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# American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.

#### AIME

#### OFFICIAL ANNUAL REPORT

#### 1988

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# American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.

#### Report of the AIME President

I welcome this opportunity to report to the Member Societies and their members on the activities of AIME during 1988. The year can be characterized as one in which successful efforts were made to preserve and enhance AIME's traditions, to play a leadership role and maintain AIME's position within the Founder Society group and other elements of the engineering community, to further improve the financial posture of AIME, and to continue implementation of the long range plan adopted in 1987.

It was indeed gratifying to witness the interest in and support of AIME activities at the 1988 Annual Meeting, held in conjunction with the joint annual meeting of SME and TMS in Phoenix, Arizona. As arranged by a committee chaired by 1989 AIME President Howard Hubbard, the AIME Keynote Session featured excellent presentations by three distinguished speakers, and was very well received by an audience estimated at 600 people. Similarly, in terms of attendance, the AIME Banquet and Awards Ceremony was the most successful it has been in several years as approximately 650 people were present for the event. Contributing to the success of the banquet was initiation of a new program authorized by the AIME Board of Trustees which extends recognition to prior recipients of major AIME awards on a rotating basis. Prior recipients of the Douglas, Lucas and Richards Awards were honored in 1988, and plans call for extending recognition to the prior recipients of the other awards in subsequent years.

With further regard to awards, 1988 marks the first year for selection of a recipient of the AIME Distinguished Service Award. As recently established by action of the AIME Board, this award is presented in recognition of extraordinary and dedicated service in furtherance of the goals, purposes, and traditions of AIME. A highly deserving individual will be honored as the first recipient at the 1989 Annual Banquet in Las Vegas.

In view of the fact that SME and TMS decided not to hold a joint annual meeting in 1990 and 1991, an ad hoc committee was formed under the chairmanship of AIME Past President Ben Severinghaus to study and make recommendations on where the AIME Annual Meeting should be held in those years. As recommended by the committee, the AIME Board voted to hold both the 1990 and 1991 AIME Annual Meetings in conjunction with the SME Annual Meetings and Exhibits for those years, to be held in Salt Lake City and Denver, respectively. Since this decision was made, it has been learned that SME and TMS will continue to hold separate annual meetings in years beyond 1991, so a determination will have to be made on the conduct of the AIME Annual Meeting in 1992 and beyond.

During 1988, AIME officers and other representatives played leadership roles and were otherwise active in the affairs of external organizations. 1989 AIME President Hubbard was involved in the top level management of AAES as a member of the Executive Committee, while a number of other individuals represented AIME on the various AAES councils and committees, including Don Brown (SPE) who will serve as the Chairman of the Engineering Manpower Commission in 1989. I am also pleased to report that AIME Past President Ed Runyan was nominated and approved by the AAES Board to serve as the Chairman-Elect in 1989, from which he will automatically succeed to the AAES Chairman position in 1990.

I had the opportunity in April to host one of the periodic meetings of the Founder Society Presidents and Executive Directors, a meeting to which all UET Trustees were invited to facilitate in-depth discussions on the pending United Engineering Center expansion project (North Tower Project), other UET matters, and other matters important to the engineering community. Through this and other forums, it has been possible to protect the interests of AIME and to assure that the AIME position on the various matters is understood and given due consideration. In this regard, a concession involving the provision of free office space for the Headquarters Office was obtained by our insistence on obtaining some tangible benefit if the North Tower Project is undertaken.

Turning to international activities, it was my honor to serve as the AIME lecturer for 1988 as part of the Distinguished Lecturer Exchange Program carried on with the Australasian Institute of Mining and Metallurgy (AusIMM). Since AIME and its Member Societies were invited to participate in the AusIMM 1988 Annual Conference being held in conjunction with Australia's Bicentennial celebration, my trip was timed to coincide with the conference where I gave my lecture. I also visited and lectured at several AusIMM branches in Australia, New Zealand, and Fiji.

During my years as President-Elect Designate, President-Elect, and President, I represented AIME at the Arizona Conference and section meetings in St. Louis, Utah, Washington, D.C., Florida, Colorado, Pittsburgh, Philadelphia, Central Appalachia, Wisconsin and several student chapters. It was a pleasure to meet and associate with members of the Member Societies, and I was gratified by the many expressions of continuing interest in the Institute.

Elsewhere in this Annual Report you will find the audited financial statement for the separate AIME Corporation for Fiscal Year 1988 (ending November 30). AIME assets at year end totalled \$9,175,840, which represents an increase of nearly \$500,000 since the end of FY87. It is significant to note that over the past five years, average yearly revenue, primarily from the return on investment of the Endowment Funds, has exceeded average yearly expenses by about \$487,000 per year. This growth in assets, coupled with the AIME Headquarters again operating on a cost-effective basis and well within budget, reflects the conscientious efforts of AIME Board of Trustees, the Executive Director and his staff, and everyone else involved to conduct current operations in a fiscally responsible manner, and to not only maintain but also enhance the real value of the assets over the long term.

During the past 10 years AIME has undergone tremendous change and is now a completely decentralized Institute. AIME will be what its Member Societies want it to be. The Societies can and are benefitting from AIME's long history of tradition and accomplishments and its prestigious standing in the engineering community. There is still significant interest in AIME among many individuals in all four Societies, stronger perhaps in some Societies than others. It is fair to say that significant numbers of newer members in some of the Societies are not being exposed to AIME traditions, history, and accomplishments. Sometime in the future, AIME will have to face this fact and will require further change. For the near future, AIME has found a niche and the scheme is working well.

I should like to express my sincere appreciation to the AIME Board of Trustees, the Society Boards of Directors, the AIME and Society staffs, committee members, and others for their dedicated support during my term as President. I should also like to congratulate and pledge my full support to 1989 President Howard Hubbard.

Respectfully submitted, .

