

Proceedings of the Fifty-fourth Annual Meeting of the Mineralogical Society of America in Dallas, Texas

JOAN R. CLARK, *Secretary*

The fifty-fourth annual meeting of the Society was held on November 11–14, 1973, at the Convention Center and the Statler-Hilton and Baker Hotels in Dallas, Texas. There were five technical sessions in mineralogy, six in petrology, and a Symposium on Instrumental Analysis in Mineralogical Research arranged by Larry W. Finger and Deane K. Smith, Jr. All these sessions were, as usual, integrated with those of the Geological Society of America and its other affiliated societies.

The retiring President, Joseph V. Smith, addressed the Society on the morning of November 13th on the subject "Lunar Mineralogy: A Heavenly Detective Story." The annual luncheon of the Society was held in the Texas Room of the Baker Hotel on November 13th. The Roebling Medal was awarded to George Tunell, who was presented by Gunnar Kullerud, and the Mineralogical Society of America Award was given to Paul B. Moore, who was introduced by J. V. Smith.

The annual business meeting of the Society was held on the morning of November 13th, at which time reports were presented by the Secretary, the Treasurer, and the Editor of *The American Mineralogist*. Less than 50 people attended, and there was no response when the President invited questions and discussion.

Throughout the meeting the Society maintained a booth in the exhibits area with the Managing Editor, Mary Holliman, in charge. The Dallas Gem and Mineral Society provided two display cases with minerals and fossils of Texas. Eight photographs were received for the identification contest, which was won by Charles T. Prewitt and Joseph R. Smyth, each identifying four correctly. Other winners, in order, were Gordon Nord, Bruce Massar, Kris Hillock, and Gary Getz. (See pages 447–453, where the photographs are reproduced, with identifications and photographers given on page 380.)

Actions of the 1973 Council

The second meeting of the 1973 Council was held on April 19, 1973, at the Geophysical Laboratory,

Washington, D. C. The third meeting was held on November 11, 1973, at the Statler-Hilton Hotel, Dallas, Texas. The principal actions taken by the Council at these two meetings are summarized here.

Awards

The Council voted to award the Roebling Medal for 1974 to Ralph E. Grim, and the Mineralogical Society of America Award to James J. Papike.

Nominations of Officers for 1975

The following slate of elective officers for 1975, based on recommendations from the Nominating Committee for Officers (Charles J. Vitaliano, Chairman), was chosen by the Council and will appear on the ballot to be submitted to the membership in September, 1974.

President—Arnulf Muan, The Pennsylvania State University.

Vice-President—not yet determined.

Secretary—not on the 1975 ballot.

Treasurer—George W. Fisher, The Johns Hopkins University.

Councillors (1975–1977)—Two of the four to be elected:

Iris Y. Borg, Lawrence Radiation Laboratory;
W. Barclay Kamb, California Institute of Technology;

Cornelis Klein, Jr., Indiana University;
Richard A. Yund, Brown University.

Fellowship

The Council elected 12 members to Fellowship, approving all recommendations made by the Nominating Committee for Fellows (R. E. Newnham, Chairman). The new Fellows are:

Robert H. Carpenter

Petr Černý

Fabien Marie Pierre Cesbron

Luke L. Y. Chang

George Y. Chao

Arthur J. Ehlmann

Arthur J. Gude, 3rd

Donald David Hogarth
 Donald Langmuir
 Fiorenzo Mazzi
 Martin Prinz
 Harold Robert Steacy

Membership Assistance Fund

The Council unanimously adopted a resolution establishing a Membership Assistance Fund from the legacy left the Society by Miss Jewell J. Glass in 1966. The Fund is intended to assist members of the Society, during periods of personal hardship, to maintain their association with the Society; however, under special and compelling circumstances, assistance to members for other humanitarian purposes may be authorized, providing such assistance directly contributes to the health and well-being of the member. Members who wish to apply for assistance from this Fund should send a letter to the President explaining the circumstances and the needs. An announcement of the Fund appears elsewhere in this issue (page i).

Winter Meeting in Tucson, Arizona

The Council unanimously approved joining the Friends of Mineralogy, Mineral Museums Advisory Council, University of Arizona, and the Tucson Gem and Mineral Society for a joint meeting in Tucson, Arizona, February 10–11, 1974, with field trips before and after the meeting. An announcement of the meeting with information about the field trips and housing was sent to all Society members in October, 1973.

New Committee on Public Education and Information

The Council unanimously voted to establish a new Committee on Public Education and Information which is to consider ways in which the Society can help educate the public about minerals and mineralogy and encourage the participation of minority groups in mineralogy.

Recommendations of the Financial Advisory Committee

The Council unanimously adopted recommendations brought before it by the Financial Advisory Committee, H. S. Yoder, Jr., Chairman. These are summarized as follows.

1. A Financial Advisory Committee of prudent members having sound judgment is to be

maintained to aid the Treasurer and advise the Council in overall financial matters. The Chairmen of the Committees on Management and on Publications are to become members of the Financial Advisory Committee and participate in long-range planning for the Society.

2. The Treasurer is empowered to employ a small management group to take care of investments for the Society.
3. Methods of evaluation of the status of the portfolio are to be established by the Treasurer with the advice of the Financial Advisory Committee.
4. Securities are to be held in the name of the Society at all times.
5. The management firm is to provide quarterly analysis and a yearly summary of actions taken.
6. Changes made in the portfolio by the management firm should be carried out without expense to the Society other than the regular brokerage commissions.
7. At the annual meeting, the Council is to fix the goals to be achieved by the management firm within a following three-year period.
8. Full accounting is to be made of the capital gain (or loss) and income of each security held in the portfolio. Addition of new funds or removal of funds from the Endowment Fund should be made only with the majority consent of the Council.
9. The Treasurer on the advice of the Financial Advisory Committee should be responsible for the distribution and assignment of earnings from the investment portfolio to the various funds in an equitable manner.
10. The appreciation of the Council to Mrs. Margaret C. Green of Merrill Lynch, Pierce, Fenner, and Smith for her past service to the Society in handling its account is to be suitably recorded.

Actions of the 1974 Council

The first meeting of the 1974 Council was held at noon Wednesday, November 14, 1973, at the Statler-Hilton Hotel, Dallas, Texas.

