

Iron Ores Near Dayton, Nevada

By E. C. HARDER

*Dayton is a small village in eastern Lyon county, Nevada, on the Carson & Colorado branch of the Southern Pacific railroad. The village is on Carson river at the upper (southwest) end of a broad flat desert, just below the point where the river runs out of the canyon below and east of Carson. Two groups of iron-ore deposits are found near Dayton—a small one about two miles to the southwest, between the railroad and the river, and a large one about twelve miles to the northeast, on the boundary of Lyon and Storey counties. Only the latter is of commercial importance in the steel industry, but the ore from the former might be used in a small way as fluxing material.

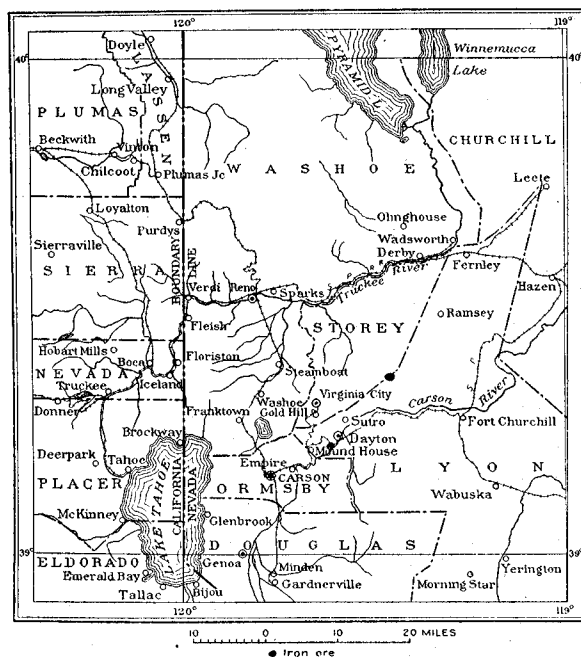
The deposits northeast of Dayton are in an area of gently rolling hills which form the northeastern continuation of the flat desert area below Dayton. Northeast of the deposits there is another desert area with alkali flats, and beyond are other rolling hills. This generally low belt bounded on the northwest and southeast by mountain ranges is known as the Fortymile desert. In the mountains to the northeast is the famous old Comstock Lode, with Virginia City and Gold Hill high up on the slope. The iron-ore deposits are near the northwest border of the desert belt. Outcrops of ore are distributed over an area roughly one-fourth of a mile wide and half a mile long, the longer diameter being approximately north and south. At the south end of the area there is a hill rising about 75 or 100 ft. above the surrounding area. Its crest is about 900 ft. long and 200 wide and trends about N. 45° W. Iron-ore outcrops form the crest and extend some distance down the slope. From the distribution of ore and rock as shown by outcrops and pits it appears probable that the area is underlain largely by soda granite, in part aplite, in which there are local masses of limestone and iron ore. Where the relation of the ore to the rocks is clear it is seen that the ore occurs at the contact of the limestone and granite. The soda granite has also broken into the limestone and ore masses in irregular intrusions. Metamorphic minerals, including garnet and epidote with a little albite, are developed locally.

The outcrops of ore on the hill at the south end of the iron-ore area occupy a space about 1000 ft. long and from 200 to 500 wide. Within this area there are one or two tongues of granite and the float between the outcrops may cover limestone or other granite bodies. The surface ore on the crest is hard and massive, though slightly porous in places. One shaft and several pits have been sunk into it. The pits have not passed through the hard ore, but the shaft goes into a soft, bluish, granular mixture of magnetite and calcite at a depth of less than 20 ft.

On the northwest slope of the hill some porous, hard, low-grade ore, with considerable impurities

consisting largely of unreplaced silicious rock, outcrops on the lower slope, but most of the ore outcropping on the upper slope is hard and massive, though mixed irregularly with it is the blue granular ore already mentioned.

From their occurrence the ores northeast of Dayton appear to be contact deposits formed during or after the intrusion of the granite into the limestone. This view is strengthened by the presence of minerals characteristic of intrusive contacts. The ores are probably partial replacements of the limestone, some of the original limestone being still present as local masses in the vicinity of the ore or



occurring in the recrystallized form of calcite within the ore. The surface ore has been enriched and concentrated by the removal of calcite and probably by the deposition of iron oxides. The selenite may be simply a deposit near the surface from gypsiferous solutions or the sulphur in it may have been derived from the oxidation of pyrite.

Most of the surface ore is of high grade. In depth it appears, whenever penetrated, to be strongly impregnated with calcite. Locally enough calcite is present to make the ore self-fluxing, and therefore in reality the presence of calcite does not materially affect the value of the ore. The selenite may be abundant enough in places to necessitate dressing of the ore to reduce the sulphur content. If the ores were smelted in the electric furnace, however, the presence of selenite would not be objectionable. The depth to which the ores may extend is problematic, though the increasing amount of calcite with increasing depth suggests that the ore may become of too low grade to be worked. But the deposits are of sufficient size to be commercially important even if the ore is supposed to be relatively shallow. With a depth of 50 ft. the deposit on the hill at the south end of the area would probably yield approximately 1,500,000 tons of ore. The deposits are on low ground and can easily be approached by a railroad. Veins of iron ore also occur in a dark-green fine-grained andesite on the east slope of a ridge about two miles southwest of Dayton.