Thomas V Falkin

Thomas V. Falkie 1988 AIME President

# AIME



#### OFFICERS AND TRUSTEES 1989

#### **OFFICERS**

#### PRESIDENT AND TRUSTEE



HOWARD N. HUBBARD, JR., is Vice President of Marketing and Sales with General Refractories Co. of Philadelphia. After graduating from Carnegie Mellon University with a B.S. in Mechanical Engineering, Mr. Hubbard began his career with United States Steel Corp. at Gary Works in 1956. He progressed through various supervisory positions before becoming Division Superintendent of Steel Producing in 1973. He then became associated with J & L Steel Corp.—Youngstown Sheet and Tube as General Superintendent Primary Operations. Mr. Hubbard is a Past Chairman of the Steelmaking Division of ISS and was a member of the Division's Executive Committee from 1972-1978. He served on the AIME Board from 1982 to 1985, the ISS Board from 1979 to 1981 and was President of ISS in 1983.

#### PRESIDENT-ELECT AND TRUSTEE



DONALD G. RUSSELL is Chairman and Chief Executive Officer of SONAT Exploration Company in Houston. He received his B.S. and M.S. in Mathematics and Physics from Sam Houston State University and the University of Oklahoma, respectively. Mr. Russell joined Shell Oil Company as a petroleum engineer in 1955 and worked in reservoir engineering research in the Shell Development Company E&P Research Laboratory from 1959 thru 1965. In 1965, he returned to Shell Oil Company. He became Vice President, Corporate Planning for Shell in 1977 and in 1978 became head of Shell Oil's International E&P Region. In 1980 he became Vice President, Production, and in 1986, President of Shell Development Company with responsibility for all of Shell's R&D effort. Mr. Russell retired from Shell in 1987. He is a member of the National Academy of Engineering and has been awarded the John Franklin Carll Award, the DeGolyer Distinguished Service Medal and Honorary Membership from SPE. He is an Honorary Member of AIME.

#### PAST PRESIDENT AND TRUSTEE



THOMAS V. FALKIE is President of Berwind Natural Resources Company in Philadelphia, Pennsylvania. He received his B.S., M.S. and Ph.D. in Mining Engineering from The Pennsylvania State University. From 1961-69 he held various technical and managerial positions with International Minerals and Chemical Corp. in Illinois and Florida. From 1969-74 he was Professor and Head, Dept. of Mineral Engineering, Penn State University. Dr. Falkie also chaired Penn State's interdisciplinary program in Mineral Engineering Management. From 1974-77 he was Director of the Bureau of Mines, U.S. Dept. of the Interior. A Distinguished Member of the Society of Mining Engineers, he was the 1985 President of the Society. He has served on the Board of Directors of both SME and AlME, and was an AlME Vice President in 1977-78. Dr. Falkie was a Henry Krumb Lecturer in 1977-78, and has presented numerous publications and speeches on mining, mineral and energy topics. He is an Alumni Fellow of The Pennsylvania State University.

#### PRESIDENT-ELECT DESIGNATE AND TRUSTEE



MILTON E. WADSWORTH is Dean, College of Mines and Mineral Industries, and Professor of Metallurgy, University of Utah, where he has been a member of the faculty since 1951. The author of numerous technical publications in the field of metallurgy, he has received four best paper awards, and is the recipient of the Distinguished Research Award and the Distinguished Teaching Award of the University of Utah, where he was awarded a B.S. in Metallurgical Engineering in 1948 and a Ph.D. in Metallurgy in 1951. Dr. Wadsworth is a member of the National Academy of Engineering. His AIME awards include Distinguished Member of SME, the Douglas Gold Medal, the Mineral Industry Education Award and the TMS Educator Award. A Fellow of TMS, he served as the 1983 President of the Society.

#### **TRUSTEES**



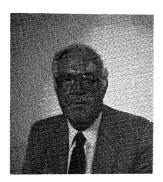
ROBERT W. BARTLETT is the Dean of the College of Mines and Earth Resources and Director of the Idaho Geological Survey at the University of Idaho in Moscow. He was educated at the University of Utah, receiving his B.S. in 1953 and Ph.D. in 1961. Until 1973 he taught mineral engineering at Stanford University. His subsequent industrial research experience included Kennecott, SRI International, and Anaconda Minerals where he was Vice President and directed the laboratory in Tucson until 1986. Dr. Bartlett has over 60 publications and eight patents. He received AIME's McConnell Award, the Extractive Metallurgy Technology Medal of TMS, and the Electrochemical Society's Turner Award. He is a Distinguished Member of SME. Dr. Bartlett has twice served on the TMS Board of Directors, chaired numerous committees and is serving as the 1989 TMS President.



JAMES W. BROWN is Director of Business Development for the UCAR Carbon Company, Inc., a Union Carbide Company, in Danbury, Connecticut. He received his B.S. in Civil Engineering from Cornell University in 1956. Mr. Brown began his career with Union Carbide as a Sales Representative for the National Carbon Company in 1956, was Market Development Representative in 1964, and has held various positions in sales and marketing for electrode products. In 1987, he was promoted to Director of Market Development for the Worldwide Carbon Business. A well-known figure in the graphite electrode field, Mr. Brown has presented steelmaking economic forecast and technical papers at industry meetings throughout the world and before the United Nations. He is an active member of the AFS, AISI, AISE, and the ISS. He has served as Membership Chairman and on the Executive Committee of the ISS Electric Furnace Division and as Director-at-Large of ISS from 1985 to 1987. He was elected a Distinguished Member of the ISS in 1986. Currently serving on the ISS Board of Directors, Mr. Brown is the 1989 President of the Society.



ORVILLE D. GAITHER has served as President of the Africa & Middle East Region of Amoco Production Company since 1979. He joined the Amoco organization in 1948. A graduate of Rice University in 1949 with a B.S. in Mechanical Engineering, Mr. Gaither received his M.S. in Petroleum Engineering from the University of Houston in 1962. He is a registered Professional Engineer in Texas and Louisiana in both mechanical and petroleum engineering. The author of several technical papers, Mr. Gaither has also co-authored a reference guide for Americans undertaking international work assignments. He has served one term as SPE treasurer and is currently President-Elect of the Society.



