



**Mining Foundation
of the Southwest**

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Twenty-Fifth Annual

**American
Mining Hall of Fame
Awards Presentation
and Banquet**

December 1, 2007

Tucson Marriott University Park, Tucson, Arizona



2007 Program

6:30 p.m. Reception
7:00 p.m. Banquet Dinner
8:30 p.m. Ceremony

Welcoming Remarks: **Spencer Titley**

Introduction of Head Table
and Other Honored Guests: **Spencer Titley**

Awards Presentation: **Larry Dykers**

Presentation of 2007
Inductees From
Mining's Past: **Herman Ehrenberg**
*Presented by
John Lacy*

Thomas Lovering
*Presented by
Spencer Titley*

Presentation of 2007
Medals of Merit: **William Davenport**
*Presented by
William Dresher*

Harry Parker
*Presented by
Donald Earnest*

Presentation of 2007
Industry Partnership Award: **M3 Engineering &
Technology Corporation**
*Presented by
Martin Kuhn*

Presentation of 2007
Inductee: **Dennis R. Washington**
*Presented by
Spencer Titley*

Featured Address: **Dennis R. Washington**

Adjournment: **Spencer Titley**

The American Mining Hall of Fame Committee of the Mining Foundation of the Southwest would like to thank Modular Mining Systems, Inc. for its continued support by typesetting/design and printing this evening's programs. Modular has provided this contribution for many years.



Special Thanks





American Mining Hall of Fame

Medal of Merit Recipients

Medal of Merit Recipients (1989-2006)

- 1989 Ralph J. Roberts
- 1989 Victor H. Verity

- 1990 John S. Livermore

- 1991 George O. Argall, Jr.

- 1992 Arthur A. Brandt
- 1992 William C. Epler

- 1993 Walter E. Heinrichs, Jr.
- 1993 Willard C. Lacy

- 1994 Donnell W. Agers
- 1994 J. David Lowell
- 1994 Ronald R. Swanson

- 1995 Warren Kay Pincock

- 1996 Richard W. Hutchinson
- 1996 Charles L. Pillar

- 1997 Hugo T. Dummett
- 1997 Spencer Rowe Titley

- 1998 David N. Skillings, Jr.
- 1998 José Rubén Velasco Rodríguez

- 1999 Paul S. Allen
- 1999 William C. Peters

- 2000 Leonard Harris
- 2000 Pedro Sánchez-Mejorada

- 2001 William H. Dresher
- 2001 Warren E. Fenzi

- 2002 Richard D. Call
- 2002 Kenneth L. Zonge

- 2003 Stanley H. Dempsey
- 2003 James William White

- 2004 Edward S. Frohling
- 2004 Dr. Joaquin Ruiz

- 2005 Larry McBiles
- 2005 Wayne C. Hazen

- 2006 Leonard R. Judd
- 2006 Roshan B. Bhappu



PLATINUM

- Freeport McMoRan Copper and Gold Inc.*
- Hanlon Engineering & Associates, Inc.*
- M3 Engineering & Technology Corporation*
- Newmont Mining Corporation*

GOLD

- Boart Longyear Co.*
- Call & Nicholas, Inc.*
- Cognis Corporation*
- Empire Southwest*
- Freeport-McMoRan Exploration Corp.*
- Geotemps, Inc.*
- Independent Mining Consultants, Inc.*
- Lowell Mineral Exploration*
- Montana Resources*
- Southwest Energy*
- SRK Consulting*
- Washington Group International*

SILVER

- Arizona Historical Society*
- ASARCO, LLC*
- Benefit & Retirement Strategies, Inc.*
- Caterpillar Foundation*
- Eaton Electric/Cutler Hammer*
- Emerson Motors*
- Errol L. Montgomery & Associates, Inc.*
- FLSmith Minerals*
- Golder Associates Inc.*
- John Lacy*
- Laron Incorporated*
- Layne Christenson Company*
- Meridian Engineering*
- Mintec, inc.*
- Mountain States R & D International, Inc.*
- Pipeline Systems Inc.*
- Resolution Copper Mining*
- Rosemont Copper*
- Royal Gold*
- T.A. Caid*
- URS*
- Wells Fargo Bank*

