Charles Frederic Rand: A Life of Mining Achievement

Born in Canaan, Maine, on 7 August 1856, Charles Frederic Rand was to become, according to the Engineering and Mining Journal-Press (15 July 1922), “one of the leaders in all engineering movements for many years.” Although now little is known about his life, it is evident he was a skilled leader and a man of intense drive—a self-educated engineer, president of numerous companies throughout the world, and developer of iron, steel, and manganese mines and iron mining processes.

One can glean some idea of the nature of his achievements from the honors he received. In 1913, the Spanish government presented him with the Grand Cross of Knight Commander of the Orden de Isabel la Catolica (Order of Isabella the Catholic). Since it was established in 1815, this honor has been bestowed upon notable people outside Spain in recognition of services that benefit that country. In 1922, Rand also received the Croix de Chevalier de la Legion d’Honneur [Chevalier (Knight) Cross of the Legion of Honor] from the French government. Normally reserved for French nationals, this honor can be conferred upon those outside France who have served the country or advanced its ideals.

The New York Times (NYT) cites, on 3 July 1921, a cable received by the American Institute of Mining Engineers (AIME) headquarters noting Rand’s “election as honorary member of the Iron and Steel Institute of Great Britain.” The NYT describes him as “one of the leaders of post-war [i.e., WWI] research in American industry.” It states further, “He is identified with the construction of railways and the opening and operation of iron mines in Cuba, besides being largely interested in mines of manganese and copper ores.”

Beginning his career in the railroad industry, Rand later turned to mining. By 1886, he was president and general manager of the Aurora, Ashland, Atlantic, Iron Belt, Superior, Palms, and Comet iron mining companies, representing oil tycoon John D. Rockefeller’s interests. He went on until 1902 to represent his principals’ interests in the Monte Cristo, Washington, and Coeur d’Alene, Idaho, mining districts. Rand’s attention then turned also to steel and manganese.

In 1904, Rand, as president of the Spanish-American Iron Company, ventured to the Mayari (pronounced like “fiery”), a name given by engineers for a plateau of sweeping pine forests that stood between the lowland jungles of Nipe Bay, on the north coast of Cuba, and the cloud-covered peaks of the northeastern Cuban mountains. There, he uncovered a huge trove of iron ore.

According to Cuba and Railroads, by Mark Reutter, “The Spanish had known about the red pellet-like earth of the plateau for centuries. They called the area tierras de perdigones or the shot grounds. What lay beneath the surface soil, however, had never been examined until Charles F. Rand, president of the Spanish-American Iron Company, began to assay the plateau in 1904. Eventually, 3,030 borings were made to a depth of 50 ft. The analyses showed that the plateau—covering 10 miles by 4 miles—contained 560 million tons of soft hematite ore, with a potential worth of USD 1 billion [in current dollars, more than USD 25 billion].”

The company went on to secure surface and mineral rights to 27,850 acres of the Mayari. Rand participated in developing the mine as well as the railroad system needed to transport the ore out of the area for processing and shipping.

Origins of the Award

The award is intended to honor distinguished achievement in mining (i.e., metallurgy, petroleum, or any other field in the mineral industry) administration. This is the area in which Rand excelled. In addition to his leadership roles in industry, he was elected president of AIME in 1913, served as its treasurer from 1910 to 1912, and was the AIME District of New York director from 1914 to 1927. He also served as president of the United Engineering Society and as a member of the National Research Council, American Society of Testing Materials, Naval Consulting Board, John Fritz Medal Board of Award, and Committee on Military Engineering in New York.

Three years following his death in 1927, admiring colleagues contributed USD 10,000 to a fund to memorialize Rand, whose “purpose shall be such as to promote the general...
welfare of the institute (AIME) and to constitute a permanent memorial of the usefulness of Mr. Rand, who for many years gave unstintingly of his time and talents in its services.” Among other initiatives, the foundation endowed the Charles F. Rand Memorial Gold Medal.

Robert Earl McConnell: Man of Many Talents

A few years after McConnell was born in 1889 in Montrose, Colorado, the family moved to the pioneer town of Durango, Colorado, which had no paved streets or sidewalks. But it was a great area in which to grow up, where the boy could learn about mining from clients of his father’s bank and from observing the activity at the gold and silver mines close to his home. He imbibed a strong work ethic from his father, who owned the Smelter City Bank and was elected mayor several terms. From the age of 12, McConnell held various summer jobs, working with cattle, as a blacksmith, and at nearby mines.

When he attended the University of Colorado, he worked in the Esmeralda Mines near Silverton, Colorado, joined the Colorado National Guard, and worked during the summer as a chairman on a township survey team. He soon followed his dream by moving to New York to study mining engineering at Columbia University School of Mines. After his father’s bank failed, McConnell struggled to pay tuition, working part-time and borrowing money from relatives. He chanced to room with Harvey S. Mudd Jr., the son of a man McConnell would soon proclaim was “one of the most capable and successful mining engineers in the United States.” Following McConnell’s graduation, Harvey Mudd Sr. employed both his son and McConnell at various mines, seeing that both young men worked their way up through the mines until they learned every responsibility. In this way, McConnell advanced over 5 years to mine foreman at Tumco Mines, superintendent of Big Horn Mines, and mining engineer with S.W. Mudd & Associates.