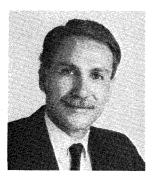
HAYDN H. MURRAY is Professor of Geology at Indiana University in Bloomington, Indiana. He received his B.S., M.S. and Ph.D. in Geology at the University of Illinois. Dr. Murray began his career at Indiana University in 1951 teaching Clay Mineralogy and Sedimentology. In 1957, he joined Georgia Kaolin Company as Director of Research and in 1960 he became Manager of Operations; in 1962, Vice President — Operations; and in 1964, Executive Vice President. In 1973, Dr. Murray returned to Indiana University as Chairman of the Department of Geology. He has authored over 150 publications on kaolins, bentonites, and other industrial minerals. In 1976 he received the Hardinge Award from AIME in recognition of outstanding achievement in the field of Industrial Minerals and was named a Distinguished Member of SME. He is past Chairman of the Industrial Minerals Division of SME and was the 1988 President of SME.



ROBERT E. MURRAY is President, Chief Executive Officer, and Owner of a group of companies, including Coal Resources, Inc., Ohio Valley Resources, Inc., The Ohio Valley Coal Company, Energy Resources, Inc., The American Coal Sales Company, which produce, transload, and market coal. After receiving a B.S. in Mining Engineering from The Ohio State University, where he served as a Departmental Assistant, Mr. Murray began a 31-year career with The North American Coal Corporation, where he rose to President and Chief Executive Officer. He served in practically every management and mine engineering and supervisory position in his career with North American, which culminated in the formation of his own companies. Mr. Murray is a graduate of the Harvard University Advanced Management Program, is a Distinguished Member of SME, and is a recipient of its Howard N. Eavenson Award. He is a Past Chairman of the Coal Division of SME, has served on the SME Board and Executive Committee, and is the 1989 President of the Society.



**LEONARD G. NELSON, JR.**, was appointed General Superintendent of Steelmaking and Casting, LTV Steel, Cleveland Works in 1984. He earned his B.S. at Muskingum College, New Concord, Ohio in 1958. He began his steelmaking career in 1959 as a Technical Operating trainee with Republic Steel Corp. and worked various front-line positions before becoming Assistant Superintendent of Steelmaking at the Warren Works in 1968. In 1976, he became Superintendent of Steelmaking at the Cleveland facility. Mr. Nelson served as Chairman of the Steelmaking Division of ISS in 1985 and was a member of the Division's Executive Committee from 1978 to 1986. He is currently serving on the ISS Board and was the 1988 President of ISS.



FRANK V. NOLFI, JR. is Vice President — Technology, Alcan Aluminum Corporation. He received his B.S. in Metallurgical Engineering from the Drexel Institute of Technology in 1964 and his M.S. in Metallurgy and Materials Science from the Carnegie Institute of Technology in 1967. In 1968, he received his Ph.D. in Metallurgy and Materials Science at Carnegie-Mellon University. Dr. Nolfi was employed by Argonne National Laboratory from 1975 to 1981. From 1981 to 1983, he was a senior scientist and Director of the Metallurgy and Ceramics Division at Ames Laboratory. Prior to joining Alcan in 1987, Dr. Nolfi was the Chief of the Metallurgy and Ceramics Branch, Division of Materials Sciences, of the U.S. Department of Energy. He has authored numerous publications and has served as the Editor for the volume *Phase Transformations During Irradiation*. As an active member of TMS, Dr. Nolfi has served on the Board of Directors, chaired numerous committees and task forces, and was TMS President in 1988.



GEORGE H. SAWYER is Manager of Affiliate Operations for Exxon Company, International in Florham Park, New Jersey. He received a B.S. in Petroleum Engineering from the University of Texas in 1956. His 34-year career to date has been divided some two-thirds domestic and one-third international. While working with Exxon USA, Mr. Sawyer held a number of technical and management positions, including Executive Assistant to the Chairman and Senior Advisor in the Exxon Corporate Office. He was Production Manager of Esso Europe and Esso Norway during his ten years in Europe. During his last London assignment, he chaired the International Exploration and Production Forum (1984-85). Mr. Sawyer has been active in SPE since 1955 serving as Chairman of the Distinguished Lecturer Committee, SPE Director-At-Large (1976-78) and Chairman of the Europec Conference (1984). He is the 1989 President of SPE.



JOHN K. HAMMES, AIME VICE PRESIDENT-FINANCE, is Vice President, Metals and Mining Dept., Citibank, N.A., New York. He joined Citibank in 1968 as a Mining Engineer and was named a Vice President in 1972. From 1965 to 1968, he was employed by the Metal Mining Division of Kennecott Copper Corp. Prior to that, he worked for the U.S. Bureau of Mines under a fellowship program supporting research on the Lake Superior iron pellet industry. Mr. Hammes received his Bachelor's degree from the University of Missouri and his M.S. and Ph.D. in Mining Engineering from the University of Minnesota. He is a Past Chairman of the New York Section of SME and has served as AIME Vice President-Finance since 1977.



ROBERT H. MARCRUM, AIME EXECUTIVE DIRECTOR AND SECRETARY, came to AIME in November, 1983, after a career of over 29 years as a U.S. Army officer. In addition to various command and staff assignments with artillery units, he served on the staff and faculty of the United States Military Academy (USMA) at West Point, in the Office of the Joint Chiefs of Staff at the Pentagon, as the Chief of Staff of the Army's Communications-Electronics Command and as the Post Commander for Fort Monmouth, N.J. He served two tours of duty in Korea and one each in Germany and Vietnam. He holds a B.S. in Engineering from USMA, an M.S. in Industrial Relations from Purdue University, and is a graduate of the Army's Command and Staff College.

