Proceedings of the Seventy-second Annual Meeting of the Mineralogical Society of America in San Diego, California

REPORT OF THE SECRETARY FOR 1991

The seventy-second annual meeting of the Society was held on 21–24 October 1991 in San Diego, California. Presentations sponsored by MSA were organized into 18 technical sessions: two on experimental petrology, seven on igneous petrology, four on metamorphic petrology, two on mineralogy and crystallography, and three on volcanology. Seven of these sessions involved poster presentations. There were 271 volunteered abstracts submitted for the five MSA-sponsored categories, with an acceptance rate of 92% for all categories. The Society’s representatives to the GSA Joint Technical Program Committee were D. L. Bish, M. S. Ghiorso (Chair), and J. E. Grover. The Society’s symposium, “Contact Metamorphism,” was convened by M. L. Crawford and R. J. Tracy. Prior to the meeting, MSA’s short course, Contact Metamorphism, was organized by D. Kerrick.

The retiring president, Malcolm Ross, presented an address to the Society entitled “Crystalline Solution Series and Order-Disorder within the Natrolite Mineral Group” on Tuesday, 22 October. Subsequently, President Ross called the annual business meeting of the Society to order.

Council meetings

The first meeting of the 1991 Council was held on 30 October 1990 in Dallas, Texas; the second was on 30 May 1991 in Baltimore, Maryland; and the third was held on 20 October 1991 in San Diego, California.

The first meeting of the 1992 Council was also held in San Diego, California, on 22 October 1991.

Discussions and actions by Council, as summarized from minutes of the three 1991 Council meetings and the 1991 business meeting, are noted below.

Results of the 1991 election

The voting for officers and Council members of the Society for 1992 was held during the summer of 1991; the following officers were elected:

President: Michael J. Holdaway (1992)
Vice President: Alexandra Navrotsky (1992)

The ballots (837) were certified on 27 August 1991 by the Tellers, Sorena S. Sorensen and Ann G. Wylie. Approximately 33% of the membership eligible to vote cast their ballots.

Membership statistics

As of December 1991, the Society’s 2542 members included 1587 Members (+84), 531 Fellows (−16), 392 Students (+59), five Honorary Fellows (−1), and 27 Associated Life Members and Life Fellows (+1). Numbers in parentheses are changes from December 1990.

Necrology

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

Louis H. Ahrens (LF)
George W. Bain (LF)
Douglas G. Brookins (F)
Paul Desautels (F)
E. William Heinrich (LF)
Katharine Mather (LF)
Arnulf Muan (F)
Charles F. Park (LF)
Jack Parnau (LM)
William Parrish (LF)
Alfred O. Woodford (LF)

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, limitations were imposed by Council to prevent further losses to the endowment. These losses were incurred, in part, by an increased number of pages published in the American Mineralogist last year as a result of a special issue and an increase in the submission rate. Although several cost-savings measures have been taken, the major limits to expenditures were placed on short courses by the consideration of funding relative to course size and on the Lattice and the American Mineralogist by limiting the number of pages per volume. The financial status of the Society is discussed in detail in the Report of the Treasurer.

American Mineralogist

Awards

The 1992 Roebling Medal will be awarded to Hatten Yoder (Geophysical Laboratory, Carnegie Institution of Washington) and the 1992 Mineralogical Society of America Award to Jonathan F. Stebbins (Stanford University). The Distinguished Public Service Medal of the Mineralogical Society of America is not to be awarded this year.

The recipient of the 1992 Crystallography Research Grant Award is Roberta L. Millard of Queen’s University, Kingston, Ontario.

The American Mineralogist Undergraduate Award was presented to 19 students in 1991.

Fellowship

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

Ross J. Angel
John T. Cheney
Stefan Graeser
Ian E. Grey
Paul C. Hess
Roderick J. Hill
Guy L. Hovis

Nominations for officers for the 1992 election

President: Alexandra Navrotsky, Princeton University
Vice-President: Bernard W. Evans, University of Washington (one to be elected)
Secretary: (not on ballot)
Councilors: (1993–1995) John B. Brady, Smith College (two to be elected)
Edward S. Grew, University of Maine at Orono
Anne M. Hofmeister, University of California–Davis
Jack M. Rice, University of Oregon

Other

In 1994, the Society will celebrate its 75th anniversary. Council is considering a joint celebration with the American Geophysical Union (AGU) at the Spring meeting in Baltimore. AGU will be having its 50th anniversary in 1994. Further details will be given in the Lattice as they become known.

