

## MYSTERIES OF MINING

*This is the eighth in a series of features describing various interesting phases of mining and the mining industry.*



*Drilling by hand—as the famous “Cousin Jacks” (Cornish miners) used to do it before air drills were invented. Plenty of muscle and good nerves were necessary—and even then progress was slow.*

# DRILLING

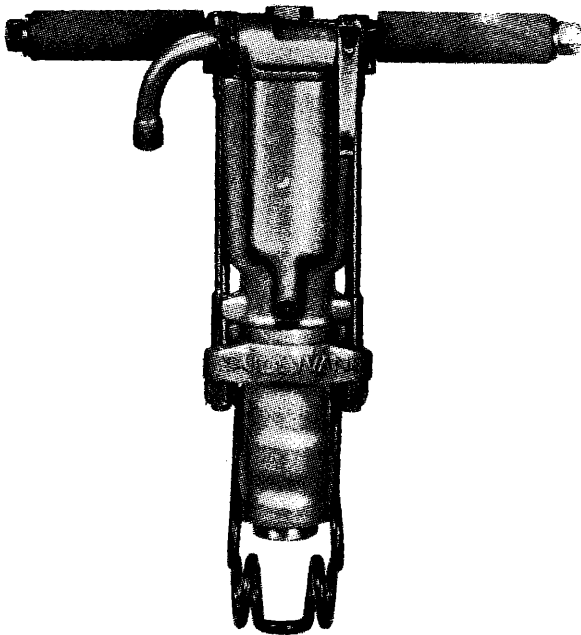
One of the first problems that the primitive miner encountered was that of breaking up the rock in which the precious gold, silver, or other metals were hidden. Occasionally he was fortunate in that the rock material was soft and crumbly, and could be dislodged with a pick and shovel.

Usually, however, Mother Nature stores her mineral wealth in very strong cupboards indeed, and the miner has to use sheer strength to unlock them. "Hardrock" mining is the term given to mining in strong and hard formations which resist ordinary attempts to break them up.

Gunpowder was discovered in the 13th century, but it was not until 1622 that it was mentioned in connection with underground excavation. At first the general practice was to put the gunpowder in convenient cracks in the rock, and to ignite it. Unfortunately, however, all rocks did not have such cracks; crude drilling was developed along about 1683. Drilling technique

was studied seriously, and in 1717 small holes were drilled into the rock. Many different designs of drilling equipment followed.

In 1854 Brunton and Bartlett first used compressed air to motivate a drill. Since that time there has been considerable progress in the drilling equipment. The miner of yesterday used a "single-jack" to drive his steel drill into the rock—a slow, laborious job. Today the modern miner with his jack-hammer, (a hammer type of rock drill provided with an automatic rotating device, weighing from 40 to 60 pounds, run by compressed air and designed to be operated by one man), stoper (large rock drill weighing about 80 pounds used for stoping), or drifter (large rock drill weighing some 150 pounds mounted on supports for horizontal drilling) can drill a series of holes in short order. The drills of today are probably the miners most important tool, for without them he could not break down the ore.



*A modern jack hammer, for use in all types of mining. This machine weighs about 40 pounds, can be operated by one man, and is run by compressed air. Thousands of these drills are used in the mines of the world.*