. AMERICAN INSTITUTE OF MINING, METALLURGICAL, AND PETROLEUM ENGINEERS, INC. 345 East 47th Street

New York, New York 10017

Member Societies

Society of Mining Engineers P.O. Box 625002 Littleton, CO 80162-5002 Telephone 303/973-9550

Claude L. Crowley, Executive Director

The Minerals, Metals & Materials Society 420 Commonwealth Drive Warrendale, PA 15086 Telephone: 412/776-9000

Alexander R. Scott, Executive Director

Iron and Steel Society 410 Commonwealth Drive Warrendale, PA 15086 Telephone: 412/776-1535

Lawrence G. Kuhn, Executive Director

Society of Petroleum Engineers P.O. Box 833836 Richardson, TX 75083-3836 Telephone: 214/669-3377

Dan K. Adamson, Executive Director

# American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.

#### AIME PAST PRESIDENTS

#### Active List

Carl E. Reistle, Jr.	1956	Wayne L. Dowdey	1978
Ronald R. McNaughton			
Nona ia K. McMaughton	1961	William H. Wise	1979
Lloyd E. Elkins	1962	M. Scott Kraemer	1980
Karl L. Fetters			
	1964	Robert H. Merrill	1981
Thomas C. Frick	1965	Harold W. Paxton	1982
Walter R. Hibbard, Jr.	1967		
John R. McMillan		Edward E. Runyan	1983
	1968	Nelson Severinghaus, Jr.	1984
John C. Kinnear, Jr.	1970	Norman T. Mills	
John S. Bell			1985
	1971	Arlen L. Edgar	1986
Wayne E. Glenn	1974	Alan Lawley	1987
Julius J. Harwood			
	1976	Thomas V. Falkie	1988
H. Arthur Nedom	1977		**

#### AIME HONORARY MEMBERS

HONORARY MEMBERSHIP is awarded in appreciation of outstanding service to the Institute or in recognition of distinguished scientific or engineering achievement in fields embracing, broadly speaking, the activities of AIME and its Member Societies.

	Year of Election		Year of Election
Nathaniel Arbiter	1975	William A. Griffith	1986
Edmund .C. Babson	1985	H. J. Gruy	1987
Charles S. Barrett	1979	Michel T. Halbouty	1972
John S. Bell	1976	John P. Hammond	1988
John C. Calhoun, Jr.	1975	Julius J. Harwood	1980
Ben H. Caudle	1986	John F. Havard	1980
Morris Cohen	1980	Claude R. Hocott	1980
Jesse F. Core	1980	M. King Hubbert	1977
Lawrence B. Curtis	1986	Richard N. Hunt	1965
Donald A. Dahlstrom	1985	Donald L. Katz	1985
Henri G. Doll	1986	M. Scott Kraemer	1983
Wayne L. Dowdey	1983	H. Mark Krause, Jr.	
Robert C. Earlougher	1984	Carleton C. Long	1982
Arlen L. Edgar	1988	George H. Love	1971
Lincoln F. Elkins	1977	Plato Malozemoff	1972 1985
Lloyd E. Elkins	1969	Dean A. McGee	1965
John F. Elliot	1982	Robert H. McLemore	1976
Karl L. Fetters	1975	Sir Ian McLennan	
Thomas C. Frick	1970	John R. McMillan	1971
Douglas W. Fuerstenau	1988	Robert H. Merrill	1984
Robert B. Gilmore	1985	Stanley D. Michaelso	1984 n 1977
Wayne E. Glenn	1979	Scanley D. Michaelson	1977

#### AIME Honorary Members (Continued)

Norman T. Mills	1007		
	1987	Joseph G. Richardson	1987
Henry T. Mudd	1981	Kenneth W. Robbins	1988
Morris Muskat	1971	Edward E. Runyan	1987
H. Arthur Nedom	1981	Donald G. Russell	1986
Melvin E. Nickel	1978	Harrison H. Schmitt	1972
Earl R. Parker	1982	Nelson Severinghaus, Jr.	1987
Albert J. Phillips	1972	Cyril Stanley Smith	1973
Fred H. Poettmann	1984	Simon D. Strauss	1980
William N. Poundstone	1982	Michael Tenenbaum	1979
Nathan E. Promisel	1974	Alfred Weiss	1986
Henry J. Ramey, Jr.	1984	Robert L. Whiting	1987
Carl E. Reistle, Jr.	1960	William H. Wise	1984
		David A. Zegeer	1987

# American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.

#### RECORD OF HONORS AND AWARDS PRESENTED BY AIME IN 1988

The following Honors and Awards were presented by AIME in 1988:

#### 1987 HONORARY MEMBERSHIP was conferred upon

Henry J. Gruy, "For distinguished service to the worldwide petroleum industry and the professions of petroleum engineering and geology; and for significant contributions to advances in petroleum engineering technology through publications on oil and gas reserve evaluations, field case histories, and reservoir and geologic studies."

**Norman T. Mills,** "For his dedicated service to AIME and the Iron and Steel Society toward the redefining of goals of the Institute and the four Member Societies."

Joseph G. Richardson, "For successful applications of geologic, geophysical, and engineering principles to the improvement of oil and gas recovery; and for the credit to the Society, Institute, and the engineering profession that has resulted from his integrity."

Edward E. Runyan, "For dedicated and distinguished service to SPE and AIME; for major contributions to the evolution of SPE to a worldwide organization; and for outstanding leadership and vision in the growth and development of the SPE foundation."

**Nelson Severinghaus, Jr.,** "For visionary contributions in industrial mineral processing; for motivational leadership in corporate management; and for the coalescence of these skills demonstrated during his distinguished service to the Society of Mining Engineers and the Institute."

Robert L. Whiting, "For significant contributions to the technology and teaching of petroleum engineering; and for distinguished service to government and government agencies on oil and gas technical, economic, and policy issues."

David A. Zegeer, "For his significant contributions to the coal industry and many contributions to its technical literature; for his long service to the Society of Mining Engineers and its Coal Division; for his role in governmental affairs; and for his contribution as coeditor of 'Elements of Practical Coal Mining.'"

The JAMES DOUGLAS GOLD MEDAL to Robert E. Lund, "In recognition of his technical contributions and leadership in the development of extraction processes, metallothermic methods, and fabrication techniques of zinc, lead and related metals and their alloys."

The BENJAMIN F. FAIRLESS AWARD to Gordon E. Forward, "For his energetic and innovative leadership and his application of advanced methods in the manufacture of steel."

The HAL WILLIAMS HARDINGE AWARD to Donald D. Carr, "Research scientist, administrator, and author. For service to the mineral industry, particularly involving limestone, and his efforts on behalf of SME and the Industrial Minerals Division."

The ROBERT EARLL McCONNELL AWARD to Howard A. Koch, "For his major contributions in the miscible displacement process of enhanced oil recovery which has significantly increased the recoverable oil reserves of the entire world."