First Award from the Edward H. Kraus Crystallographic Research Fund

Twenty applications were received by the deadline of October 15, 1973. The President appointed a Committee to evaluate the applications; the members

were Wayne A. Dollase, J. H. Fang, Clifford Frondel, and G. V. Gibbs. The Council considered their recommendations and unanimously voted to give the first grant from the Edward H. Kraus Crystallographic Research Fund to Mr. Shu-cheng Yu, The Pennsylvania State University, for his proposal to study the defects in pyroxene structures.

Treasurer Authorized To Carry Out Financial Transactions

The Council unanimously authorized the Treasurer to handle the financial affairs of the Society, including buying and selling stocks and signing contracts; he may delegate such authority consistent with the advisory resolutions passed by the Council.

Publications

The honorarium for the Editor was continued at \$1,500. The appointment of Mrs. Mary Holliman as Managing Editor was reaffirmed with great appreciation of her work with the journal and the exhibit booth.

The distribution of one or more newsletters during 1974 was approved.

Short Courses

The Council agreed that plans should be made for a Short Course to be given ahead of the 1974 annual meeting at Miami Beach.

Spring Meeting of the Council

The 1974 Council will hold its second meeting in Washington, D. C., during the fifty-fifth annual meeting of the American Geophysical Union April 8–12, 1974.

Committees and Other Appointive Officers

A list of appointive officers, prepared by the President and his Committee on Committees, was presented to the Council. With some changes made by the Council, the list was completed and approved. The Ad-Hoc Committee on Endowment and Funds was dismissed with the thanks of the Council for its work. The name of the Committee on Membership Status was changed to Nominating Committee for Fellows. The National Research Council has discontinued its policy of asking for representatives from societies, so the Society no longer has an official representative to NRC.

Report of the Secretary for 1973

Results of the Elections

In the spring a special vote on the new Constitution and By-Laws was taken. The ballots were counted with the help of Charlotte M. Warshaw, and the new Constitution and By-Laws were adopted by a vote of 924 in favor, 23 opposed.

The usual election of officers was held in the fall, and the ballots were counted on October 18, 1973, with the help of Charlotte M. Warshaw. Those elected are as follows.

President—S. W. Bailey (1974)

Vice-President—Arnulf Muan (1974)

Secretary—Joan R. Clark (1974–1975)

Councillors—Arthur L. Boettcher (1974–1976)
Philip M. Orville (1974–1976)

Membership Statistics

The number of members as of October 1, 1973, is compared below with the numbers for a few previous years.

	1971	1972	1973
Members	2,135	1,701	1,690
Student Members		389	451
Fellows	530	572	586
Honorary Fellows	10	10	9
	<hr/> 2,675	<hr/> 2,672	<hr/> 2,736

Necrology

In February, 1973, the Society lost its distinguished Honorary President, Dean Edward H. Kraus. He had celebrated his 97th birthday the previous December. A tragic accident in January took the life of our former President, William F. Bradley. Later in January, word was received of the death of one of our Honorary Fellows, Cecil E. Tilley. In addition, we have lost the following Members and Fellows by death since the last report.

Herbert W. Allison

Kent C. Brannock

Paul W. Gast

Johannes E. Hiller

Thomas N. McVay

H. W. Rinn

James Robert Smith

Arthur B. Sperry

A. P. Subramanian

David K. Webb, Jr.

Acknowledgments

The assistance of our staff at the Business Office is gratefully acknowledged. The Secretary is greatly indebted to all the members who respond so cheerfully when called upon for help—too many to list by name but the response is remembered with appreciation.

Respectfully submitted,
JOAN R. CLARK, *Secretary*

Report of the Financial Advisory Committee for 1973¹

The portfolio's market value at the end of September 28, 1973, was 25 percent above its total adjusted cost. Securities in the portfolio are listed in the Table. The income estimated for fiscal 1973 from securities represents a 5.7 percent return on the cost of the portfolio and a 4.6 percent return on its market value.

A special situation developed in Control Data which indicated a favorable future, and, on the advice of Merrill Lynch, Pierce, Fenner, and Smith, 100 shares were purchased. The special situation evolved, but the market value could not be maintained in the general depression of the market which followed. The portfolio was reviewed in detail on January 31, 1973, by Merrill Lynch, Pierce, Fenner, and Smith. Sale of some \$78,500 worth of stock was recommended but not initiated because of the precipitous drop in market values. At what appeared to be the bottom of the market cycle, purchase of 100 shares of General Motors was made with accumulated funds. In the interest of security, the monies of the Jewell J. Glass Legacy, as the initial part of the Membership Assistance Fund, were invested in a bond bringing 8¼ percent interest.

The Committee has undertaken a study of various types of organizations with the aim of obtaining professional management for the Society's portfolio in accord with the wishes of the Council; a small financial management group was recommended as best meeting the needs of the Society.

Respectfully submitted,
H. S. YODER, JR., *Chairman*
PRIESTLEY TOULMIN, 3RD
PHILIP M. BETHKE, *Treasurer*

¹ Because of the change to a calendar fiscal year, the Report of the Treasurer for 1973 and the Report of Audit for 1973 will be published in a later issue.

TABLE. Endowment Fund, September 28, 1973.