Barbara Dutrow and David Veblen are the 1991–1992 lecturers for the MSA Lecture Program. This program continues to be popular; there were 65 requests from geoscience departments for speakers this past year. Each speaker expects to visit nine universities.

Stephen Guggenheim

Report of the Treasurer for 1991

This report summarizes the financial activity of the Mineralogical Society of America for the calendar year 1991. 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 negative balance of $198,946 in the General Operating Fund and positive balances of $883,527 in the Endowment Fund, $53,756 in the Crystallography Fund, and $74,212 in the Mineralogy and Petrology Fund. These balances represent a $158,290 decrease in the General Operating Fund, a $48,746 increase in the Endowment Fund, and increases of $12,176 and $16,547 in the Crystallography and Mineralogy and Petrology Funds, respectively. All securities in those totals are evaluated on a cost basis. The Society's net worth therefore decreased by a total of $80,821, or 9.05%, when securities are evaluated on a cost basis.

However, the securities held in the Endowment Fund increased greatly in market value. Therefore, although $135,118 was transferred from the Endowment, Crystallography, and Mineralogy and Petrology Funds to pay for awards, the lecture program, dues for life members, and general society expenses, the market value of the combined Funds increased from $957,897 to $1,069,146 (see Table 2 in the Report of the Financial Advisory Committee).

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 $158,290, with a balance as of December 31, 1991, of negative $198,946 (Table 1, column 3). A total of $135,118 was transferred from the Endowment Fund to offset this shortfall. The Endowment Fund, which acts as a reserve for the Society and whose income provides some support for Society operations and special projects, showed an excess of expenses over revenue of $109,544, yielding a balance of positive $750,571 based on the market value of securities (Table 1). A total of $12,956 was transferred from the Endowment Fund to the General Operating Fund. Approximately $120,000 of this total was offset by the costs of the awards, the lecture program, and general society expenses, the market value of the combined Funds increased from $957,897 to $1,069,146 (see Table 1, column 4).

In 1994, the Society will celebrate its 75th anniversary. Council is considering a joint celebration with the American Geophysical Union (AGU) at the Spring meeting in Baltimore. AGU will be having its 50th anniversary in 1994. Further details will be given in the Lattice as they become known.

Barbara Dutrow and David Veblen are the 1991–1992 lecturers for the MSA Lecture Program. This program continues to be popular; there were 65 requests from geoscience departments for speakers this past year. Each speaker expects to visit nine universities.