The ERSKINE RAMSAY MEDAL, to Bill S. Taylor, "For recognition of his outstanding technical contributions to the development, implementation and successful operation of new coal preparation processes and process controls throughout the world."

The CHARLES RAND MEMORIAL GOLD MEDAL to Alexander M. Wilson, "For outstanding leadership, spanning two decades, that resulted in the growth and diversification of a corporation in the minerals field."

The ROBERT H. RICHARDS AWARD to Richard R. Klimpel, "For his scientific and engineering contributions to the understanding and the betterment of the design and optimization of a wide range of mineral processing unit operations."

The WILLIAM LAWRENCE SAUNDERS GOLD MEDAL to Roy Woodall, "For his efforts as a leader in establishing Western Mining Corporation as one of the most successful exploration companies in the world."

The MINERAL ECONOMICS AWARD to James Boyd, Posthumously, "In recognition of major contributions to the understanding of the economics of the minerals industries through his role as advisor to the government and the American public, as industrial leader and as educator."

The MINERAL INDUSTRY EDUCATION AMARD to Henry J. Ramey, Jr., "For noteworthy achievements in advancing the curriculum in petroleum engineering education; as a recognized, outstanding teacher and motivator; and for his success in attracting outstanding young people to pursue courses in petroleum engineering."

The ROSSITER W. RAYMOND MEMORIAL AWARD to Jeffrey J. Schwoebel, for his paper "Coal Bed Methane: Conversion of a Liability to an Asset."

# American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.

#### LEGION OF HONORS FIFTY-YEAR MEMBERS:

#### Society of Mining Engineers:

Benjamin Adelstein, Cecil R. Amis, Donald L. Archibald, John C. Archibald, Jr., Daniel W. Atchinson, A. Lee Barrett, Albert O. Bartell, Chas E. Bass, Earl H. Beistline, Reg S. Bemis, Donald A. Berkner, George W. Berry, Frank W. Bowdish, Bahngrell W. Brown, Thomas C. Brown, Bernard O. Brynelsen, Bennet F. Buie, Arthur E. Buller, Edward J. Caldwell, R. D. Caylor, Charles H. Chase, Hubert B. Chessher, Jr., Charles D. Clarke, Joseph D. Doherty, John E. Dwyer, Jack M. Ehrhorn, James O. Ellis, Philip B. Eng, Albert L. Fairley, Dion L. Gardner, Cedric E. Gregory, John Paul Gries, Heath H. Hales, Martin K. Hannifan, Byron S. Hardie, Frank E. Johnson, Karl J. Klapka, Alvin W. Knoerr, Victor E. Kral, Edwin J. Kreitlow, Charles H. Lambur, James E. Lee, Modesto L. Leonardi, Ewald O. Lilge, Lawrence K. Marshall, Dale C. Matthews, James M. Maurice, Robert A. McClevey, Jr., Herbert H. Mellus, Michael J. Messel, Grant W. Metzger, Charles Meyer, Norman A. Moberg, Arturo M. Morales-Dominguez, Paul W. F. J. Moran, Samuel P. Moyer, William B. Nelson, Ernest L. Ohle, W. Julian Parton, Asher H. Patten, Harluf C. Petersen, H. Gilbert Plimpton, James Quigley, Edward J. Ramaley, Peter P. Ribotto, Edward H. Rott, Clyde R. Russell, Charles M. Sampson, Hans H. Schou, Marshall W. Scott, Robert W. Shilling, G. Albert Shoemaker, Mark G. Smerchanski, H. Rush Spedden, Irvin C. Spotte, George L. Sullivan, H. Theodore Sumsion, Harold L. Sutton, George E. Travis, Salvadore F. Trevino, R. Maurice Tripp, John D. Vincent, Norman S. Wagner, William J. Waylett, John R. Welch, William Wentworth, James S. Westwater, Glen B. Wilson, Benjamin T. Wykoff, Dan S. Young.

#### The Metallurgical Society

Alfred Bornemann, Galen W. Clevenger, Rudolph H. Cowen, Walter A. Dean, Laurence T. Eck, H. W. Franz, F. C. Hull, Eugene J. Kalil, Charles E. Lacy, George A. Moore, Theodore L. Oberle, J. D. Prater, K. E. Rose, Robert E. Shaffer, Neville S. Spence, H. T. Sumsion, Stanmore V. Wilson.

#### Iron and Steel Society

S. G. Fletcher, Leslie G. Graper, M. W. Lightner, Warren M. Mahan, R. W. Sundquist.

#### Society of Petroleum Engineers

Leo L. Baker, Z. W. Bartlett, Charles V. Cameron, William W. Charles, Jr., J. Donald Clark, Charles R. Criss, Louis F. Davis, Parke A. Dickey, Alex Diepenbrock, W. H. Drushel, Nicholas G. Dumbros, Lloyd E. Elkins, Hart C. Gleason, Cecil V. Hagen, John P. Hammond, Howard H. Hinson, Louis R. Hodell, M. King Hubbert, Robert H. McLemore, Clyde W. Perry, Lawrence E. Porter, Herman E. Schaller, Louis H. Shearer, Austen M. Shook, Norman Soul, C. O. Stephens, Nick Van Wingen.

#### American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.

### REPORT ON THE 117th AIME ANNUAL MEETING

The 117th AIME Annual Meeting was held in Phoenix, Arizona, January 25-28, 1988. The Hyatt Regency served as the headquarters hotel for AIME, the Society of Mining Engineers and WAAIME. The Phoenix Sheraton was the headquarters for The Metallurgical Society. Over 5,000 members, non-members and students attended the technical sessions sponsored by the AIME Member Societies during the five-day meeting.

"The Technology of Profitability" was the theme of the AIME Keynote Session held on Monday, January 25, 1988 at the Phoenix Civic Center. Three outstanding speakers participated in the session: B. R. Brown, President and Chief Executive Officer, Consolidation Coal Company; Robert F. Calman, Chairman of the Board, Echo Bay Mines Ltd.; G. Robert Durham, Chairman of the Board and President, Phelps Dodge Corporation. The Keynote Session was extremely successful, having an attendance of more than 600.

