



**WILLIAM PEIRCE (1865 - 1944) AND E.A. CAPPELEN SMITH (1873 – 1949)**

**Metallurgical Innovators**

**2018 Inductees from Mining's Past**

Cappelen Smith was born in 1873 in Norway. He grew up as the eldest son among nine children. He was educated as a chemist at the Norwegian University of Science and Technology. He immigrated to the United States in 1893.

Born in 1865, William H. Peirce was an American civil engineer and metallurgist. Pierce Graduated from Stevens Institute in 1884, just before he was nineteen, and finishing in one year the requirements of his Junior and Senior years.

Pierce joined the Baltimore Copper Smelting & Rolling Company in 1890, becoming vice president in 1895 and later, president of the company. Cappelen Smith was employed as head metallurgist for the company from 1901–10.

At that time, the Manhès-David process was primarily used for copper-converting. It had been directly derived from the Bessemer process used in the steel industry. The basic slag produced during the blowing combined with the acid silica refractory lining, thereby causing a very short lifetime of the lining.

Mr. Smith suggested basic converting for the treatment of copper matte in the belief that the converting to blister could be conducted in one vessel with the production of metal and an exceptionally clean slag and substantially increasing the life of the refractory lining.

In 1908, the first experiment was made in a basic lined 25-ton reverberatory furnace with blow pipes through the side walls and roof. All was very crude, but the indications of success led to

the design of the Peirce-Smith converter. The process allowed an increase from 10 to 2500 tons of copper produced without relining the converters.

The Peirce-Smith converter quickly replaced the Manhès–David converter. The process has been significantly improved over the years and Peirce-Smith converters refine 90% of the copper matte produced in the world today.