. Eugster	1991 Malcolm Ross
1973 Joseph V. Smith	1980 W. Gary Ernst	1986 Paul B. Barton, Jr.	1992 Michael Holdaway
1974 S. W. Bailey			

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1970–1971 Arnulf Muan
1972–1975 Joan R. Clark
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1984–1987 Henry O. A. Meyer
1988–1991 Maryellen Cameron
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1924–1929 Alexander H. Phillips
1920–1930 Albert B. Peck
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1958–1968 Marjorie Hooker
1969–1972 Alvin Van Valkenburg, Jr.
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1975–1976 George W. Fisher
1976–1980 Malcolm Ross
1981–1984 Odette B. James
1985–1988 Gordon L. Nord, Jr.
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1961–1966 E. Wm. Heinrich
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1976–1980 Brian Mason
1981–1985 Michael J. Holdaway
1986–1989 James L. Munoz
1990– Steven R. Bohlen
1990– Donald R. Peacor

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1921 Frank R. Van Horn, Frederick E. Wright, Alexander H. Phillips, Austin F. Rogers.	1928 William F. Foshag, William A. Tarr, Alexander N. Winchell, Ellis Thomson.
1922 Frederick E. Wright, Alexander H. Phillips, Austin F. Rogers, Thomas L. Watson.	1929 William A. Tarr, Alexander N. Winchell, Ellis Thomson, Clarence S. Ross.
1923 Alexander H. Phillips, Austin F. Rogers, Thomas L. Watson, Esper S. Larsen.	1930 Alexander N. Winchell, Ellis Thomson, Clarence S. Ross, Paul F. Kerr.
1924 Austin F. Rogers, Thomas L. Watson, Esper S. Larsen, Arthur L. Parsons.	1931 Ellis Thomson, Clarence S. Ross, Paul F. Kerr, William S. Bayley.
1925 Thomas L. Watson, Esper S. Larsen, Arthur L. Parsons, William F. Foshag.	1932 Clarence S. Ross, Paul F. Kerr, William S. Bayley, William J. McCaughey.
1926 Esper S. Larsen, Arthur L. Parsons, William F. Foshag, William A. Tarr.	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.
- 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.
- 1990 Rosemary V. Buden, Maria L. Crawford, M. Charles Gilbert, Frank C. Hawthorne, Robert M. Hazen, David R. Veblen.
- 1991 Rosemary V. Buden, Maria L. Crawford, Frank C. Hawthorne, R. James Kirkpatrick, Jo Laird, David R. Veblen.
- 1992 Maria L. Crawford, Michael F. Hochella, Jr., R. James Kirkpatrick, Jo Laird, Joseph R. Smyth, David R. Veblen.



**Recipients of the Roebing Medal**

1937 Charles Palache	1960 Tom F. W. Barth	1976 Carl W. Correns
1938 Waldemar T. Schaller	1961 Paul Ramdohr	1977 Raimond Castaing
1940 Leonard James Spencer	1962 John W. Gruner	1978 James B. Thompson
1941 Esper S. Larsen, Jr.	1963 John Frank Schairer	1979 W. H. Taylor
1945 Edward H. Kraus	1964 Clifford Frondel	1980 Dmitrii Sergeevich Korzhinskii
1946 Clarence S. Ross	1965 Adolf Pabst	1981 Robert M. Garrels
1947 Paul Niggli	1966 Max H. Hey	1982 Joseph V. Smith
1948 William Lawrence Bragg	1967 Linus Pauling	1983 Hans P. Eugster
1949 Herbert E. Merwin	1968 Tei-ichi Ito	1984 Paul B. Barton, Jr.
1950 Norman L. Bowen	1969 Fritz Laves	1985 Francis J. Turner
1952 Frederick E. Wright	1970 George W. Brindley	1986 Edwin Roedder
1953 William F. Foshag	1971 J.D.H. Donnay	1987 Gerald V. Gibbs
1954 Cecil Edgar Tilley	1972 Elburt F. Osborn	1988 Julian R. Goldsmith
1955 Alexander N. Winchell	1973 George Tunell	1989 Helen D. Megaw
1956 Arthur F. Buddington	1974 Ralph E. Grim	1990 Sturges W. Bailey
1957 Walter F. Hunt	1975 Michael Fleischer	1991 E-an Zen
1958 Martin J. Buerger	1975 O. Frank Tuttle	1992 Hatten S. Yoder, Jr.
1959 Felix Machatchki		