The 117th AIME Annual Banquet and Awards Ceremony was held on Monday evening, January 25 at the Hyatt Regency. 1987 President Alan Lawley served as the Master of Ceremonies for the presentation of AIME honors and awards, followed by the installation of Thomas V. Falkie as 1988 AIME President.

#### Report of Independent Accountants

To the Board of Trustees of the American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.:

We have audited the accompanying balance sheets of the AMERICAN INSTITUTE of MINING, METALLURGICAL and PETROLEUM ENGINEERS, INC. ("AIME") (Note 1a) as of November 30, 1988 and 1987 and the related statements of revenue and expenses and surplus, changes in endowment and quasi-endowment funds, and cash flows for the years then ended. These financial statements are the responsibility of AIME's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of AIME at November 30, 1988 and 1987, and the results of its operations and its cash flows for the years then ended in conformity with generally accepted accounting principles.

Coopers Lybraud

New York, New York January 3, 1989

# AMERICAN INSTITUTE OF MINING, METALLURGICAL, and PETROLEUM ENGINEERS, INC.

# BALANCE SHEETS, NOVEMBER 30, 1988 and 1987 (Note 1a)

1987	\$ 46,492		87,682	30,761			•	8,269,329 8,300,090	265,000 <b>8</b> 8,699,264
1988	\$ 34,764		42,638	78,212				8,755,226 8,855,458	\$ 9,175,840
LIABILITIES and FUND BALANCES:	Operating fund: Accounts payable and accrued liabilities	Alpenia and a	Surplus - unrestricted	Endowment and quasi-endowment funds: Accounts payable, primarily to a Member Society				Fund balances (Note 1a)	Property fund (no change during 1988 and 1987) (Note 4)
1987	\$ 90,158	7,589	25,093	7,029,136	460,661	241,989	561,904	6,400	\$ 8,699,264
1988	\$ 19,059 15,938	3,644	38,761	7,707,160	410,681	186,059	521,317	8,221	\$ 9,175,840
ASSETS:		accumulated depreciation of \$34,173 in 1988 and \$28,209 in 1987 (Note 1c)	Prepaid expenses	Endowment and quasi-endowment funds: Investments, at cost plus accrued interest (at market quotations plus accrued interest: \$7,994,982 in 1988 and \$7,573,187 in 1987) (Notes 1d and 3)	Cash	Inventories of books (Note 1b)	Loans receivable from Member Societies plus accrued interest (Note 2)	Prepaid expenses	Founder Society advances to United Engineering Trustees, Inc. (Note 4)

# STATEMENTS of REVENUE and EXPENSES and SURPLUS for the years ended NOVEMBER 30, 1988 and 1987 (Note 1a)

		1988	1987
Revenue:			
Contributions by Monther engineering	ember Societies for: g federations	\$ 130,018	\$ 130,469
Administrative e	kpenses	16,000	16,000
Appropriations from	n endowment funds	260,000	260,000
Offshore Technology	y Conference	8,099	5,777
Meetings		23,575	15,175
Interest (Note 1f)		18,482 456,174	18,548 445,969
Expenses: Federation support		138,018	138,469
Meetings		25,052	13,626
Other programs and	administrative expenses		
(Note 5)		<u>338,148</u> <u>501,218</u>	302,889 454,984
Excess of expenses	over revenue	(45,044)	(9,015)
Surplus-unrestricted:			
Balance, beginning	of year	87,682	96,697
Balance, e	nd of year	\$ 42,638	\$ 87,682

# STATEMENTS of CHANGES in ENDOWMENT and QUASI-ENDOWMENT FUNDS for the years ended NOVEMBER 30, 1988 and 1987 (Note 1a)

	1988	1987
Balance of fund accounts, beginning of year	\$ 8,269,329	\$ 7,223,891
Revenue: Net gain on sales of investments (Note 1e)	418,380	1,062,223
Interest and dividends, net of investment advisor and custodian fees of \$54,882 in 1988 and \$58,972 in 1987 (Note 1f)	472 <b>,</b> 452	308,311
Sales of books, volumes, etc.	64,301	85 <b>,</b> 939
Royalties from oil and gas deeds	20,721	33,176
	975,854	1,489,649
Expenses and appropriations: Publication expenses	62,072	81,485
Awards	63,355	52,790
Free books	73,282	31,555
Sundry expenses	12,682	10,416
Appropriations to operating funds	260,000	260,000
Transfers to SME: Rocky Mountain Fund (Note 2)	7,116	7,965
Robert H. Richards Fund	11,450	A44 044
Balance of fund accounts, end of year	489,957 \$ 8,755,226	\$ 8,269,329

# STATEMENTS of CASH FLOWS for the years ended NOVEMBER 30, 1988 and 1987 (Note 1a)

	1988	1987
Cash flows from operating activities: Excess of expenses over revenue	\$ (45,044)	\$ (9,015)
Revenue, excluding gains on sales of securities, less expenses and appropriations of endowment and		
quasi-endowment funds	67,517	(16,785)
	22,473	(25,800)
Adjustments to reconcile above to net cash provided by operating activities:		
Depreciation	5,965	6,056
Changes in assets and liabilities: Increase in accrued interest on investments (Increase) decrease in accounts receivable	(50,732) (4,604)	(343) 9 <b>,</b> 942
Decrease in inventories of books Increase in prepaid expenses Increase in accounts payable	55,930 (15,489)	8,407 (10,528)
and accrued liabilities	35,723 26,793	10,475
Net cash provided by operating activities	49,266	(1,791)
Cash flows from investing activities: Purchases of securities Sales of securities Loans receivable from Member Societies Capital expenditures	(9,149,195) 8,940,283 40,587 (2,020)	(6,275,773) 6,301,020 39,252 (175)
Net cash used in investing activities	(170,345)	64,324
Net increase (decrease) in cash	(121,079)	62,533
Cash at beginning of year	550,819	488,286
Cash at end of year	\$ 429,740	\$ 550,819

#### NOTES to FINANCIAL STATEMENTS

#### 1. Summary of Significant Accounting Policies:

#### a. General:

The financial statements comprise the accounts of the American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc. (AIME). They do not include the accounts of the Society of Mining Engineers (SME), the Society of Petroleum Engineers (SPE), The Minerals, Metals and Materials Society (TMS), and the Iron & Steel Society (ISS), the four Member Societies of AIME.

