Frederick Gardner Cottrell (1877 – 1948)
Inventor and Philanthropist
2021 Inductee from Mining's Past

Frederick Gardner Cottrell was born on January 10, 1877, in Oakland, California. After finishing high school, he entered the University of California, Berkeley at age 16 and graduated in 3 years. Cottrell then enrolled at Harvard but soon left to pursue graduate work in Germany where he received an advanced degree from the University of Berlin in 1901 and a Ph.D. from the University of Leipzig in 1902.

Returning to a professorship at the University of California, he married Jessie Mae Fulton, a former high-school classmate, in 1904.

While at Berkley he embarked on his best-known work which culminated in 1908 patent for the Cottrell electrostatic precipitator for smelters, one of the first inventions designed to eliminate air pollution. The Cottrell process used a system of electrodes or pipes energized by a high-voltage electrical source to collect (or precipitate) dust and particles from the smoke and gases resulting from the smelting of ores. The process also recovered valuable metals from smelter dust and is still widely used throughout the world.

Cottrell established the philanthropic Research Corporation in 1912 where his patents funded scientific research. Cottrell later served as director of the U.S. Bureau of Mines and was instrumental in helium production during World War I. In 1921 he began work with the National

Research Council, and the U.S. Department of Agriculture's Fixed Nitrogen Laboratory. He was elected to the National Academy of Sciences in 1939.

On November 16, 1948, Cottrell, died while attending a meeting of the National Academy of Sciences held at his alma mater, the University of California at Berkeley.