2007 Sponsors





Mining Foundation of the Southwest

Mission and Accomplishments

The Mining Foundation of the Southwest was incorporated in 1983. The purpose of the Foundation is to promote public understanding and education related to the mining industry, both in the U.S. and abroad. Toward this goal, the Foundation has been able to help fund a number of projects each year from donations and fund-raising activities, the most recent of which include:

- Funding for student recruitment and other projects at the University of Arizona, Colorado School of Mines, Mackay School of Mines at the University of Nevada, New Mexico Tech, La Universidad de Sonora in Hermosillo, Sonora, Mexico, and Arizona Historical Society Museum;
- Publication and sale of a three-volume set of the History of Mining in Arizona;
- Publication and distribution of an information bulletin about the impact of mining and minerals on Arizona to Arizona decision-makers;
- Funding for transportation of school children to the ASARCO Mineral Discovery Center south of Tucson;
- Funds for the preparation of self-guided tour brochures for the University of Arizona Mineral Collection at the Flandrau Science Center;
- Funding to La Asociación de Mineros de Sonora to help sponsor the First Gem and Minerals Exhibition in Hermosillo, Sonora, Mexico;
- Funding for a cooperative effort with the U. S. Forest Service for installation of geology-related interpretive signs on the Mount Lemmon Highway near Tucson.
- Funding for the exhibit "Set In Stone" at the Arizona State Museum.

December 1, 2007 marks the 25th anniversary of the Foundation's American Mining Hall of Fame Awards Ceremony and Banquet. The American Mining Hall of Fame serves to educate the public about prominent persons associated with the mining industry in both past and present times by inducting three living honorees, two deceased luminaries, and one supporting organization or person into the Hall of Fame each year. Including this year's inductees, 132 persons and organizations have been honored by the Foundation. Plaques commemorating each of these inductions are on display at the Arizona Historical Society Museum at 949 East Second Street, Tucson, Arizona.



Inductees From Mining's Past (1983-2006)

Maxie L. Anderson	1934-1983
Frank William Archibald	1920-1987
James Boyd	1904-1987
Bert S. Butler	1877-1960
Nellie Cashman	1849-1925
Louis S. Cates	1881-1959
William Andrews Clark	1839-1925
James Colquhoun	1857-1954
James Harold Courtright	1908-1986
John Van Nostrand Dorr	1872-1962
James Douglas	1837-1918
James Stewart Douglas	1868-1949
Charles F. Fogerty	1921-1981
Antoine M. Gaudin	1896-1974
Wesley P. Goss	1899-1985
William C. Greene	1853-1913
John C. Greenway	1872-1926
Meyer Guggenheim	1825-1905
Hal W. Hardinge	1855-1943
George Hearst	1820-1891
Joseph Austin Holmes	1859-1915
Herbert C. Hoover	1874-1964
Daniel C. Jackling	1869-1956
H. Myles Jacob	1913-1997
Ira B. Joralemon	1884-1975
Henry Krumb	1875-1958
John Cromwell Lincoln	1866-1959
Waldemar Lindgren	1860-1939
Curtis H. Lindley	1850-1920
John William Mackay	1831-1901
Hugh Exton McKinstry	1896-1961
Donald H. McLaughlin	1891-1959
Charles Meyer	1915-1987
Seeley W. Mudd	1861-1926
Georges Ordoñez	1907-1982
Jorge Larrea Ortega	1912-1999
Charles Debrille Poston	1825-1902
Frederick Leslie Ransome	1868-1935
Rossiter W. Raymond	1840-1918
Kenyon E. Richard	1915-1993
Robert H. Richards	1844-1945
Thomas A. Rickard	1864-1953
Louis D. Ricketts	1859-1940
Bernhardt Rohe	1909-1992
Reno H. Sales	1876-1969
Harrison Ashley Schmitt	1896-1966
Fred Searls, Jr.	1888-1968
Antonio Siraumea	1710-1760
Arthur F. Taggart	1884-1959
William Boyce Thompson	1869-1930
Howard Allen Twitty	1909-1989
Thomas F. Walsh	1850-1910
Norman L. Weiss	1902-1986
Arthur Redman Wilfley	1860-1927
Forbes Kingsbury Wilson	1910-1990
Edward H. Wisser	1895-1970



American Mining Hall of Fame

Inductees from Mining's Past





American Mining Hall of Fame

Inductees and Industry Partnership Awards

Inductees (1983-2006)

