DIAMOND DRILLING FOR COPPER AND MOLYBDENUM IN THE ABSAROKA MOUNTAINS, PARK COUNTY, WYOMING.

by

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Sometime during the 1890's, mineralization was discovered in the vicinity of the present ghost town of Kirwin, located near the head of Wood River in the Absaroka Mountains. Elevations in this rugged area vary from 8,500 to more than 12,000 feet above sea level. During the first thirty years or so of prospecting, many adits (tunnels), shafts, and pits were driven to intersect veins cropping out at the surface without thoroughly prospecting the outcrops. Because of this, no significant production has been realized from this district. The early prospectors, of course, were interested in gold, however, most of the observed values were actually in lead and silver.

This part of the Absaroka Range is underlain by approximately 4,000 feet of volcanic rocks which have been intruded by small bodies of granite-like rock. Adjacent to these intrusives are narrow veins that contain lead, silver, copper and gold. As a result of the writer's mapping and study in the area (Geological Survey of Wyoming, Preliminary Report No. 2, in press), it became apparent that the area should be more thoroughly explored for copper and molybdenum, since scattered outcrops on the poorly exposed Bald Mountain area contained traces of these metals.

During the summer of 1963, one of the major molybdenum-producing companies in the United States decided to drill the Bald Mountain-Kirwin area to determine the economic potential of the area. The work was contracted to a company specializing in diamond drilling. Most of the equipment was hauled by truck from Idaho to Kirwin. Three holes were drilled, 1,500, 1,450, and 650 feet in depth, respectively. The first hole was drilled at an angle of 50 degrees off the horizontal.

Since the diamond drill is used mainly for the exploring and sampling of ore bodies, it must be portable for use in locations of limited accessibility. Holes may be drilled at the surface or inside a mine at any angle. The drilling set-up consists of a tripod or derrick with gasoline or electric engine drive. The wood tripod (see photograph), which may seem primitive to those involved in oil or water well drilling, is commonly used since it can be fabricated economically at a site with suitable timber. The engine unit, mounted on skids, is used for drilling and hoisting. When drilling, the mechanism has a positive forward feed which may be either screw or hydraulic actuated. In this way it differs from other drills, thus making it possible to drill holes vertically upward.

In operation, the power plant rotates a line of hollow rods which fasten to an enlarged bottom section or core barrel. The bit, a hollow steel cylinder set with diamonds, screws into the bottom of the core barrel. Standard core sizes usually vary from seven-eighths to two and one-eighths inches in diameter. The bit is cooled by water pumped down inside the rods.

The drilling crew usually consists of two men per shift. Core recovery varies with rock condition; however, in hard rock it may be 90 to even 100 per cent.

Thus far no data based on the results of the drilling at Kirwin are available.