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

1951 Orville F. Tuttle	1965 Peter J. Wyllie	1979 Ho-Kwang Mao
1952 Frederick H. Stewart	1966 David B. Stewart	1980 Susan Werner Kieffer
1953 L. H. Ahrens	1967 Alfred E. Ringwood	1981 Alexandra Navrotsky
1954 Hatten S. Yoder, Jr.	1968 Barclay Kamb	1982 Robert M. Hazen
1955 Julian R. Goldsmith	1969 W. Gary Ernst	1983 David R. Veblen
1956 George C. Kennedy	1970 Bernard W. Evans	1984 Bernard J. Wood
1957 Rustum Roy	1971 Robert A. Berner	1985 John M. Ferry
1958 Charles E. Weaver	1972 Arthur L. Boettcher	1986 Antonio C. Lasaga
1959 Harry F. W. Taylor	1973 Paul Brian Moore	1987 Donald J. DePaolo
1960 Donald L. Graf	1974 James J. Papike	1988 Raymond Jeanloz
1961 Joseph V. Smith	1975 Roger G. Burns	1989 Michael A. Carpenter
1962 Douglas S. Coombs	1976 Friedrich A. Seifert	1990 Russell J. Hemley
1963 Nobuo Morimoto	1977 J. G. Liou	1991 Mark D. Barton
1964 William S. Fyfe	1978 J. Stephen Huebner	1992 Jonathan Stebbins

**Recipients of the Distinguished Public Service Medal**

- 1990 Malcolm Ross  
1991 H. Catherine W. Skinner

**Annual Meeting Places**

1920 Chicago, Illinois	1940 Austin, Texas	1960 Denver, Colorado
1921 Amherst, Massachusetts	1941 Boston, Massachusetts	1961 Cincinnati, Ohio
1922 Ann Arbor, Michigan	1942 No meeting held	1962 Houston, Texas
1923 Washington, D.C.	1943 No meeting held	1963 New York, New York
1924 Ithaca, New York	1944 No meeting held	1964 Miami Beach, Florida
1925 New Haven, Connecticut	1945 Pittsburgh, Pennsylvania	1965 Kansas City, Missouri
1926 Madison, Wisconsin	1946 Chicago, Illinois	1966 San Francisco, California
1927 Cleveland, Ohio	1947 Ottawa, Canada	1967 New Orleans, Louisiana
1928 New York, New York	1948 New York, New York	1968 Mexico City, Mexico
1929 Washington, D.C.	1949 El Paso, Texas	1969 Atlantic City, New Jersey
1930 Toronto, Canada	1950 Washington, D.C.	1970 Milwaukee, Wisconsin
1931 Tulsa, Oklahoma	1951 Detroit, Michigan	1971 Washington, D.C.
1932 Cambridge, Massachusetts	1952 Boston, Massachusetts	1972 Minneapolis, Minnesota
1933 Chicago, Illinois	1953 Toronto, Canada	1973 Dallas, Texas
1934 Rochester, New York	1954 Los Angeles, California	1974 Miami Beach, Florida
1935 New York, New York	1955 New Orleans, Louisiana	1975 Salt Lake City, Utah
1936 Cincinnati, Ohio	1956 Minneapolis, Minnesota	1976 Denver, Colorado
1937 Washington, D.C.	1957 Atlantic City, New Jersey	1977 Seattle, Washington
1938 New York, New York	1958 St. Louis, Missouri	1978 Toronto, Canada
1939 Minneapolis, Minnesota	1959 Pittsburgh, Pennsylvania	1979 San Diego, California

1980 Atlanta, Georgia  
 1981 Cincinnati, Ohio  
 1982 New Orleans, Louisiana  
 1983 Indianapolis, Indiana  
 1984 Reno, Nevada

1985 Orlando, Florida  
 1986 San Antonio, Texas  
 1987 Phoenix, Arizona  
 1988 Denver, Colorado

1989 St. Louis, Missouri  
 1990 Dallas, Texas  
 1991 San Diego, California  
 1992 Cincinnati, Ohio

**LIST OF 1993 OFFICERS AND COMMITTEES**  
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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 \$55.00 (\$30.00 for students), which includes a subscription to *American Mineralogist*. Members may also subscribe to *Mineralogical Abstracts* at the reduced rate of \$32.00, *Journal of Metamorphic Geology* at the reduced rate of \$165.50, *Journal of Petrology* at the reduced rate of \$200.00, and *Physics and Chemistry of Minerals* at the reduced rate of \$322.00.