Stephen Guggenheim
Table 1. Statements of assets, liabilities, and fund balances

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Restricted</th>
<th>General Operating Fund</th>
<th>Reserve Fund</th>
<th>Total</th>
<th>Crystallography Fund</th>
<th>Mineralogy and Petrology Fund</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current assets:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$205,570</td>
<td>$197,052</td>
<td>$197,052</td>
<td>$197,052</td>
<td>$197,052</td>
<td>$197,052</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>27,185</td>
<td>24,885</td>
<td>24,885</td>
<td>24,885</td>
<td>24,885</td>
<td>24,885</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepaid expenses and deposits</td>
<td>7,406</td>
<td>13,982</td>
<td>13,982</td>
<td>13,982</td>
<td>13,982</td>
<td>13,982</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investments (FAC report)</td>
<td>913,830</td>
<td>876,377</td>
<td></td>
<td>750,571</td>
<td>750,571</td>
<td>50,060</td>
<td>72,746</td>
<td>125,506</td>
</tr>
<tr>
<td>Interfund borrowings</td>
<td></td>
<td></td>
<td></td>
<td>(135,118)</td>
<td>(135,118)</td>
<td>(2,162)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total current assets</td>
<td>1,153,991</td>
<td>1,112,296</td>
<td>100,801</td>
<td>883,527</td>
<td>883,527</td>
<td>53,756</td>
<td>74,212</td>
<td>127,968</td>
</tr>
<tr>
<td>Furniture and equipment, net of accumulated depreciation</td>
<td>16,768</td>
<td>13,037</td>
<td>13,037</td>
<td>13,037</td>
<td>13,037</td>
<td>13,037</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>$1,170,759</td>
<td>$1,125,333</td>
<td>$113,838</td>
<td>$883,527</td>
<td>$897,365</td>
<td>$53,756</td>
<td>$74,212</td>
<td>$127,968</td>
</tr>
<tr>
<td><strong>Liabilities and fund balance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current liabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable</td>
<td>33,027</td>
<td>9,207</td>
<td>9,207</td>
<td>9,207</td>
<td>9,207</td>
<td>9,207</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accrued expenses</td>
<td>15,291</td>
<td>13,496</td>
<td>13,496</td>
<td>13,496</td>
<td>13,496</td>
<td>13,496</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Due to other publishers</td>
<td>23,571</td>
<td>23,416</td>
<td>23,416</td>
<td>23,416</td>
<td>23,416</td>
<td>23,416</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deferred revenues:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dues</td>
<td>53,090</td>
<td>67,460</td>
<td>67,460</td>
<td>67,460</td>
<td>67,460</td>
<td>67,460</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscriptions</td>
<td>152,410</td>
<td>199,205</td>
<td>199,205</td>
<td>199,205</td>
<td>199,205</td>
<td>199,205</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total liabilities</td>
<td>277,890</td>
<td>312,784</td>
<td>312,784</td>
<td>312,784</td>
<td>312,784</td>
<td>312,784</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fund balance</td>
<td>893,370</td>
<td>812,549</td>
<td>(198,946)</td>
<td>883,527</td>
<td>883,527</td>
<td>53,756</td>
<td>74,212</td>
<td>127,968</td>
</tr>
<tr>
<td><strong>Total liabilities and fund balance</strong></td>
<td>$1,170,759</td>
<td>$1,125,333</td>
<td>$113,838</td>
<td>$883,527</td>
<td>$897,365</td>
<td>$53,756</td>
<td>$74,212</td>
<td>$127,968</td>
</tr>
</tbody>
</table>

Discussion of changes

The losses for the year were very close to those predicted in the original 1991 budget. The original budget showed a predicted deficit of approximately $134,000 in the General Operating Fund, which, added to the deficit of $48,405 at the beginning of the year, gave a predicted deficit of $182,313 compared to the actual value of $198,946.

Deviations from the original budget occurred in several categories. MSA dues received were 3% ($2561) above projections because of an increase in the number of dues-paying members. The American Mineralogist income was 10% ($30,572) below budget. This shortfall came from several sources, including institutional subscription income (−$8607), page charges (−$20,147), and reprint sales (−$2679). A small amount of this shortfall was offset by increased revenues from other sources. Reviews in Mineralogy brought in 12% ($14,356) more revenue than projected. Money market income that is normally credited to the American Mineralogist was also lower by 48% ($5305) due to lower cash balances and lower interest rates. Short courses brought in $40,861 (not listed in original budget) but cost $54,308, for a loss of $13,447. Net income, not counting short course income, was therefore 3% ($17,872) below budgetary estimates.

Under expenses, the Business Office came in under budget by 5% ($8178). The American Mineralogist came in under budget by 8% ($8607) for the Editorial Office and 2% ($5434) for printing and distribution. The Lattice came in over budget by 22% ($4440). All other categories were close to budgeted amounts. The net result was that expenses, not counting short courses, were 2% ($15,250) below budget.

The Council has already taken substantial measures to stop the deficits. Last year we were forced to raise all dues by $10, to $50 for regular members and $30 for student members, to offset the shortfall. In addition, we have raised the subscriber rates by $25 and added additional fees for foreign subscribers to offset the postage and freight. We have also been forced to charge for credit card orders on some transactions, since we must pay 5−10% for all credit card purchases.