Portfolio	No. of shares	Total adjusted cost	Market value, 9/28/73	Dividends anticipated, 1973
Bonds				
American Tel. & Tel., 8 3/4	17	\$ 1,719.16	\$ 1,862	\$148.76
Preferred Stock				
City Inv. CV28, 2/17	260	10,202.59	7,215	520.00
FMC Corp.	150	4,792.90	5,025	253.14
General Tel. Elec. 5%	300	12,584.25	11,062	750.00
Sun Oil Co.	100	2,342.63	4,588	225.00
Common Stocks				
Amer. Tel. & Tel.	570	14,880.93	29,640	1,596.00
Chase Manhattan	480	14,702.45	28,200	960.00
Chessee System, Inc.	150	8,643.57	6,750	390.00
Columbia Gas	450	9,520.47	12,600	855.00
Columbus & So. Ohio	250	3,815.81	6,562	480.00
Continental Can	225	4,051.56	6,047	360.00
Continental Oil	600	21,713.81	22,125	900.00
Denison Mines, Ltd.	150	3,096.00	5,096	190.00
Detroit Edison	220	5,720.10	4,125	316.25
Emhart Corp.	316	4,805.33	6,399	284.40
General Motors	185	16,561.42	12,395	808.50
General Portland	150	2,934.69	1,856	120.00
Greyhound Corp.	708	6,016.85	11,062	736.32
Indianapolis Power	100	3,084.25	2,750	162.00
Kimberly Clark	300	8,841.49	13,650	360.00
Kroger Co.	300	3,245.35	5,475	390.00
Marriott Corp.	820	1,828.53	22,690	-----
Occidental Petrol.	101	4,353.06	1,048	-----
P. P. G. Industries	220	6,312.83	7,480	352.00
Tenneco, Inc.	500	14,192.57	12,562	680.00
Union Carbide	175	10,719.41	6,869	363.14
Wisconsin Power Light	110	2,304.75	2,750	156.20
Warrants Am. Tel. & Tel.	34	-----	204	-----
		\$202,986.76	\$259,167.	\$12,358.11
Operating Reserve				
Common Stocks				
Control Data	100	5,927.50	4,400	-----
General Motors	100	6,582.50	6,700	90.00
		\$12,780.00	\$11,100	\$90.00
Membership Assistance Fund				
Bond				
South Central Bell, 8 1/4%	50	4,985.02	5,300	137.00
GRAND TOTAL		\$220,751.78	\$275,567	\$12,585.11

Report of the Editor for 1973

The change to the new format was accomplished smoothly with the January–February (1973) number. A shortage in paper stock occasionally forced The William Byrd Press to print our journal on the stock available rather than on that ordered. A total lack of paper actually held up printing of the July–August issue for a week.

Effort has been made to achieve higher quality and uniformity of the author-supplied tables which we photograph and reproduce.

The number of papers received and processed remains about the same as in recent years. Statistics are given in the accompanying table.

PUBLISHING OPERATIONS, 1973

	Major MSS	Notes*	Book Reviews	Abstr.	TOTAL MSS
STATUS, January 1, 1973					
In Press (57, 11-12; 58, 1-4)	57	39	17	--	96
Accepted, awaiting press					18
MSS in Process					
Editorial Office					0
Associate Editors, authors, reviewers					98
Total MSS on hand					116
OPERATIONS, January 1 to December 31, 1973					
Published (57, 11-12; 58, 1-10)	118	50	45	--	168
Sent to Press (58, 11-12; 59, 1-4)	115**	49	53	30	164
Received					232
Accepted					176
Rejected (includes 14 withdrawn by authors)					53
STATUS, December 31, 1973					
In Press (58, 11-12; 59, 1-4)	54**	38	25	30	92
In Process, editorial office					10†
In process, Associate Editors, authors, reviewers					0
Total MSS on hand					110
					120

*Includes Awards, Errata, Memorials, New Mineral Names, Proceedings.
 **Includes 1973 Index.
 †Includes 2 held over from previous year, awaiting author's drafting of figures.

All manuscripts after acceptance were sent immediately to press. None (except by author's request) was held over for printing in a subsequent number. Manuscripts under review spent about half their pre-acceptance time undergoing revision by authors. At the Dallas meeting of the editorial staff,

ELAPSED TIME FOR PUBLICATION*

	Median 1971**	MS 1973	Average of Reviewed MSS, 1973
From receipt to acceptance	82	85	118
With author for revision	--	38	56
With editor awaiting press	68	65	42
With printer	142	128***	128***

* In days.
 ** 1971 data from *Am. Mineral.* 57, 677.
 *** (four issues).

Associate Editor Prewitt presented data (from October issues) that indicated that time between acceptance and publication of *Mineralogical Notes in The American Mineralogist* compares with those in *Nature* and *Science*, two journals associated with "rapid" publication. A summary of elapsed time is as given in the accompanying table.

On behalf of the Society, the Editor expresses his gratitude to the Board of Associate Editors who contribute so greatly to *The American Mineralogist* and in particular to retiring Associate Editors, Donald M. Henderson and Paul H. Ribbe. Dr. Michael Fleischer kindly contributes the material for New Mineral Names and advises in respect to problems of nomenclature. Those who graciously reviewed manuscripts at the request of the Editor or Associate Editors are listed below.

1973 Referees

Arden Albee
 J. Amoros
 Daniel E. Appleman
 Joel Arem
 John Axe
 S. W. Bailey
 Anatoli Baktin
 H. U. Bambauer
 G. Bancroft
 Werner H. Baur
 P. Bayliss
 M. H. Beeson
 Richard Beger
 Peter Bell
 Alfred E. Bence
 A. E. Beswick
 A. L. Boettcher
 Bruce F. Bohor
 Michael Bown
 William F. Bradley
 E. J. Brooker
 Gordon E. Brown
 G. R. Buckley
 C. W. Burnham
 Roger Burns
 Eugene N. Cameron

Maryellen Cameron
 D. M. Carmichael
 Alden B. Carpenter
 Neville Carter
 P. Černý
 C. L. Christ
 J. A. Clark
 Joan R. Clark
 M. G. Clark
 Robert Coleman
 James R. Craig
 Percy Crosby
 L. S. Darken
 P. Datta
 Wm. H. Dennen
 Art Doan, Jr.
 Wayne Dollase
 Robert C. Doman
 Gabrielle Donnay
 Eric Dowty
 Wendell A. Duffield
 Richard Erd
 W. G. Ernst
 Bernard Evans
 Howard T. Evans
 Joseph J. Fahey

V. C. Farmer
 J. J. Fawcett
 Larry Finger
 Joseph J. Finney
 A. G. Fischer
 D. W. Fischer
 D. J. Fischer
 M. Fleischer
 M. Fleet
 P. D. Fleming
 F. F. Foit
 R. Fournier
 M. Friedman
 A. J. Frueh
 Alan M. Gaines
 Robert I. Gait
 A. J. Gancarz, Jr.
 Subrata Ghose
 G. V. Gibbs
 R. F. Giese Jr.
 M. C. Gilbert
 J. Gittins
 J. R. Goldsmith
 D. L. Graf
 John E. Grover
 Arthur J. Gude