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Jo Laird, University of New Hampshire, Durham, New Hampshire

1992-1994

Michael F. Hochella, Jr., Stanford University, Stanford, California

Joseph R. Smyth, University of Colorado, Boulder, Colorado

1993-1995

John B. Brady, Smith College, Northampton, Massachusetts  
 Anne M. Hofmeister, University of California, Davis, California

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 Antonio C. Lasaga  
 Robert C. Lieberman  
 George R. Rossman  
 E. Bruce Watson

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 Timothy L. Grove  
 Ho-Kwang Mao  
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 Paul B. Moore

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 Charles T. Prewitt  
 J. Alexander Speer  
 Carl Francis  
 H. Rudy Wenk

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 Priscilla C. Grew (1992-1994)  
 Malcolm Ross (1992-1994)  
 George R. McCormick (1993-1995)  
 Peter J. Wyllie (1993-1995)

**MSA Lecture Program Committee**

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 William Carlson (1991-1993)  
 Harry W. Green II (1992-1994)  
 Jeffrey E. Post (1992-1994)  
 J. Lawford Anderson (1993-1995)  
 Jonathan F. Stebbins (1993-1995)

**Nominating Committee for Fellows**

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 Richard L. Hervig (1991–1993)  
 George R. Rossman (1992–1994)  
 John B. Brady (1993–1995)

**MSA Delegates to the Joint Technical Program Committee of the GSA**

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 Robert W. Luth, Conferee (1993–1995)  
 Raymond Joesten, Abstractor (1993–1995)

**MSA Delegate to the AGU Program Committee**

Ronald E. Cohen (1992–1994)

**Nominating Committee for Officers**

R. James Kirkpatrick, Chair (Outgoing Councillor)  
 John W. Valley  
 G. V. Gibbs  
 Stearns A. Morse  
 Robert J. Tracy

**Tellers Committee**

Patricia J. Loferski (1992–1994), Chair  
 Paul Schroeder (1993–1995)

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Bernard W. Evans, Chair (Vice-President)  
 Stephen J. Guggenheim, Secretary  
 James J. Papike, Vice-President Candidate for 1993  
 H. Catherine W. Skinner, Vice-President Candidate for 1993  
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 J. H. Stout  
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Harvey E. Belkin

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**Mineral Museums Advisory Council**

Paul Keller (1983)

**American Mineralogist**

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 Editor: Donald R. Peacor  
 Managing Editor: Vicki Lawrence

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New Mineral Names (1987–)  
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 Jonathan F. Stebbins  
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 Thomas Armbruster  
 Jay Bass  
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**Reviews in Mineralogy**

Editor: Paul H. Ribbe

**Mineralogical Abstracts**

Principal Editor: Robert A. Howie  
 Organizer for American Abstracts: Karl A. Riggs, Jr.

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American Crystallographic Association: Bernhardt J. Wuensch (1981)  
 American Geological Institute: M. Charles Gilbert (1991)  
 Clay Minerals Society: David L. Bish (1988)  
 Friends of Mineralogy: Eugene E. Foord (1987)  
 JCPDS International Centre for Diffraction Data: Deane K. Smith (1974)  
 International Mineralogical Association: Charles W. Burnham (1989)  
 AGU Mineral Physics Committee: Robert M. Hazen (pro tem 1988)  
 Pegmatite Interest Group in association with MAC: Dave London (1992)  
 European Union of Geology: Jeffrey Post (1992)  
 Gemological Society of America: George Rossman (1992)

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Applied Mineralogy: H. Catherine W. Skinner (1992)  
Crystal Growth: R. James Kirkpatrick (1983)  
Gem Materials: Henry O. A. Meyer (1982)  
History & Teaching: Cornelis Klein (1985)

Mineral Data & Classification: Paul B. Moore (1977)  
Museum: Anthony R. Kampf (1992)  
New Minerals & Mineral Names: Pete J. Dunn (1985)  
Ore Microscopy: James R. Craig (1977)  
Physics of Minerals: Subrata Ghose (1989)