This year the Council has also moved to put page limits on the Lattice and additional restrictions on the budgeting of short courses to attempt to keep these items within budget limits. We anticipate further increases in subscription rates caused by increases in printing and production costs, but hope to hold these increases to approximately 10%. With these changes, we predict that the budget deficit for 1992 will be much smaller and that by 1993 we may show an excess of revenue over expenses. It is the intention of Council to pay back the approximately $120,000 transferred from the Endowment Fund to cover general operating expenses as revenues allow.

Summary

In summary, the 1991 year was one of financial difficulty for the Society. We lost approximately $150,000 in the General Operating Fund, which was partially offset by transferring money from the Endowment Fund. Al-
tho the Endowment Fund was originally set up to support the functions of the society, including publication of the American Mineralogist, the transfer was far more than the Society can sustain on a regular basis. The Council has therefore taken steps to increase revenues and limit expenses in order to stop the deficit in the General Operating Fund. It is our hope that by 1993 the Society will be back to a balanced budget and can start paying back some of the money transferred from the Endowment Fund.

With all of this negative budgetary information, there is a hidden silver lining, which is documented in the Report of the Financial Advisory Committee. The FAC, under the guidance of Bruce Hemingway, wisely moved money from stocks to cash after the stock market had reached its highest level in 1991. As a consequence, we did not have to cash in any securities at low points in the market. Equities went up so much in 1991 that even though we transferred approximately $120,000 to cover the general operating costs of the Society and the cost value of securities in the Endowment Fund went down from $816,928 to $750,571, the market value of that fund went up, from $860,995 to $943,340. The total investment portfolio, including the Endowment Fund, Crystallography Fund, and the Mineralogy and Petrology Funds, now exceeds one million dollars in terms of market value.

J. A. WHITNEY

REPORT OF THE FINANCIAL ADVISORY COMMITTEE FOR 1991

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 other two smaller funds, the Mineralogy and Petrology Fund and the Crystallography Fund, are restricted for 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), and it does not include monies to be returned to the endowment that were transferred to the GOF to cover recent deficits.

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. During the year, $200,000 from the Fidelity Magellan Fund and $100,000 from the Reich and Tang Equity Fund were transferred to the money market accounts, and $120,000 of that money was transferred to the GOF to cover the Society's negative cash flow. No reallocations occurred in the two restricted funds for 1991. At year end, the Endowment Fund was invested 64% in equities, 32% in cash equivalents, and 4% in the U.S. Treasury note. The Mineralogy and Petrology Fund and the Crystallography Fund are each 100% invested in separate Fidelity Equity-Income Fund accounts.

The year 1991 was a strong one for the equity markets. In spite of the transfer of $120,000 to the GOF, the market value of the Endowment Fund increased from $860,995 to $943,340. The costs of those monies decreased from $816,928 to $750,571. The market values of the Mineralogy and Petrology and Crystallography Funds increased from $56,032 and $40,870 to $72,746 and $53,060, respectively. Additional details on the endowment are given in Table 2.

The Mineralogical Society of America remains in sound financial condition at this time. Actions taken by the Council during 1991 to decrease costs and to increase revenues are expected to bring the operating budget into balance from deficits of $85,000 in 1990 and $150,000 in 1991. If that does not happen in the next 12-18 months, the Financial Advisory Committee will be a strong advocate for further revisions in the operating budget.

Respectfully submitted,
D. A. HEWITT, Chair
G. L. NORD, Chair of the Management Committee
D. RUMBLE
J. H. STOUT
J. A. WHITNEY, Treasurer

REPORT OF THE EDITORS FOR 1991
(October 1, 1990–September 30, 1991)

This has been an exceedingly challenging year for all of us in the editorial office. At the time of the MSA Council Meeting in Dallas (Fall, 1990) the journal was eight weeks behind schedule, and there was an unprecedented number of papers in the review process. One year later we were able to report to the Council that the journal was on schedule and had no backlog of papers.