Necip Güven
 Stefan Hafner
 E. Haines
 G. N. Hanson
 Moyle Harward
 J. F. Hays
 Kurt Heinrich
 H. C. Helgeson
 D. M. Henderson
 Roger Hewins
 David A. Hewitt
 Lincoln S. Hollister
 H. D. Holland
 Wm. T. Holser
 D. W. Hood
 J. Stephen Huebner
 Frank E. Huggins
 Juan Iglesias
 Earl Ingerson
 Jun Ito
 H. W. Jaffe
 W. D. Johns
 J. B. Jones
 Robert Kable
 Miriam Kastner
 Klaus Keil

D. M. Kerrick
Cornelis Klein, Jr.
Judith Konnert
O. C. Kopp
T. D. Kurtz
R. N. Kushiro
T. A. P. Kwak
George Lager
Donald Langmuir
D. M. Lapham
A. A. Levinson
Don Lindsley
L. L. Lohr
John Louisnathan
William C. Luth
Che-Bao Ma
J. B. MacChesney
F. T. MacKenzie
J. A. Mandarino
Anthony Mariano
R. H. Mariner
Robert McCallister
Henry Meyer
Gregory J. McCarthy
J. W. McCauley
Duncan McConnell
Fred McDowell

Dan McLachlan, Jr.
Herbert A. McKinstry
E. P. Meagher
Helen D. Megaw
Paul B. Moore
E. M. Moores
S. A. Morse
Mary Mrose
L. P. J. Muffler
F. A. Mumpton
J. Munday
Alexandra Navrotsky
Gary A. Novak
Robert E. Newnham
A. Niggli
Yoshikazu Ohashi
H. Ohmoto
Peter Okamura
Adolf Pabst
Norman J. Page
J. J. Papike
William Parrish
Donald R. Peacor
Michael W. Phillips
D. C. Presnall
C. T. Prewitt
V. Rajamani

Arthur L. Reesman
P. Reitan
Paul H. Ribbe
C. I. Rich
Keith Robinson
Peter Robinson
P. E. Rosenberg
A. Rosenzweig
Malcolm Ross
George Rossmann
John C. Rucklidge
Douglas Rumble
M. Sato
Surrendra Saxena
R. N. Schock
S. D. Scott
George B. Skippen
Brian J. Skinner
Maynard Slaughter
Deane K. Smith
Douglas Smith
Joseph R. Smyth
L. W. Staples
Hugo Steinfink
David B. Stewart
R. E. Stoiber
V. S. Stubican

S. Sueno
Norm Suhr
P. C. Taylor
T. P. Thayer
P. Toulmin, III
A. L. Turnock
R. T. Tettenhorst
Gene Ulmer
F. Uricks
David J. Vaughan
J. C. Van Loon
David Virgo
Ernest E. Wahlstrom
D. R. Waldbaum
D. H. Watkinson
Victor Wall
W. B. White
F. J. Wicks
Ray Wilcox
Wm. O. Williamson
W. S. Wise
Gunther Wolff
David R. Wones
Thomas L. Wright
B. J. Wuensch
Hubert P. Zeck

List of Former Officers and Meeting Places

Honorary Presidents

Edward S. Dana 1925–1935

Charles Palache 1949–1954

Edward H. Kraus 1955–1973

Presidents

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

Vice Presidents

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

Secretaries

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

Treasurers

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

Editors

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

Councilors

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

Annual Meeting Places

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

Recipients of the Roebling Medal

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

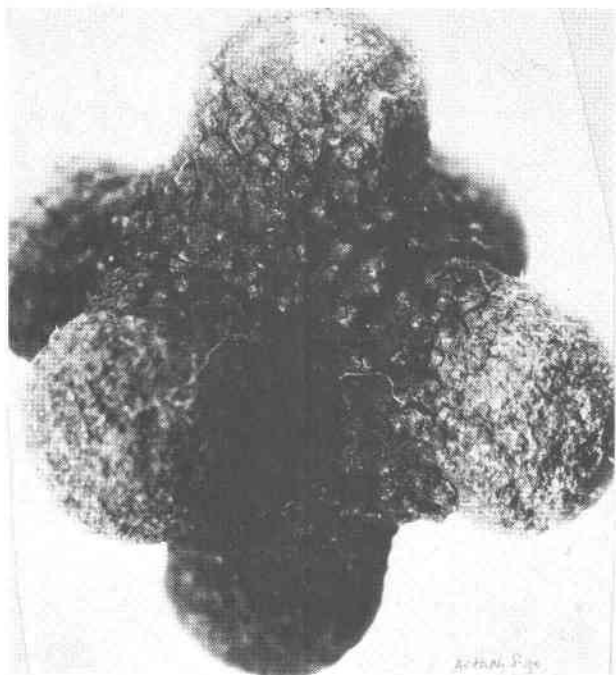
Recipients of the Mineralogical Society of America Award

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

Photograph Identification Contest

At the GSA meetings in Dallas, November 1973, the Mineralogical Society of America displayed the photographs on the following pages in an impromptu identification contest. Visitors to our booth were asked to identify the rocks or minerals in these pictures. The largest number of correct identifications was for photograph number 8, but no one got number 1 (a blow below the belt). Photos 2 and 3 were in color. (All photographs are printed approximately $\frac{1}{2}$ their display dimensions).