1983	George E. Atwood
1984	Charles F. Barber
1985	George B. Munroe
1986	John C. Duncan
1987	Plato Malozemoff
1988	Simon D. Strauss
1989	G. Robert Durham
1990	Harry M. Conger
1991	Kenneth J. Barr
1992	T S Ary
1993	Milton H. Ward
1994	J. Burgess Winter
1995	Douglas C. Yearley
1996	Richard de J. Osborne
1997	James R. Moffett
1998	Charles G. Preble
1999	Irl F. Engelhardt
2000	Ronald C. Cambre
2001	A. Dan Rovig
2002	J. David Lowell
2003	Thomas J. O'Neil
2004	J. Steven Whisler
2005	Pierre Lassonde
2006	Jack E. Thompson, Jr.

Industry Partnership Awards (1995-2006)

1995	Caterpillar, Inc. - Glen A. Barton
1996	Amigos (Arizona Mining & Industry Gets Our Support)
1997	Colorado School of Mines
1998	Stephen D. Bechtel, Jr. and Bechtel Corporation
1999	Mineral Information Institute
2000	Modular Mining Systems, Inc.
2001	Mintec, inc.
2002	Senator Larry Craig
2003	Aker Kvaerner
2004	Mining and Metallurgical Society of America
2005	Northwest Mining Association
2006	Mountain States Legal Foundation

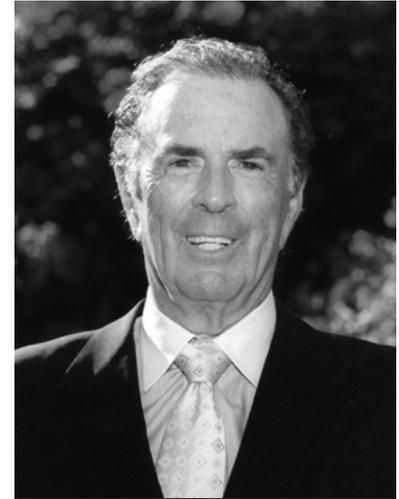
Dennis was born in Spokane, Washington in 1934 and spent his formative years primarily in Missoula, Montana and Bremerton, Washington, with short stints in California. Coming from a broken home, Dennis became self sufficient by the age of 14, at which time he was living with his grandmother whom he credits with providing him the love, stability and the guidance to follow his dreams. He graduated from Missoula High School in 1951 at the age of 17. After graduation, Dennis began his career in the construction industry doing heavy labor in Alaska. With two years experience under his belt, Dennis returned to Montana to work in his uncle's construction company. His dedication and savvy propelled him to the position of Vice President of the largest construction company in Montana by the age of 26. By the age of thirty, he was in business for himself building roads for the US forest service. By 1969 his construction company was now the largest in Montana and within ten years was one of the largest in the United States.

It was in the growth period of the 1970s that Washington Construction became a serious player in the mining business. Most notable, and for which we honor Dennis Washington, was the purchase of the dormant Anaconda Copper Company/ARCO Continental and Berkley mines in Butte Montana. Though the passionate efforts of a dedicated team, the mining operation, now known as Montana Resources L.L.P., is a viable and profitable enterprise providing local employment, a sound tax base for Montana and the internal resources for further expansion of the Washington's holdings in the Washington Companies headquartered in Boise, Idaho. The Washington Companies comprise over a dozen affiliated companies in mining, construction, heavy equipment sales, aviation technology, real estate development and the largest privately owned railroad in the U.S. as well as the largest marine transportation company in Canada.

In 1996, Dennis merged his Washington Construction Company with that of Morrison Knudsen and morphed into Washington Group International Inc. with headquarters in Boise, Idaho. The combined organization, which now includes acquired components of Westinghouse and Raytheon, is one of the largest design and build construction companies in the U.S. Washington Group International recently established an Arizona presence with the award of the management of the Pinto Valley copper property by BHP.

An ardent philanthropist, Dennis and his wife Phyllis established the Dennis and Phyllis Washington Foundation in 1998 which focuses on promoting education health and human services community service and the arts and culture throughout Montana and the nation. Washington believes strongly that by reaching out to young people in their formative years and by presenting opportunity to the disadvantaged, our society will see great benefit. "Every person will get a break at some time in their life," says Washington, "but not everyone will recognize it or have ability to use it. The best you can do is be prepared."