Quasi-endowment funds of \$7,037,234 and \$6,661,356 at November 30, 1988 and 1987, respectively, represent amounts which have been restricted by AIME's Board of Trustees. The Board of Trustees has also determined that such funds be retained and invested.

AIME's Board of Trustees periodically makes appropriations from interest and dividend income of endowment funds to the operating fund and the individual Member Societies based on their respective operating requirements.

#### b. <u>Inventories:</u>

Salable publications and books are carried at the lower of cost (first-in, first-out) or net realizable value.

#### c. Equipment, Furniture and Fixtures:

Equipment, furniture and fixtures are recorded at cost and are depreciated on the straight-line method over their estimated useful lives. Depreciation expense for 1988 and 1987 was \$5,965 and \$6,056, respectively.

#### d. Investments:

Investments purchased are carried at cost or, if acquired by gift, at market value on date of gift plus accrued interest, where applicable. Purchases and sales of securities are reflected on a trade-date basis.

#### e. Gains or Losses on Sale of Investments:

Gains or losses on sale of investments are determined on the basis of average cost. Such gains or losses relating to investments which are part of the endowment commingled pool of investments are allocated to the individual funds based on their relative book values at the end of each quarter.

#### f. Interest and Dividend Income:

Interest from investments is recorded on the accrual basis. Dividends are recorded on the cash basis; however, such basis of accounting does not differ significantly from the generally accepted method of accruing dividends on the ex-dividend date.

#### g. Retirement Income Plan:

AIME and its four Member Societies belong to the AIME Retirement Income Plan (the "Plan") a defined benefit retirement income plan which covers substantially all full-time employees, and is non-contributory with regard to the first \$10,000 of salary. Contributions are required from eligible employees who elect to participate in the contributory aspect of the Plan and whose salaries exceed \$10,000. The benefits of the Plan are based on years of service and the employee's compensation. Effective December 1, 1986, AIME adopted the provisions of Statement of Financial Accounting Standards No. 87 "Employers' Accounting for Pensions."

The Retirement Income Committee has contracted with Connecticut General Life Insurance Company ("Connecticut General") through a Group Annuity Contract, to maintain the assets of the Plan and for payment of pension benefits to the annuitants. The Plan participates in various investment accounts of Connecticut General. These accounts have investments in growth common stocks, real estate partnerships, property, mortgage loans, short-term investments and international equity securities.

The funding policy of AIME is to contribute such amounts as are necessary on an actuarial basis to provide the Plan with assets to meet the benefits expected to be paid to annuitants or their beneficiaries.

The following table sets forth AIME's share of the Plan's funded status and the amounts recognized in AIME's balance sheets at November 30, 1988 and 1987:

	1988	1987
Accumulated benefit obligation, including vested benefits of \$490,901 (1988) and \$495,149 (1987)	\$ 506,398	\$ 510,780
Projected benefit obligation Plan assets at fair value Plan assets in excess of projected	\$(513,490) 610,740	\$(517,933) 618,444
benefit obligation Unrecognized net loss Unrecognized net assets at December 1,	97,250 26,427	100,511 26,427
1986 being recognized over 12 years	(101,294)	(111,424)
Prepaid retirement income cost included in prepaid expenses	\$ 22,383	\$ 15,514

#### NOTES to FINANCIAL STATEMENTS, Continued

Net retirement income cost for 1988 and 1987 included the following components:

	1988	1987
Service cost Interest cost	\$ 10,403 34,425	\$ 4,400 35,088
Projected return on plan assets Net amortization and deferral	(41,567) (10,130)	(43,705) (10,130)
Net retirement income cost (credit)	\$ (6,869)	\$ (14,347)

The weighted average discount rate and rate of increase in future compensation used in determining the actuarial present value of the projected benefit obligation were 7% and 5.5%, respectively. The expected long-term rate of return on Plan assets is 7.0%.

The AIME Board of Trustees has approved splitting the Plan into five separate plans, one for AIME and each of its four Member Societies, and approved the division of plan assets among the five separate plans upon receipt of a satisfactory determination letter from the Internal Revenue Service approving the new plans' qualified status under Section 401(a) of the Internal Revenue Code of 1986, as amended.

h. In 1988 AIME adopted the provisions of Statement of Financial Accounting Standards Board No. 95 "Statement of Cash Flows".

#### 2. Financing of TMS/ISS and SME Headquarters Facilities:

TMS/ISS Headquarters:

During 1978, TMS/ISS obtained a \$300,055 loan from the endowment fund, payable over twenty years at a floating interest rate based on the endowment fund's prior year's net earnings after management fees. At November 30, 1988 and 1987, the balance of the loan plus accrued interest at 3.5% (1988) and 3.9% (1987) per annum was \$192,212 and \$208,506, respectively.

SME Headquarters:

During 1978, AIME's Board of Trustees approved an investment of \$100,000 from the endowment fund (Rocky Mountain Fund) for the SME Headquarters building. In connection with the separate incorporation of the Member Societies during 1984, the AIME Board of Trustees approved the transfer of one-half of the Rocky Mountain Fund to SME. Such transfer will amount to approximately \$130,000 and was and will be accomplished by forgiving AIME's \$100,000 advance to SME in fiscal year 1986 and by cash payments, over a period of time, of approximately \$30,000. As of November 30, 1988, \$28,426 of the \$30,000 has been paid to SME. The amounts transferred and to be transferred to SME are and will be comprised only of accumulated earnings on the fund; the principal of the fund will be maintained by AIME.

#### NOTES to FINANCIAL STATEMENTS, Continued

During 1979, SME obtained a \$467,000 loan from the endowment fund, payable over twenty years at a floating interest rate based on the endowment fund's prior year's net earnings after management fees. At November 30, 1988 and 1987, the balance of the loan plus accrued interest at 3.5% (1988) and 3.9% (1987) was \$329,105 and \$353,398, respectively.