### Table 2. Mineralogical Society of America endowment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Endowment</td>
<td>$750,571</td>
<td>$943,340</td>
<td>$816,928</td>
<td>$860,995</td>
</tr>
<tr>
<td>Mineralogy and Petrology</td>
<td>$73,385</td>
<td>$72,746</td>
<td>$70,165</td>
<td>$56,032</td>
</tr>
<tr>
<td>Crystallography</td>
<td>$54,830</td>
<td>$53,060</td>
<td>$52,281</td>
<td>$40,870</td>
</tr>
<tr>
<td><strong>Investment type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Treasury notes</td>
<td>$40,000</td>
<td>$40,000</td>
<td>$40,000</td>
<td>$40,000</td>
</tr>
<tr>
<td>Mutual funds and equities</td>
<td>$439,702</td>
<td>$669,926</td>
<td>$759,923</td>
<td>$778,446</td>
</tr>
<tr>
<td>Cash equivalents</td>
<td>$339,884</td>
<td>$339,884</td>
<td>$139,451</td>
<td>$139,451</td>
</tr>
</tbody>
</table>

**Respectfully submitted,**
D. A. HEWITT, Chair
G. L. NORD, Chair of the Management Committee
D. RUMBLE
J. H. STOUT
J. A. WHITNEY, Treasurer
As can be seen in Table 3, over 64 signatures (2055 pages) were published in 1991, making volume 76 the largest volume in the history of the American Mineralogist by a very wide margin. Discussions of the financial strain caused by publishing such a large volume can be read in the other reports in the Proceedings for this year and last year.

At the Council Meetings held at Fall GSA (San Diego), it was decided that in 1992 the journal would not publish more than 42 signatures. Every attempt would be made to shorten the average length of articles by having authors tighten their writing, deposit tables, and design their figures economically, thereby making it possible to publish more articles in the same number of pages. In addition, the Council authorized increasing the rejection rate to keep the number of acceptances within a rate that can be published in a timely fashion. The Council did not approve the creation of a backlog.

Although submissions were down for fiscal 1991, they began climbing in midsummer and continue at a very high rate. As a result, the rejection rate has risen steeply. We will continue to adjust the rate in response to the rate of submission, while striving to shorten the length of articles as much as possible. Despite these constraints, we are committed to continuing the American Mineralogist tradition of presenting the best of current research across the spectrum of mineralogy, crystallography, and petrology.

STEVEN R. BOHLEN, Editor
DONALD R. PEACOR, Editor
VICKI LAWRENCE, Managing Editor
Abbott, R. N., Jr.
Aines, R. D.
Allen, F. M.
Amthauer, G.
Anderson, A. T., Jr.
Angel, R. J.
Armbruster, T.
Ashley, P. M.
Bailey, S. W.
Baker, D. R.
Baldridge, W. S.
Barnes, S. J.
Bass, J. D.
Bauer, J. F.
Bell, D. R.
Bennett, P. C.
Bergen, S. J.
Bass, J. D.
Bauer, J. F.
Bell, D. R.
Bennett, P. C.
Bergen, S. J.
Bass, J. D.
Bauer, J. F.
Bell, D. R.
Scott, S. D.  
Selverstone, J.  
Sen Gupta, P. K.  
Shannon, M.  
Shannon, R. D.  
Sharp, T. G.  
Shaw, H. R.  
Sherman, D. M.  
Sherriff, B. L.  
Skinner, H.C.W.  
Smith, D.  
Smyth, J. R.  
Solomon, E.  
Sorensen, S. S.  
Spear, F. S.  
Spearling, D. R.  
Speer, J. A.  
Spera, F.  
Stebbins, J. F.  
Stein, D. J.  
Stoessell, R. K.  
Stolper, E.  
Stout, J. H.  
Stuart, J. A.  
Sujatttra, K.  
Swanson, S. E.  
Sweppe, J.  
Symonds, R. B.  
Tracy, R. J.  
Treiman, A.  
Trzeienski, W. E., Jr.  
Turner, S.  
Turnock, A. C.  
Veblen, D. R.  
Velbel, M. A.  
Virgo, D.  
Walker, J. R.  
Wall, A.  
Walter, L. M.  
Walther, J. V.  
Warren, P. H.  
Waychunas, G. A.  
Webster, J. D.  
Wendlandt, R. F.  
White, W. B.  
Whitney, J. A.  
Wickham, S. M.  
Wicks, F. J.  
Wieber, R. A.  
Williams, Q.  
Wintsch, R. P.  
Wise, M. A.  
Wolf, G. H.  
Woodhead, J. A.  
Young, E. J.  
Yund, R. A.  
Zoltai, T.  