Dennis R. Washington is listed in the Forbes 400, has received the Ellis Island Medal of Honor, the American Academy of Achievement Gold Plate Award, the 2001 Mole Award and was inducted into the Horatio Alger association of Distinguished Americans in 1995.



Dennis R. Washington

2007 Inductee and Guest of Honor





M3 Engineering & Technology Corporation is an employee-owned engineering and construction management firm with a staff of over 250 persons. M3's main office is in Tucson, Arizona with satellite offices in Chandler, Arizona and Hermosillo, Mexico. M3 has assisted over 900 clients with 7,000 projects.

Since its founding in 1986, M3 Engineering & Technology Corporation has specialized in mining project design, procurement and construction management. These projects, both domestic and international, commonly include unique challenges requiring experienced process and detailed engineering expertise. M3 has grown and increased its service capability to the mining sector in times of low metal prices and now high metal prices to the point that today it ranks as one of the largest and most experienced minerals-oriented engineering companies in North America.

In 1991 M3 assisted Hecla with the La Choya Gold greenfields project in Mexico. It was the first foreign-owned project allowed under new Mexican mining law. Since then M3 has averaged one completed greenfields project per year in Mexico to a constructed value of more than one \$1,000,000,000 (1 billion dollars) on the largest project. M3 is also doing large greenfields projects in the U.S. and Canada including three large copper projects in Arizona.

M3 Engineering & Technology Corp.

**2007
Industry Partnership
Award**



Thomas Lovering was born on May 12, 1896 in St. Paul Minnesota. His career is marked by broad experience in ores that begin with his training as a Naval Aviator in the First World War followed by a return to school where he received an E.M. degree from the Minnesota School of Mines in 1923, and an M.S. and Ph.D. in economic geology in 1926 from the University of Minnesota. His graduate studies at Minnesota were influenced by Frank Grout and John Gruner who stimulated life-long interests in the hydrothermal processes that form ores. His subsequent employment cycled between teaching and government work. After a year of teaching at the University of Arizona, he joined the U.S.G.S. in 1925 to conduct studies of mining districts in the Colorado Front Range under the supervision of B.S. Butler where he refined his interpretations of hydrothermal alteration from studies in the Colorado Tungsten districts. He returned to teaching at the University of Michigan in 1934 but maintained work with the U.S.G.S., ultimately publishing professional papers on the tungsten, precious, and base metal districts. He rejoined the Survey, taking leave from Michigan, during the Second World War to assist the Strategic Metals Program.

His wartime work led to concern about domestic metal resources and a focus on methods of discovery of hidden ore bodies. He studied the alteration of the deeply concealed ore bodies at Tintic, Utah as a full-time Survey employee and the work at Tintic resulted in maps and interpretations of alteration that facilitated discoveries at East Tintic.

He was appointed chief of the U.S.G.S. section of Geochemical Exploration and retired as a senior research scientist in the Geologic Division in 1966 at age 70. During retirement, he was a research Professor at the University of Arizona, and lectured at the University of Texas and the University of Utah.

Tom Lovering was a member of the National Academy of Science, a recipient of the Distinguished Service Medal of the U.S. Department of the Interior, the Penrose Gold Medal of the Society of Economic Geologists, the D.C. Jackling Award of the American Institute of Mining and Metallurgical Engineers, and the Achievement Award of the University of Minnesota. Tom Lovering was a conscientious teacher and scientist who brought to colleagues and students the personal and professional habits of dedicated work, high ethical standards and intellectual honesty. He made fundamental contributions to the knowledge of ores, geology of mineral regions and mineral exploration.



**Thomas S.
Lovering
(1896-1991)**

**2007
Inductee from
Mining's Past**





**William G.
Davenport**

**2007
Medal of
Merit Recipient**

William G. Davenport, Professor, Extractive Metallurgy, Department of Mining and Geological Engineering, College of Engineering, the University of Arizona is considered to be among the top two or three academics in the world in the application of thermodynamics and process engineering principles to extractive metallurgical processes. His interest and expertise is in the smelting of copper, nickel and lead concentrates with the objective of maximization of sulfur dioxide strength, smelting rate and metal recovery with minimum energy consumption. Southwest U.S.A. smelters produce more sulfuric acid than metal.