#### 3. Changes in Investments:

Endowment and quasi-endowment funds:

Investments of east plus seemed	1988	1987
Investments at cost plus accrued interest, beginning of year	\$ 7,029,136	\$ 5,991,817
Purchases of securities	9,149,195 16,178,331	6,275,773
Sales of securities	8,940,283 7,238,048	12,267,590 6,301,020 5,966,570
Net realized gain on sales of securities	418,380	1,062,223
Net change in accrued interest	50,732	343
Investments at cost plus accrued interest, end of year	\$ <u>7,707,160</u>	\$ <u>7,029,136</u>

#### 4. Advances to United Engineering Trustees, Inc.:

In accordance with an agreement between AIME and the United Engineering Trustees, Inc. (UET), AIME has agreed to maintain permanently its principal offices in the United Engineering Center Building and to pay a pro rata portion of the operating costs of the building. AIME's share of these costs during 1988 and 1987 was \$47,254 and \$45,090, respectively. The advance to UET, made in connection with the erection of the United Engineering Center Building, is repayable only out of available reserve funds on dissolution of UET and earns interest at an annual rate of 4%.

#### NOTES to FINANCIAL STATEMENTS, Continued

#### 5. Other Programs and Administrative Expenses:

Other programs and administrative expenses consist of the following:

	1988	1987
Payroll and employee benefits	\$ 182,865	\$ 155,761
Audit and legal services	24,347	24,021
Rent	47,254	45,090
AIME Board activities	15,814	14,123
Supplies, postage and	•	
maintenance and repairs	18,748	15,826
Insurance	11,335	10,403
Depreciation	5 <b>,</b> 965	6,056
Publications and printing	2,511	1,987
Other	29,309	29,622
	\$ <u>338,148</u>	\$ 302,889

#### 6. Tax Status:

AIME is a not-for-profit organization exempt from federal income taxes under Section 501(c)(3) of the Internal Revenue Code.

#### The Woman's Auxiliary

to the

#### American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.

14th floor, 345 EAST 47th STREET, NEW YORK, NY 10017

#### REPORT OF THE WAAIME

WAAIME programs continued to progress during the year 10/1/87 through 9/30/88. Regretfully, Alaska-Fairbanks disbanded. However we still have 31 very active Sections with a total membership of 1912. This figure represents a loss of 26 members. Several Sections are having difficulty remaining active with severe membership loss due to mine closures and take over changes. Other Sections are showing increased activity due to a rising metals market. Some geographic areas are involved in tremendous new mining and exploration programs. We are laying the groundwork for new Sections. Since our membership is derived from the wives and relatives of AIME and the four societies' members, we ask again for your support. Our future depends on your positive encouragement for membership.

Our investment portfolio continues to grow under the guidance of Brown Brothers Harriman & Co.; Coopers & Lybrand continue as our auditors, and Paul Goodman as our CPA.

Scholarship Loan Fund (SLF) derives its income from the following sources: Interest only from Endowment Funds, 75% of contributions from Sections (the other 25% is added to the Sections Scholarship Endowment Fund), and 100% of repayments from students. The SLF advanced \$106,175 to students during our last fiscal year. Since the original loan was granted in 1920, \$2,134,863 has been awarded on an interest free, 50% repayment expected basis. We have assisted 1,406 students, enabling them to finish their college degree programs.

In May 1988 along with summer and fall emergency applications, forty-one new loans were approved totaling \$95,326. Twelve Sections sponsored 21 men and 20 women; 29 were undergraduates and 12 were graduate students. Major fields of study were Metallurgy & Material Science Engineering, Geology/Geological Engineering, Mining Engineering, Petroleum Engineering, Hydrology/Hydrogeology, Mineral Economics, Environmental Engineering, Occupational Safety & Health - Mining.

The income from our Scholarship Endowment Fund continues to be adequate to assist all qualified loan applicants to date. Loan repayments from student recipients totaled \$32,875 with seventeen attaining paid-up status. It is gratifying to note that the Alumni Endowment Fund, created by payment from students over and above the amount owed (or even repayments of 100% of the loan) is nearly \$50,000. Its interest income is available to help fund future student loans.

The Engineers for Tomorrow (EFT) program continues to provide Earth Science information to elementary and high schools. Sections have provided judges and prizes for Science Fairs, acted as sponsors, and contributed funds. They promote the use of Mining, Minerals and Me modules, sponsor tours of local mines, contribute equipment, maps, etc. to high school geology departments, and slide sets, rock and mineral kits used at lower grade levels.

The <u>Chest Committee</u> (CAS-Chest Assistance for Students) provides emergency cash assistance mainly for summer field trip expenses. However, aid has been given for other unexpected living and school costs. Many Sections also work as a group providing volunteer hours on community projects.

The <u>Library</u> program, through the efforts of various Sections, donated a variety of superb books related to the mineral industry and science fields to elementary schools, high schools, and colleges. Children's books on Earth Science have also been donated to Public Libraries. Several more Sections began library programs this year.

Newsletter provides an important line of communication to every WAAIME member. Its information consists of summaries of board meetings, committee reports, articles and pictures on special Section activities, and articles covering WAAIME history. An issue giving pre-convention information and also a post-convention issue carrying the reports and many photographs from the Annual Meeting are published, in addition to others throughout the year.

The <u>Liaison</u> Committee of each Section continues to share activities and projects with AIME and other WAAIME Sections. Four Sections held joint regular meetings with AIME and twenty one Sections held joint Social meetings. Fundraisers, community activities and industry related technical meetings were also shared. These activites and joint meetings benefit our industry, our communities and our members.

<u>Publicity</u> provides information to the publications of the technical societies, giving WAAIME programs greater coverage. We appreciate the cooperation and support we have received from them.

Our members are proud to be the Auxiliary of AIME. We thank Mr. Robert H. Marcrum, Executive Director of AIME, his staff, and all of you for your ready assistance and attention to our needs. We shall continue to provide an excellent Scholarship Loan program, along with our Engineers For Tomorrow, Library, and Chest programs to help further the future of the minerals industry and the associated professions.

Respectfully submitted,

Mrs. George R. Grandbouche

President of WAAIME