



*R. R. Rubel*

# ROBERT R. BEEBE

1928–2011

Elected in 1990

*“For notable contributions to the mining industry in the area of mineral processing and materials handling.”*

BY COURTNEY A. YOUNG  
SUBMITTED BY THE NAE HOME SECRETARY

**R**OBERT “RAY” BEEBE, a highly respected scientist, engineer, mining executive, and consultant, died peacefully in his home in Tucson, Arizona, June 11, 2011, at the age of 83. He applied his expertise in mineral processing, crushing, grinding, flotation, leaching, solvent extraction, and electrochemical separations to both ferrous and nonferrous metals processing, particularly copper and gold.

Ray was born on April 21, 1928, to George W. and Emilda M. Beebe in Butte, Montana. He grew up watching the Anaconda Copper Company mine and process ore in Butte and ship the resulting concentrate to Anaconda about 20 miles to the west where it was smelted and refined into metallic copper. He worked in the mines and concentrators for most of his youth, helping with the war effort and thereby ensuring that the copper supply for making ammunition was endless.

His fascination with the mining industry planted the seeds for his career, but his pride in country took precedence. Upon graduating from Butte High School in 1946, Ray joined the US Army and served for three years, honorably discharged as a Supply Sergeant on July 12, 1949. He affectionately stated that he was the original Sgt. Bilko and could get anything when no one else could! Within the month, he went back to work in the mines but also enrolled in the Montana School of Mines, now known as Montana Tech. He earned a BS degree in 1953 and

an MS in 1954, both in metallurgical engineering. His thesis was entitled "The Dissolution of Calcium Tungstate in Sodium Carbonate Solutions."

Mr. Beebe's career began with his first professional job as an assistant research engineer with the Montana School of Mines Research Foundation. A year later, in 1955, he took a position as principal metallurgical engineer with the Mineral Beneficiation Division of Battelle Memorial Institute, only to return to the Montana School of Mines for a one-year appointment as an assistant professor in metallurgical engineering.

On December 22, 1956, he married Aliss Marie Hansen and the following year they moved to Missouri where he worked as a metallurgist for St. Joseph Lead Company. Their only child, a son, Robert Russell Beebe, was born on August 25, 1958. Soon thereafter, the family relocated to Rapid City where Ray taught as an assistant professor of metallurgical engineering at South Dakota School of Mines and Technology. While there, he took a short course on basic nuclear engineering from North Carolina State College and Oak Ridge National Laboratory and earned a certificate from the US Atomic Energy Commission and American Society for Engineering Education. Two years later, he accepted a similar position at Michigan College of Mining and Technology, now known as Michigan Technological University or Michigan Tech for short. In 1962, Ray relocated his family to Minneapolis where he spent the next four years at the University of Minnesota, the first two as NSF Science Faculty Fellow in the School of Mineral and Metallurgical Engineering and the latter two as research associate and project engineer with the Mines Experiment Station. In 1966, he became senior engineer with Carpco Research and Engineering in Jacksonville, Florida. A year later, the family moved to San Francisco when Ray accepted a position as manager of Mineral Resource Development for Marcona Corporation.

His career in senior management began five years later. In 1972, Mr. Beebe moved his family back to Jacksonville to become president, CEO, and director of Carpco Research and Engineering. He took this position because his close friend, J. Hall Carpenter who founded the company, passed away. The

Carpenter family asked for Ray's help to sell it. That happened within two years when Frank Knoll, who was the senior engineer at the time, purchased the company and retained Ray on the board of directors for as long as Ray wanted. As soon as the transition to Frank was completed, Ray rejoined Marcona Corporation, initially as general manager of special projects but soon thereafter as vice president of project development.

Following their son's graduation from high school in 1976, Ray and Aliss moved to Norwalk, Connecticut, where he enjoyed 10 years working in New York City with Newmont Mining Corporation as senior metallurgical engineer and vice president of project development. In 1986, he accepted a similar position with Homestake Mining Company in San Francisco and eventually became senior vice president.

For his support and volunteerism to Montana Tech and in recognition of all of his accomplishments with both Newmont and Homestake, Mr. Beebe was presented the Distinguished Alumni Award in 1985 and Gold Medallion Award in 1990.

Ray retired in 1992 to become a consultant for the mining industry and, toward the end of the year, relocated to Tucson, where he continued on Carpc's board of directors through 1993, chaired the University of California–Berkeley's Mineral Engineering Department's Industrial Advisory Board (1990–1993), served as director of Santa Elina Gold Corporation (1994–1996), and was a member of Montana Tech's Metallurgical and Materials Engineering Department's Industrial Advisory Board (1994–2006). The department's name was changed from Metallurgical Engineering largely because of Ray's collaborative suggestions and efforts with other board members, including Milton Wadsworth with whom he loved to interact.

Ray's passion for the mining industry turned to frustration as he worked to save it from the hard times it had fallen into due to mounting social, political, and environmental issues: the US trade deficit was increasing; the US Bureau of Mines (USBM) was dismantled; companies were being driven abroad; US foreign dependence on minerals and metals, not just oil, was increasing.... Ray felt like his patriotism was under attack and likened it to "a civil war without ammunition."