While an American citizen today, Professor Davenport was born in the gold mining community of Bralorne, British Columbia, Canada. He received his first two degrees in metallurgical engineering at the University of British Columbia, finishing with a Ph.D. from the Royal School of Mines, University of London and a D.I.C. from Imperial College. He began his teaching career at McGill University in Montreal in 1964 where he rose to full professor and Associate Dean of the Faculty of Engineering. He came to the University of Arizona in 1981 as Professor and Head of the Metallurgical Engineering Department.

Professor Davenport is best known for his textbook, *Extractive Metallurgy of Copper*, which is now in its 4th printing in both English and Spanish. In addition he has published a number of other books: *The Iron Blast Furnace: Theory and Practice*, which was published in English, Russian, Chinese, Japanese and Spanish; *Flash Smelting - Analysis, Control and Optimization*, which is now in its 2nd printing; and *Sulfuric Acid Manufacture - Analysis, Control and Optimization*. He is currently writing *Extraction of Nickel, Cobalt and Platinum Group Metals*, and has also had numerous scholarly publications resulting from his research in the fields of flash smelting, leaching and solvent extraction, electrowinning and electrorefining. He holds a number of Canadian and U. S. patents in the plating and purification of metals.

Professor Davenport has been recognized by a number of the international professional societies in his field and has received a number of professional awards including being named as the AIME Extractive Metallurgy Lecturer in 1983 and received the AIME Mineral Industry Educator of the Year Award in 2003. He was made a fellow of the Canadian Institute of Mining, Metallurgy and Petroleum in 1991.

Professor Davenport has an extensive consulting practice that has included Union Carbide Corporation, Duval Corporation, Phelps Dodge Corporation, Codelco-Chile, ENAMI-Chile and has been an advisor to the World Bank. He currently works with EHP Consulting, here in Tucson.



Harry Parker is widely known and respected as a foremost authority and expert in the field of resource modeling and geostatistics. He has emphasized preparation of resource models that reflect both local geological controls on grade and orebody geometry as well as the degree of selectivity implicit in the mining method.

Harry received his B.Sc. in Geology with departmental honors from Stanford University in 1967, followed by his AM in Geology from Harvard University in 1969. Between 1965 and 1975 he worked as an Exploration and Staff Geologist for the Hanna Mining Company, focusing on exploration for nickel laterites, nickel-copper-cobalt sulfide deposits, volcanogenic massive sulfide deposits, and Mississippi Valley-type zinc deposits. While working for Hanna, he obtained his M.Sc. in Statistics in 1974 and his Ph.D. in Geology in 1975 from Stanford University.

From 1975 through 1989, Harry served as a Mining Geologist and Geostatistician for Fluor Corporation. During his tenure at Fluor he was involved in a wide variety of consulting assignments on six continents that focused on coal, uranium, copper and gold deposits and the development of state-of-the art geostatistical and mine planning software. He was a member of first U.S. mining delegation to China in 1977.

From 1989 to the present, Harry has been Technical Director of AMEC and its predecessor firms (MRDI, H.A. Simons, and Agra), and has been actively involved in the resource modeling of copper, molybdenum, gold, zinc, iron, silver, nickel, and PGE deposits worldwide. He has trained operations staff and implemented computer-based orebody and resource modeling systems on the Zambian Copperbelt in Africa, and has led or advised teams responsible for providing Qualified Person's reports in connection with the change in ownership of major mining assets around the world.

Harry is a Professional Geologist (California, Arizona), a Chartered Professional Geologist and Fellow of the Australasian Institution of Mining and Metallurgy (AusIMM), a Fellow of the Society of Economic Geologists (SEG), an Honorary Life Member of the Geostatistical Association of Australasia, and a member of Phi Beta Kappa. He currently serves as the Chairman of the Registered Member Admissions Committee of the Society for Mining, Metallurgy and Exploration (SME), as Co-chairman of the SME Resources and Reserves Committee, and is a U.S. representative on the International Committee for Resources and Reserves Reporting. He is the author of numerous published technical papers. Harry currently resides in Incline Village, Nevada, with his wife Susan.



Harry Parker

**2007
Medal of
Merit Recipient**