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

Vice-Presidents

1920 Thomas L. Walker  
1921 Waldemar T. Schaller  
1922 Frederick A. Canfield  
1923 George F. Kunz  
1924 Washington A. Roebling  
1925 Herbert P. Whittlock  
1926 George Vaux, Jr.  
1927 George L. English  
1928 Lazard Cahn  
1929 Edward Wigglesworth  
1930 John E. Wolff  
1931 William F. Foshag  
1932 Joseph L. Gillson  
1933 Frank B. Guild  
1934 William A. Tarr  
1935 Ellis Thomson  
1936 Harold L. Alling  
1937 H. V. Ellsworth  
1938 Kenneth K. Landes  
1939 Burnham S. Colburn  
1940 Ian Campbell  
1941 William J. McCaughey  
1942 Martin J. Buerger  
1943 John W. Gruner  
1944 Harry L. Turnell  
1945 George Tunell  
1946 S. B. Hendricks  
1947 William J. McCaughey  
1948 A. Pabst  
1949 J.D.H. Donnay  
1950 Ralph E. Grim  
1951 Michael Fleischer  
1952 J.D.H. Donnay  
1953 Sterling B. Hendricks  
1954 Harry H. Hess  
1955 Clifford Frondel  
1956 D. Jerome Fisher  
1957 George E. Goodspeed  
1958 Ralph E. Grim  
1959 Joseph Murdoch  
1960 E. F. Osborn  
1961 Ian Campbell  
1962 C. S. Hurlbut, Jr.  
1963 Leonard G. Berry  
1964 George T. Faust  
1965 Brian H. Mason  
1966 Felix Chayes  
1967 James B. Thompson  
1968 Francis J. Turner  
1969 William F. Bradley  
1970 Julian R. Goldsmith  
1971 Hatten S. Yoder, Jr.  
1972 Joseph V. Smith  
1973 S. W. Bailey  
1974 Arnulf Muan  
1975 E-an Znn  
1976 F. Donald Bloss  
1977 Peter J. Wyllie  
1978 David R. Wones  
1979 W. Gary Ernst

 Edward T. Wherry
1980 Gerald V. Gibbs  
1981 Donald H. Lindsley  
1982 Edwin Roedder  
1983 Charles T. Prewitt  
1984 Hans P. Eugster  
1985 Paul B. Barton, Jr.  
1986 Paul H. Ribbe  
1987 David B. Stewart  
1988 Charles W. Burnham  
1989 Peter Robinson  
1990 Malcolm Ross  
1991 Michael Holdaway

**Secretaries**
- 1920-1922 Herbert P. Whitlock
- 1923-1933 Frank R. Van Horn
- 1933-1934 Albert B. Peck
- 1934-1944 Paul F. Kerr
- 1959-1966 George Switzer
- 1966-1969 Ralph J. Holmes
- 1970-1971 Arnulf Muan
- 1972-1975 Joan R. Clark
- 1976-1979 Larry W. Finger
- 1980-1983 M. Charles Gilbert
- 1984-1987 Maryellen Cameron

**Treasurers**
- 1920-1923 Albert B. Peck
- 1924-1929 Alexander H. Phillips
- 1930-1930 Albert B. Peck
- 1930-1940 Waldemar T. Schaller
- 1941-1958 Marjorie Hooker
- 1958-1968 Alvin Van Valkenburg
- 1972-1975 George W. Fisher
- 1976-1980 Malcolm Ross
- 1981-1984 Odette B. James

**Editors**
- 1920-1921 Edgar T. Wherry
- 1922-1956 Walter F. Hunt
- 1957-1961 Lewis S. Ramsdell
- 1961-1966 E. Wm. Heinrich
- 1966-1972 William T. Holser
- 1972-1975 F. Donald Bloss
- 1976-1980 Brian Mason
- 1981-1985 Michael J. Holdaway
- 1986-1989 James L. Munoz
- 1990-1991 Donald R. Peacock