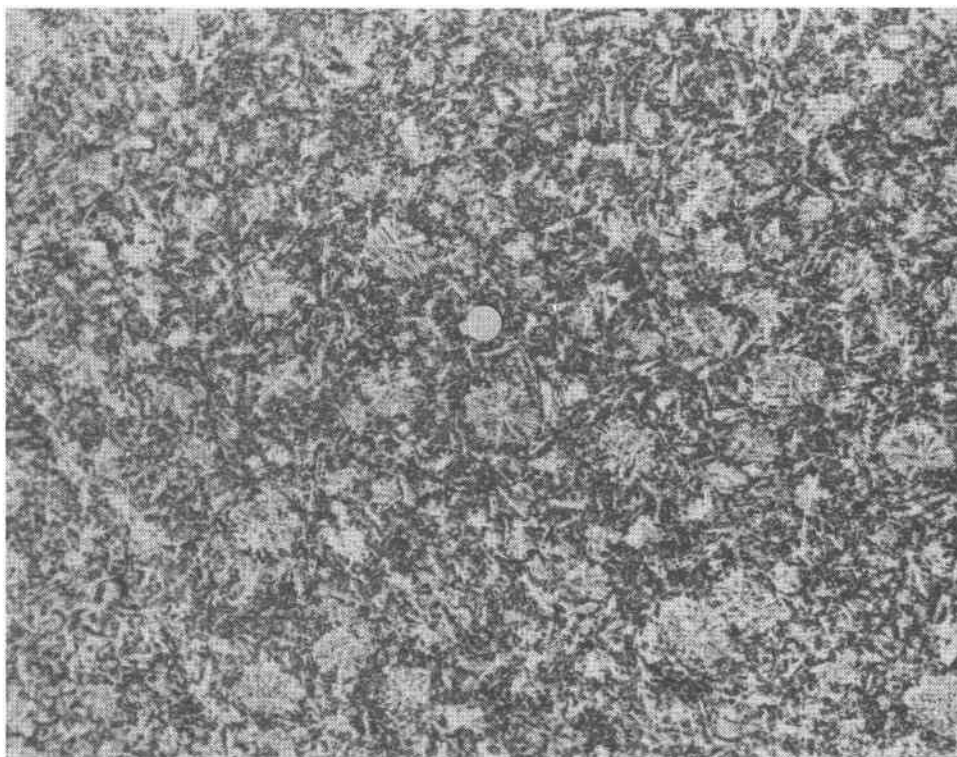
In case you would like to try your skill, the photographs (and photographers) are identified on page 380.



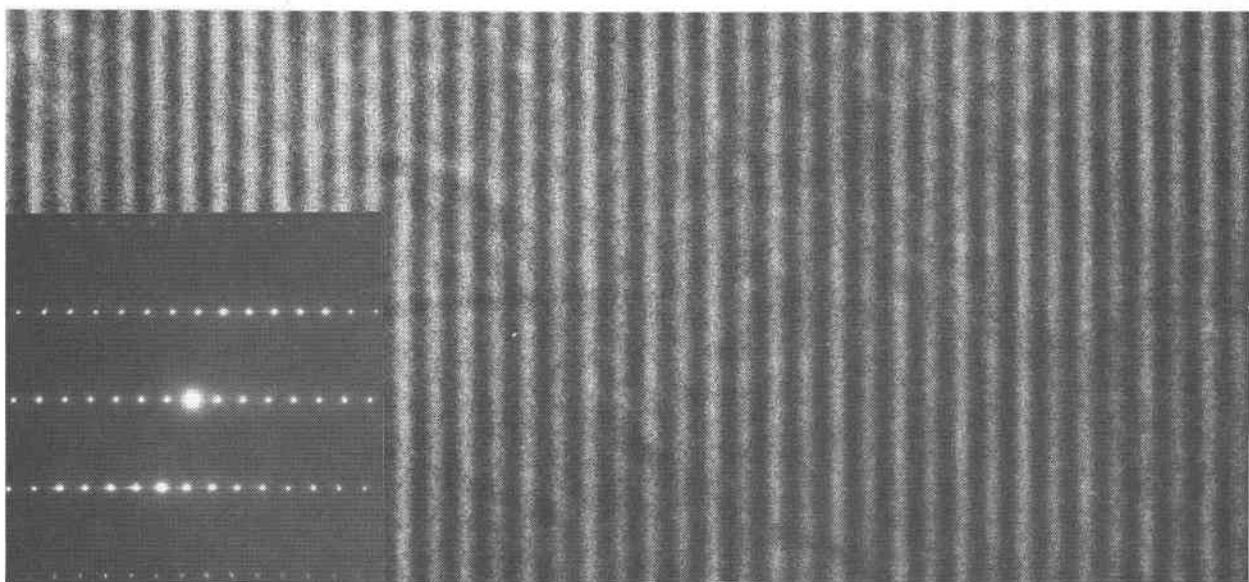
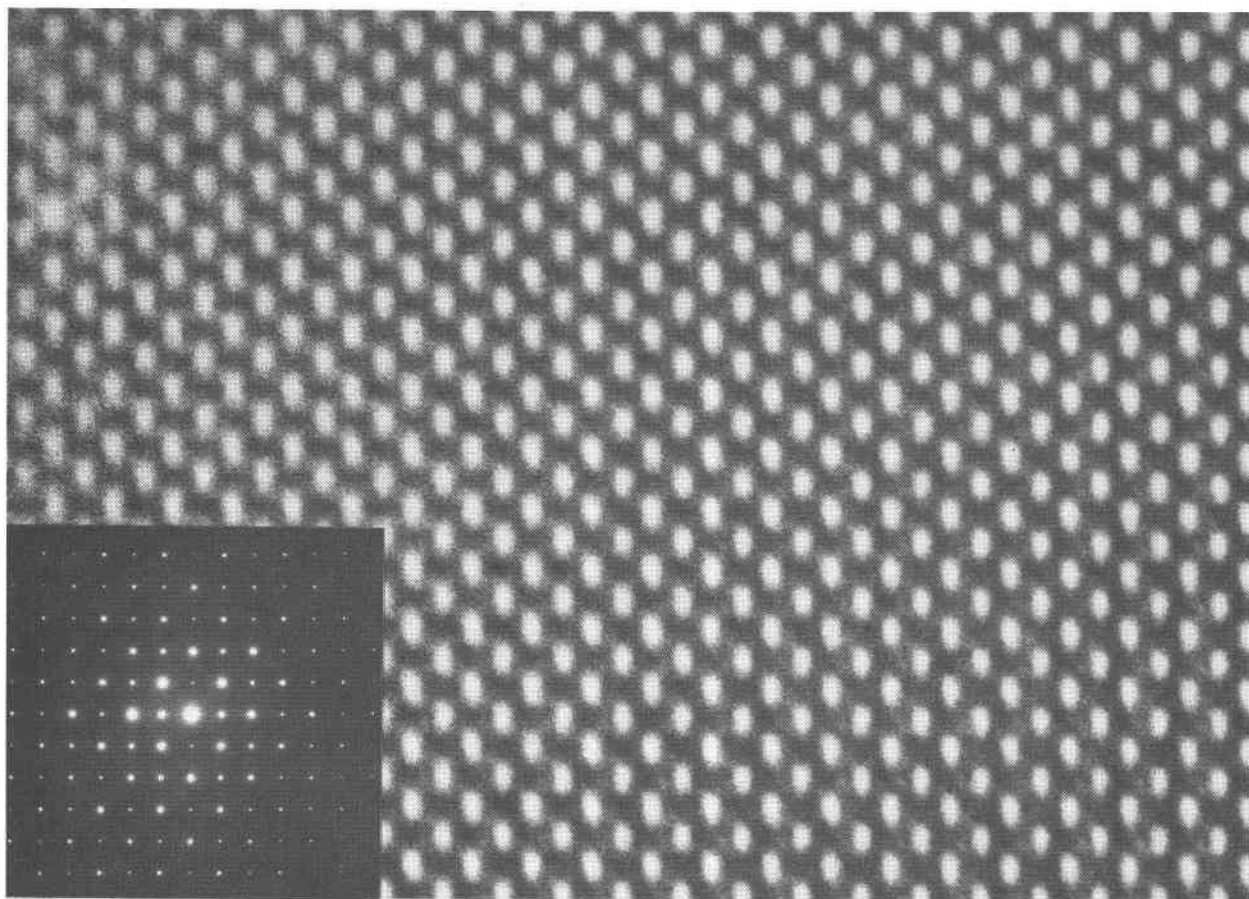
No. 1. Actual size 3.5 cm.



