

OUTSTANDING GEOLOGIC FEATURE OF PENNSYLVANIA

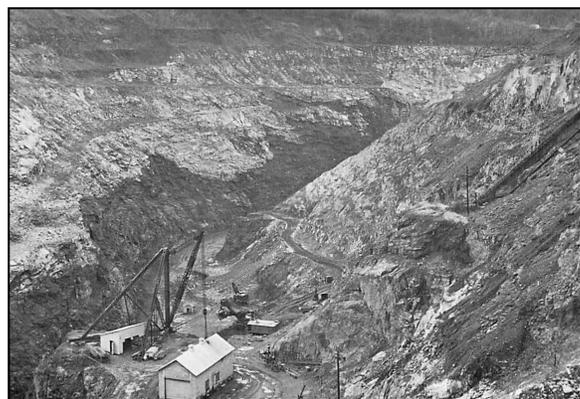
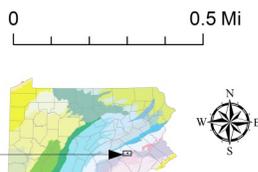
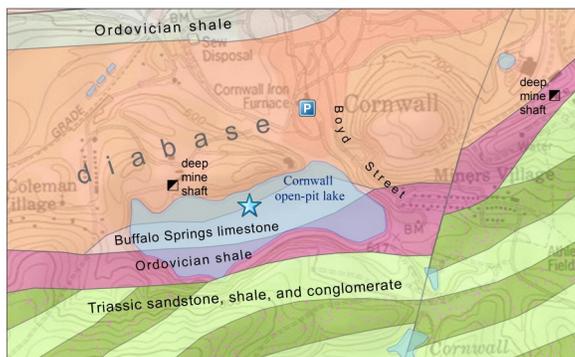
CORNWALL MINES, LEBANON COUNTY

Stuart O. Reese and Michael Weber, 2020



Location

Cornwall Mines, Lebanon Co., Cornwall Borough, lat: 40.27072, lon: -76.40700 (Cornwall Iron Furnace parking); Lebanon 7.5-minute quadrangle



View to the west of the pit in 1952 showing the dark ore zone at the base of the left wall (Lapham, 1972, p. 8).



Southwest winter view of the Cornwall open-pit lake.

Published by the [Pennsylvania Geological Survey](#).
(Weber is from the Pennsylvania Historical and Museum Commission.)

Geology

Near Cornwall in 1732, stone mason Peter Grubb found rich iron-ore deposits now known as the Cornwall mines or banks. Long before the ore formed, this area had a complex history of deposition, mountain building, and erosion. Later, Triassic rifting associated with the opening of the Atlantic Ocean formed the Gettysburg-Newark Lowland basin and allowed sediments to pour in. As the continental crust was stretched, sills of magma pushed into the older folded and faulted limestone, dolomite, and shale rocks of the Great Valley. The magma metamorphosed the Cambrian Buffalo Springs limestone and Ordovician shale. The magma cooled into solid diabase at the beginning of the Jurassic Period (200 million years ago). Released heat produced hydrothermal fluids in the overlying metamorphosed rocks, which at the time were thousands of feet below the surface. The fluids deposited massive metallic ores, including iron oxides (especially magnetite) and sulfides (especially pyrite and chalcopyrite). Millions of years of erosion would eventually expose the ore deposits on three hilltops for Grubb to discover. Mining operations would ultimately merge to become a large open pit, which today is filled by water.

The Cornwall Iron Furnace (built by Grubb) operated from 1742 until 1883 and, among other things, produced cannon for the Continental Navy. Cornwall became the largest mine in America and remained so until the 1880s. In addition to iron, the mines produced cobalt, copper, silver, and gold. When the mines closed in 1973, an estimated 106 million tons of ore had been hauled from surface pits and two underground workings.

Recommended Reading

- Lapham, D. M., and Gray, Carlyle, 1973, Geology and origin of the Triassic magnetite deposit and diabase at Cornwall, Pennsylvania: Pennsylvania Geological Survey, 4th ser., [Mineral Resource Report 56](#), 343 p.
- Lapham, D. M., 1972, Cornwall—The end of an era: [Pennsylvania Geology](#), v. 3, no. 5, p. 2–9.
- [Cornwall Iron Furnace](#) website.