**Councillors**
- 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.
- 1924 Austin F. Rogers, Thomas L. Watson, Esper S. Larsen, Arthur L. Parsons.
- 1930 Alexander N. Winchell, Ellis Thomson, Clarence S. Ross, Paul F. Kerr.
Recipients of the Roebling Medal

1937 Charles Palache
1938 Waldemar T. Schaller
1940 Leonard James Spencer
1941 Esper S. Larsen, Jr.
1945 Edward H. Kraus
1946 Clarence S. Ross
1947 Paul Niggli
1948 William Lawrence Bragg
1949 Herbert E. Merwin
1950 Norman L. Bowen
1952 Frederick E. Wright
1953 William F. Foshag
1954 Ceciel Edgar Tilley
1955 William F. Foshag
1964 Harold L. James, Joseph V. Smith, William S. Fythe, Walter D. Keller.
1965 R. W. Foster, Howard T. Evans, Jr., Harold L. James, Joseph V. Smith.
1971 Felix Machatchki
1972 Julian R. Goldsmith
1973 George Tunell
1978 Basile C. Malchevski
1979 G. C. H. Macmillan
1982 J. Stephen Huebner, Robert C. Newton, Philip M. Orville.
1984 Paul B. Barton, Jr.
1985 E. H. Kent
1986 Edward J. Schairer
1987 Gerald V. Gibbs
1988 S. S. Goldich
1989 T. R. Chamberlin
1990 Robert M. Hazen, Michael J. Holdaway, Douglas Rumble, III.
Recipients of the Mineralogical Society of America Award

- 1951 Orville F. Tuttle
- 1952 Frederick H. Stewart
- 1953 L. H. Ahrens
- 1954 Hatten S. Yoder, Jr.
- 1955 Julian R. Goldsmith
- 1956 George C. Kennedy
- 1957 Rustum Roy
- 1958 Charles E. Weaver
- 1959 Harry F. W. Taylor
- 1960 Donald L. Graf
- 1961 Joseph V. Smith
- 1962 Douglas S. Coombs
- 1963 Nobuo Morimoto
- 1964 William S. Fyfe
- 1965 Peter J. Wyllie
- 1966 David B. Stewart
- 1967 Alfred E. Ringwood
- 1968 Charles E. Weaver
- 1969 Harry F. W. Taylor
- 1970 Donald L. Graf
- 1971 Robert A. Berner
- 1972 Roger G. Burns
- 1973 Charles E. Weaver
- 1974 Harry F. W. Taylor
- 1975 Alfred E. Ringwood
- 1976 Charles E. Weaver
- 1977 Donald L. Graf
- 1978 Robert A. Berner
- 1979 Charles E. Weaver
- 1980 Alfred E. Ringwood
- 1981 Charles E. Weaver

Recipients of the Distinguished Public Service Medal

- 1990 Malcolm Ross
- 1991 H. Catherine W. Skinner

Annual Meeting Places

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

LIST OF 1992 OFFICERS AND COMMITTEES

Mineralogical Society of America
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 $50.00 ($30.00 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.

President
Michael Holdaway, Southern Methodist University, Dallas, Texas

Past President
Malcolm Ross, U.S. Geological Survey, MS 959, National Center, Reston, Virginia
Vice-President
Alexandra Navrotsky, Princeton University, Princeton, New Jersey

Treasurer
James A. Whitney, University of Georgia, Athens, Georgia

Secretary
Stephen J. Guggenheim, University of Illinois, Chicago, Illinois

Councillors
1990-1992
Maria L. Crawford, Bryn Mawr College, Bryn Mawr, Pennsylvania

1992-1994
Michael F. Hochella, Jr., Stanford University, Stanford, California

1991-1993
R. James Kirkpatrick, University of Illinois, Urbana, Illinois

1991-1993
Jo Laird, University of New Hampshire, Durham, New Hampshire

1992-1994
Joseph R. Smyth, University of Colorado, Boulder, Colorado

1989-1992
David R. Veblen, Johns Hopkins University, Baltimore, Maryland

APPOINTIVE POSTS FOR 1992

Roebling Medal Committee
Joseph R. Smyth, Chair
Paul B. Barton, Jr.
Francis R. Boyd
G. V. Gibbs
Donald R. Peacor
David B. Stewart

MSA Award Committee
Michael F. Hochella, Jr., Chair
Michael A. Carpenter
Susan W. Kieffer
Jane Nielson
Edward Stolper
Walter Trzcinski, Jr.