No. 2. Original in color.

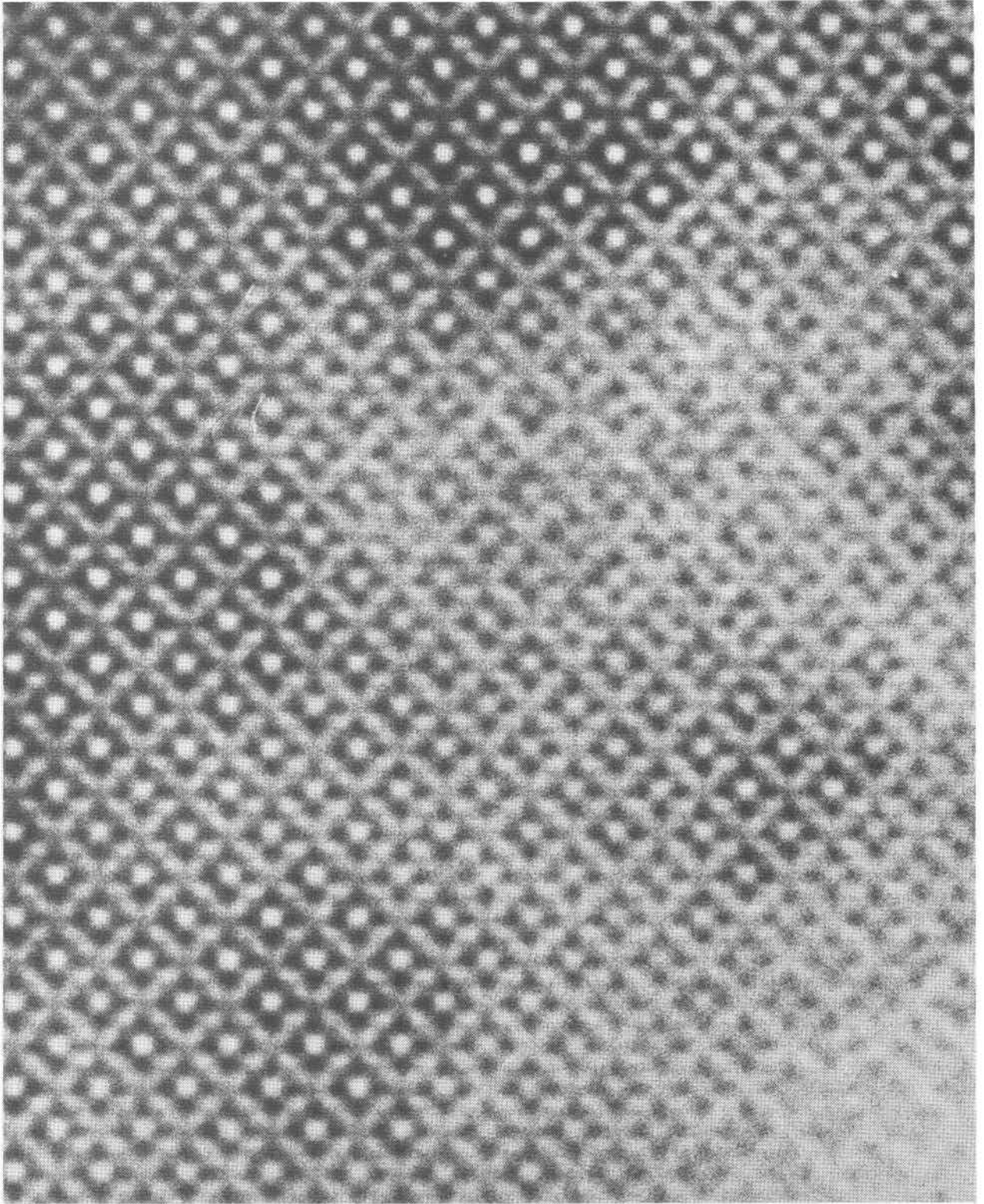


No. 3. Original in color.