Throughout his retirement until 2010, Ray devoted his time to the National Academy of Engineering, to which he was elected in 1990. He became involved with the National Academies when he was elected to serve as vice chair of the National Research Council (NRC) study on the Competitiveness of the Minerals and Metals Industries (5/1/88–12/31/90) and as a member of the National Materials Advisory Board (7/1/89–12/31/95). He became a member of the NAE Earth Resources Engineering Peer Committee (2/1/92–1/31/95) and the Nominating Committee (3/1/93–6/30/94), both of which overlapped with his time as chair of the NRC Committee on Research Programs of the USBM (1/20/94–2/7/95). Ray then became a member of the NAE Committee on Membership (1/2/95–1/12/98) and the Audit Committee (7/1/95–6/30/96). At the same time, he chaired the NRC Committee on Industrial Technology Assessments (11/15/95–6/30/99). He was appointed to the Section 11 Executive Committee, for which he served as vice chair and section liaison (7/1/97–6/30/00), chair (7/1/00–6/30/01), and councillor (7/1/01–6/30/04). He served simultaneously with the Petroleum, Mining, and Geological Engineering Section as vice chair and section liaison (7/1/97–6/30/00) and then chair and section liaison (7/1/00–6/30/01).

During these busy times, Ray also cochaired the NRC Committee on the Impact of Selling the Federal Helium Reserve (2/9/98–6/30/00) and was a member of six other National Academies committees: the NRC Panel on Separation Technology for Industrial Recycling and Reuse (8/15/97–12/31/98), Work Group #1: Academy Structure (1/1/98–1/31/99), NAE Membership Task Group (1/1/98–1/31/99), NRC Committee to Evaluate Proposals to the New York State Science and Technology Foundation for Designation as Centers for Advanced Technology (1/1/98–5/5/98), NAE Membership Policy Committee (7/1/99–6/30/02), and NRC Panel on Technologies for the Mining Industries (2/23/00–3/31/01). In recognition of his tireless efforts, Ray was elected to a six-year term as NAE Councillor (7/1/01–6/30/07). He concluded his service to the National Academies by returning

to the Committee on Understanding the Impact of Selling the Helium Reserve to serve as a member (4/15/08–12/31/09).

Mr. Beebe was also a member of the Society for Mining, Metallurgy, and Exploration (SME) since 1952, Mining and Metallurgical Society of America (MMSA) since 1968, Society for Minerals, Metals and Materials (TMS) since 1995, and American Association for the Advancement of Science (AAAS) since 1996. He often represented the societies, both internally and externally. For MMSA, he was treasurer (1981–1985), vice president (1985–1987), and president (1987–1989). For SME, he was a representative and chaired the Subcommittee on Technology Requirements and Mining Research for the American Mining Congress (1989–1992); and he was a member of the board of directors for the National Advanced Drilling and Excavation Technologies Research Institute (1994–2011). For both SME and TMS, he served in 1995 on the Mining Technology Vision Panel for US DOE and USBM. That same year, he became chairman of the USBM Advisory Board for two years.

Mr. Beebe presented and published numerous papers for these societies throughout his career and well into retirement. His proudest paper was “Micro- and Macro-Engineering: Industrial Perspectives,” because it resulted in his being named an SME Henry Krumb Lecturer in 1990.

His friends and colleagues were many and, although too many to name here, included Larry Watters, George Grandy, Sandy Stash, Milton Wadsworth, Ann St. Clair, Louis Connelly, Mike Frazer, and Frank Knoll. They all shared memories of a human being who was a wonderful and generous friend, mentor, and sponsor. He was there when you needed him most or even a little. He took immediate interest in both you and your career. You never had to ask; he offered. His advice was always exactly what was needed personally or professionally. He helped many navigate their trials and tribulations of the industrial and corporate world at all levels. It did not matter if you were student or CEO, scientist or engineer, male or female. He got along with everyone and everyone benefited from his wise counsel and support. He was candid, feisty, and

stubborn. He was humble and one of a kind. People like him are few and far between. He knew how to apply the lessons of history to the present world. If only our current world leaders had this gift.

Throughout his life, Ray was always the consummate professional. He worked hard and played hard, mixing business with pleasure only when he had to. Even when he was on the golf course, it was business with clients and employees or pleasure with family and friends. He was not a great golfer but he made up for it with great conversation and always made it fun. Ray simply loved to offer his perspective on what was going on throughout the world. As one of the most intellectually curious people in the world, he had a great passion for books. In fact, Sandy Stash noted that she cherishes the books they discussed and shared and how proud she is of the collection she retains in his memory. He was a Friend of the Montana Tech Library.

Ray was so well read and versed in all aspects of politics and culture that he could discuss any number of subjects at length, including popular music. Just before relocating from Florida to California, his son Bob fondly recalls that his Dad was so intrigued about the music scene in San Francisco that he looked forward to moving there in part to listen to the new rock groups of the day. Bob wondered in amazement that his Dad mentioned names like the Grateful Dead and Jefferson Airplane before he had ever heard of them. Ray was clearly in tune with the times in more ways than one!

At work, Ray rarely spoke of family but in private there was no questioning his love for his family. Aliss, his bride of 35 years, passed away on July 24, 1992. He is survived by his son and daughter-in-law, Bob and Joya Beebe, and their two sons, Sean and Griffen. He was extremely proud of his son for the man and father he is. Ray adored his grandsons tremendously; they were his world. They all reside in California. Ray is also survived by his sister, his only sibling, Darlene Grinolds, of Butte, and her family, Judy Fisher (Marty Petritz), Sandy James, Patty Skakles (Kiki), John Grinolds (Derinda), Dan Grinolds (Shelly Coward), and Dale Grinolds (Mary Carroll), along

with their families. He spoke highly of his numerous great-nieces and -nephews. Most reside in Butte and Anaconda. No doubt, Ray smiles down from heaven at them all but reserves an extra twinkle for the few who have ventured into the mining industry like he did. Such is the circle of life. Such is the heritage of Robert "Ray" Beebe. May he rest in peace!