Research Grant Committee (Even-numbered years, crystallography; odd-numbered years, min/pet; 1992 Committee will recommend a recipient for the 1993 award in mineralogy/petrolgogy)
Jo Laird, Chair
Jillian F. Banfield
George E. Harlow
Attila I. Kilinc
T. Kurtis Kyser
Jack M. Rice

Public Service Award Committee
Alan M. Gaines (1990–1992), Chair
F. Donald Bloss (1990–1992)


MSA Lecture Program Committee
Henry O. Meyer, Lecture Coordinator
Jeffrey L. Warner (1990–1992), Chair

Nominating Committee for Fellows
Robert A. Wiebe (1990–1992), Chair

MSA Delegates to the Joint Technical Program Committee of the GSA
David L. Bish, Representative (1990–1992), Chair

Nominating Committee for Officers
Maria Luisa Crawford, Chair
Mark D. Barton
John M. Ferry
B. Ronald Frost
Anne M. Hofmeister

Tellers Committee
Sorena S. Sorensen (1991–1992), Chair

Committee on Committees
Alexandra Navrotsky, Chair
Stephen J. Guggenheim, Secretary
B. W. Evans
Henry O. Meyer
Stephen E. Haggerty
Dean C. Pressnall

Committee on Management
Gordon L. Nord, Jr. (term ends in 1992), Chair
George W. Fisher (term ends in 1993)
Stephen J. Guggenheim, Secretary
Bruce D. Marsh (term ends in 1994)
James A. Whitney, Treasurer
David A. Hewitt, Chair, Financial Advisory Committee

Financial Advisory Committee (6-year terms)
David A. Hewitt, Chair
Gordon L. Nord, Jr., Chair, Committee on Management
J. H. Stout
James A. Whitney, Treasurer
Douglas Rumble III
Publications Committee
Donald M. Burt (1990–1992), Chair

Committee on Short Courses
Jeffrey E. Post (1991–1993), Chair
Paul H. Ribbe (Editor, Reviews in Mineralogy)

Archivist
Harvey E. Belkin

Memorialist
Brian H. Mason (1985)

Mineral Museums Advisory Council
Paul Keller (1983)

American Mineralogist
Editor: Steven R. Bohlen
Editor: Donald R. Peacor
Managing Editor: Vicki Lawrence

Board of Associate Editors
New Mineral Names (1987–)
John L. Jambor
1989–1992
William Carlson
Thomas D. Hoisch
John Longhi
G. A. Waychunas
1990–1992
C. R. Bacon
John M. Hughes
Tamsin C. McCormick
Richard F. Wendlandt
1991–1993
Ross Angel
John B. Brady
Philip E. Brown
Mark S. Ghiorso
Jonathan F. Stebbins

Reviews in Mineralogy
Editor: Paul H. Ribbe

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

Representatives to Other Organizations
American Crystallographic Association: Bernhardt J. Wuensch (1981)
Friends of Mineralogy: Eugene E. Foord (1987)
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)

MSA Representatives on IMA Commissions
History & Teaching: Cornelis Klein (1985)
Mineral Data & Classification: Paul B. Moore (1977)
Museum: Carl A. Francis (1987)
New Minerals & Mineral Names: Pete J. Dunn (1985)
Ore Microscopy: James R. Craig (1977)

MSA Representatives on IMA Working Groups
Abstracts: Karl A. Riggs, Jr.
Cosmic Mineralogy: Roger H. Hewins (1988)
Electron Microscopy Applied to Mineralogy: Peter R. Buseck