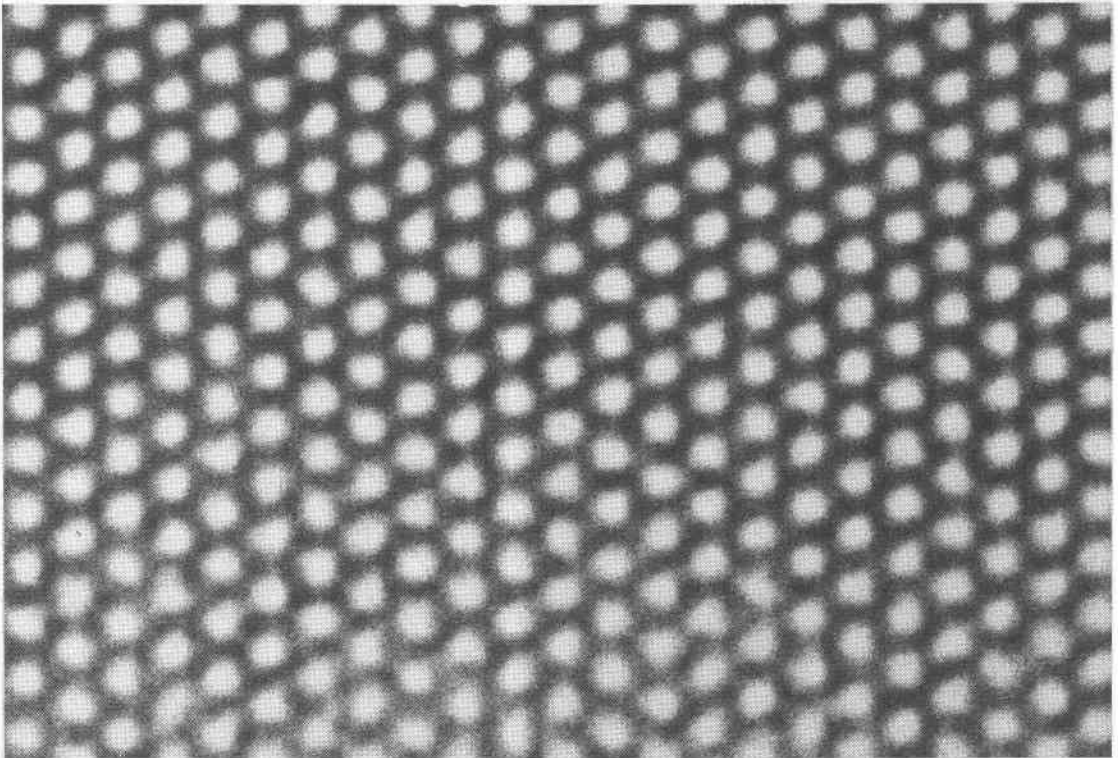
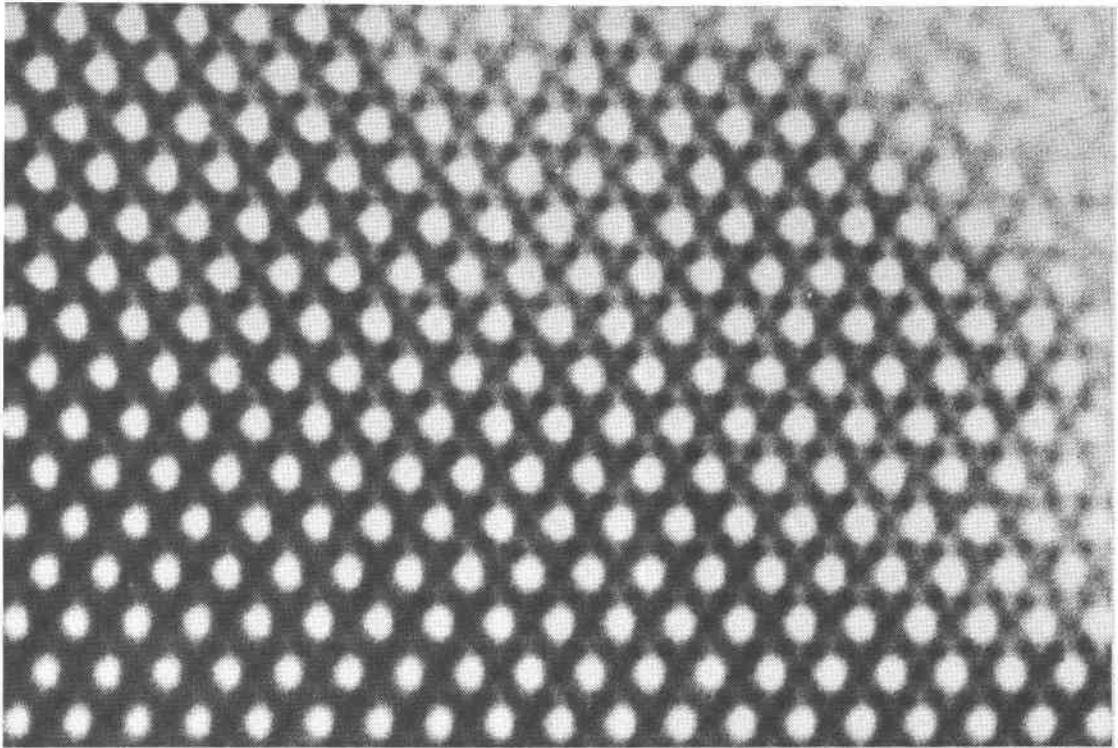
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50 Å

No. 4. Electron microphotograph.