When the US entered WWI in 1917, McConnell joined the Navy, where he was assigned the task of developing a stable

Rand and McConnell Award Recipients

The Charles F. Rand Memorial Gold Medal and Robert Earl McConnell Award can be given each year through the Society of Petroleum Engineers. They can also be awarded through SPE’s sister societies affiliated through the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME). These include the following:

- Society for Mining, Metallurgy, and Exploration
- The Minerals, Metals, and Materials Society
- Association for Iron and Steel Technology

Charles F. Rand Memorial Gold Medal Petroleum Industry Recipients

Since the Charles F. Rand Memorial Gold Medal was inaugurated in 1932, among its recipients have been 13 people in the petroleum industry:

- Harry Carothers Wies 1949
- Eugene Holman 1953
- Michael L. Haider 1970
- Robert O. Anderson 1975
- John E. Swearingen 1980
- Ralph E. Bailey 1985
- Fred H. Poettmann 1992
- M. Scott Kraemer 1997
- Donald G. Russell 2000
- William G. Lowrie 2001
- David F. Mothersill 2003
- K. Terry Koonce 2004
- Claudio Descalzi 2012

Robert Earl McConnell Award Petroleum Industry Recipients

Since the Robert Earl McConnell Award was established in 1968, among its recipients have been 19 people in the petroleum industry:

- Rollin Eckis 1969
- Robert F. Bauer 1971
- C. Paul Besse 1974
- Robert H. McLemore 1976
- Geoffrey G. Hunkin 1977
- J. Douglas Jr. 1979
- D. Peaceman 1979
- H. Rachford Jr. 1979
- Franklyn K. Levin 1981
- Howard A. Koch 1988
- Frank J. Schuh 1994
- Ronald L. Geer 1995
- R. Lyn Arscott 1998
- Franklin M. Orr Jr. 2001
- L. Kent Thomas 2002
- William L. Fisher 2004
- James J. Metcalf 2009
- Ben W. Ebenhack 2011
- Norman Warpinski 2012
catalyst to convert atmospheric nitrogen and hydrogen into an active nitrate form, an indispensable compound in manufacturing ammunition. Natural nitrates were in scarce supply, but Germany had developed a stable catalyst about 1912. McConnell did not discover the catalyst. Instead, in January 1919, he performed a dangerous assignment in Germany. According to a US Department of the Interior National Register of Historic Places document, “Wearing his long Navy overcoat, Lieutenant McConnell entered Germany’s I.G. Farben Haber nitrogen plant and surreptitiously removed and pocketed nitrogen-hydrogen nodules from a catalyst chamber. His courageous act brought about mass nitrate production and secured national defense” in many countries.

After looking into silver mines in Mexico following the war, he began investigating the stock market. In his spare time, he developed logarithmic charts called analagraphs to monitor the stock of major corporations and industries and analyze them over a 15-year span. In 1922, he published a book explaining the analyses. He then established an investment securities partnership. After a few months, the firm bought a seat on the New York Stock Exchange.

The company focused on groundbreaking industrial innovations of the early 20th century. Following this, McConnell served as president and director of Mayflower Associates; president and director of the Pilgrim Exploration Company, producing oil; and chairman of the board and president of General Aniline and Film Corporation. Because of his wise investment strategy, Mayflower Associates survived the stock market crashes of 1929 and the depression in the years that followed.
Spurred by what he predicted to be a lengthy war, McConnell agreed to serve as business advisor to the US Department of Commerce for USD 1 a year during WWII. The Washington Post proclaimed his appointment brought “one of the nation’s highest priced executives to augment the already imposing panel of special experts whom Secretary Hopkins [Department of Commerce] has gathered about him.” In addition to many other services performed during WWII, McConnell was appointed by US Secretary of the Treasury Henry Morgenthau as chief executive officer of General Aniline and Film Corporation, which had formerly been a German chemical subsidiary of I.G. Farben. Following the war, President Harry S. Truman presented him with the Certificate of Merit for forming the Engineers Defense Board to assist the US government on engineering problems.

The Robert Earll McConnell Foundation and the Award
The Washington Post expounded on McConnell’s career, “which included the occupations of miner, blacksmith, cowboy, timberman, assayer, chemist, surveyor, engineer, geologist, mine shift boss, foreman, superintendent, mine manager, organizer of a stock exchange firm, corporation founder, president and director in more huge mining and manufacturing firms than you can shake a Moody’s register at.”

Along the way, this multifaceted man amassed quite a fortune. In 1936, McConnell established the Robert Earll McConnell Foundation to share his fortune to advance education, charitable, and religious purposes. A major endeavor of the foundation is to provide gifts to colleges to establish the Thomas Jefferson Awards. This award is presented to university faculty members who most exemplify the character, professional attainments, and ideals of US President Thomas Jefferson.

Following McConnell’s death on 17 April 1971, his foundation presented AIME with an award fund. The AIME Engineering Achievement Award, established in 1968, was renamed in McConnell’s memory. With McConnell’s broad experience in engineering, finance, and public service, he evolved a philosophy based on the engineer’s role in society—a role the award’s winners emulate: “The production of mines is new wealth contributed to the world; the return to the mining engineer comes from the Earth, not from the pockets of any individual. Metals and minerals with age-old uses for civilization, and newly discovered products of the Earth as well as discovery of their usefulness, enrich society as a whole. The engineer, then, is one of the original entrepreneurs, one of the basic motive forces of capitalism.” JPT