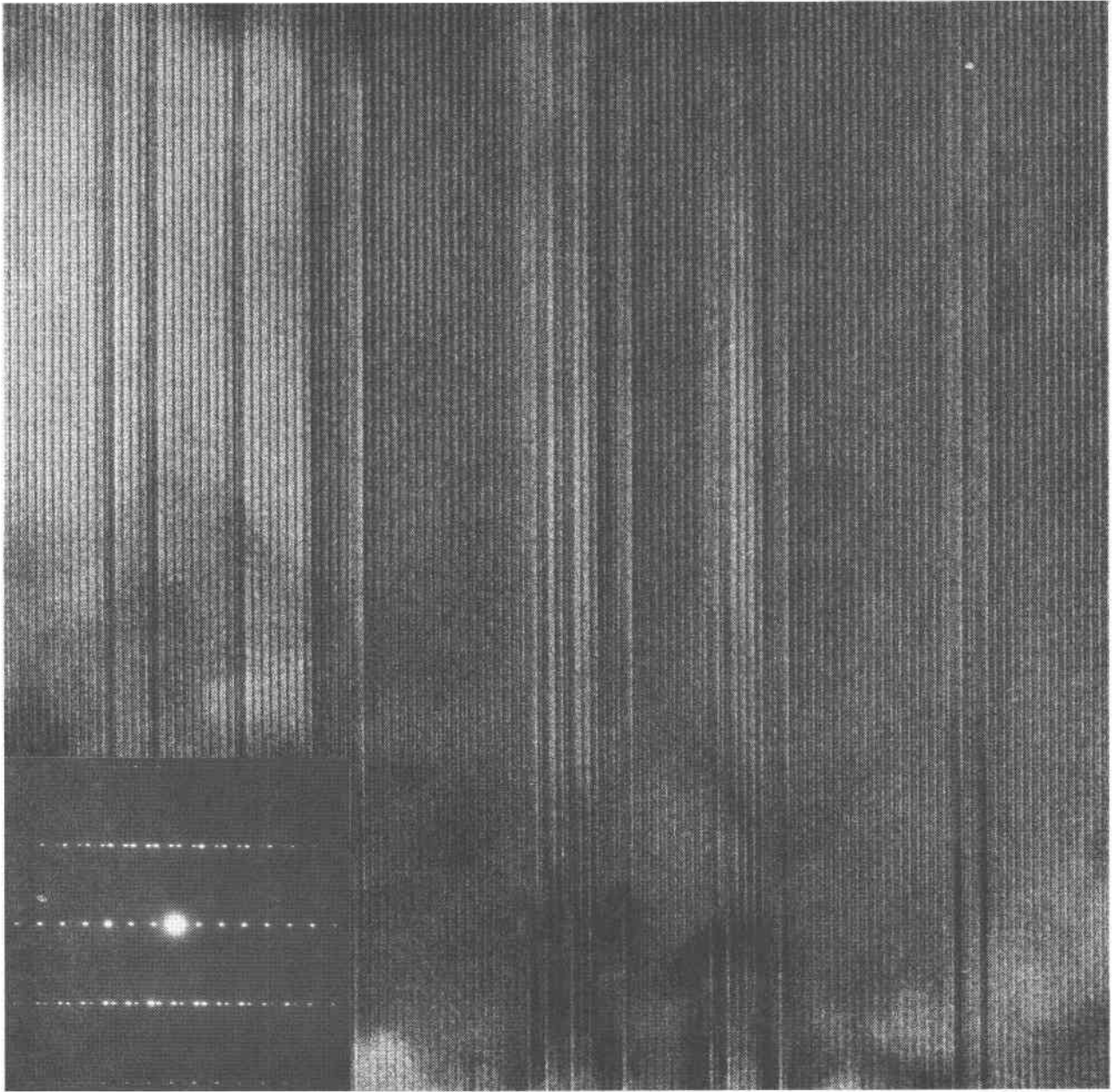
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50 Å

No. 5. Electron microphotograph.



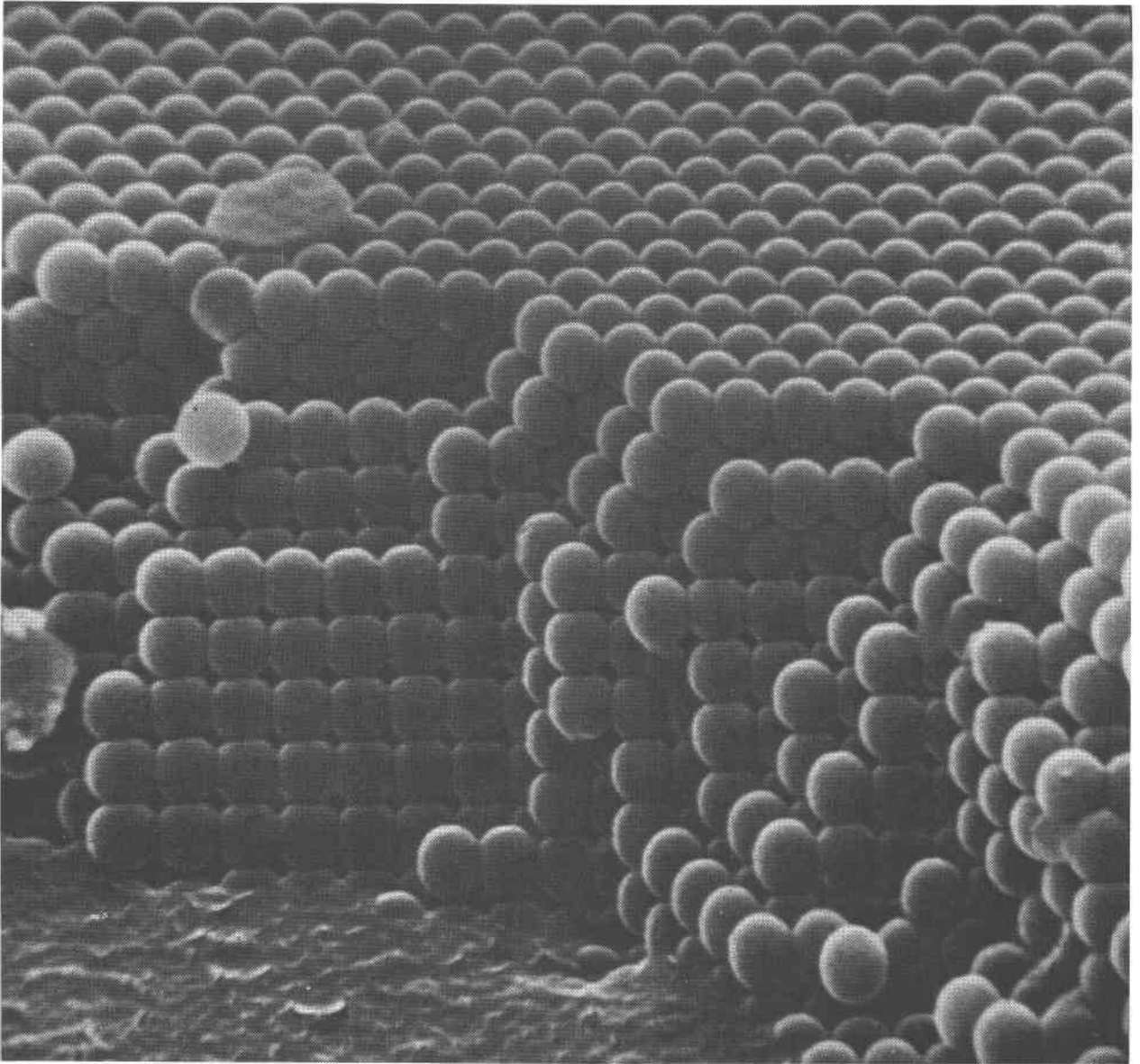
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50 Å

No. 6. Electron microphotograph.



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250 Å

No. 7. Electron microphotograph.



No. 8. Scanning electron microphotograph.