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IRON ORE DEPOSITS OF NEVADA

(Prepared in cooperation with the United States Geological Survey)

PART B. IRON ORE DEPOSITS OF WEST-CENTRAL NEVADA

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The principal gangue mate[illegible]

[illegible] copper miner-

Dayton iron deposit (3)

The Dayton iron deposit in northwestern Lyon and southeastern Storey Counties, is in the Red Mountain mining district, 12 miles airline northeast of Dayton and 23 miles northeast of Carson City (fig. 21). It is at an altitude of about 4,600 feet on an isolated knoll that rises from the floor of the valley near the base of the Flowery Range. The property consists of the Hecla, Norway Iron, Dewey, Planit, Emma, Morning Light, Sunset, Sunrise, and Sheba patented mining claims in sec. 6, T. 17 N., R. 23 E.; sec. 36, T. 18 N., R. 22 E.; and sec. 31, T. 18 N., R. 23 E.; Mt. Diablo Base and Meridian. The claims were located in 1903 and 1905, were surveyed for patent under U. S. Survey numbers 2205, 2207, 2890, 2891, and 2892, and were subsequently patented.

The claims are owned by Robert C. Gillis and Mortimer Fleishhacker, with the Anglo California National Bank of San Francisco acting as agent under a trust agreement. Additional iron deposits in sec. 1, T. 17 N., R. 22 E., and sec. 31, T. 18 N., R. 23

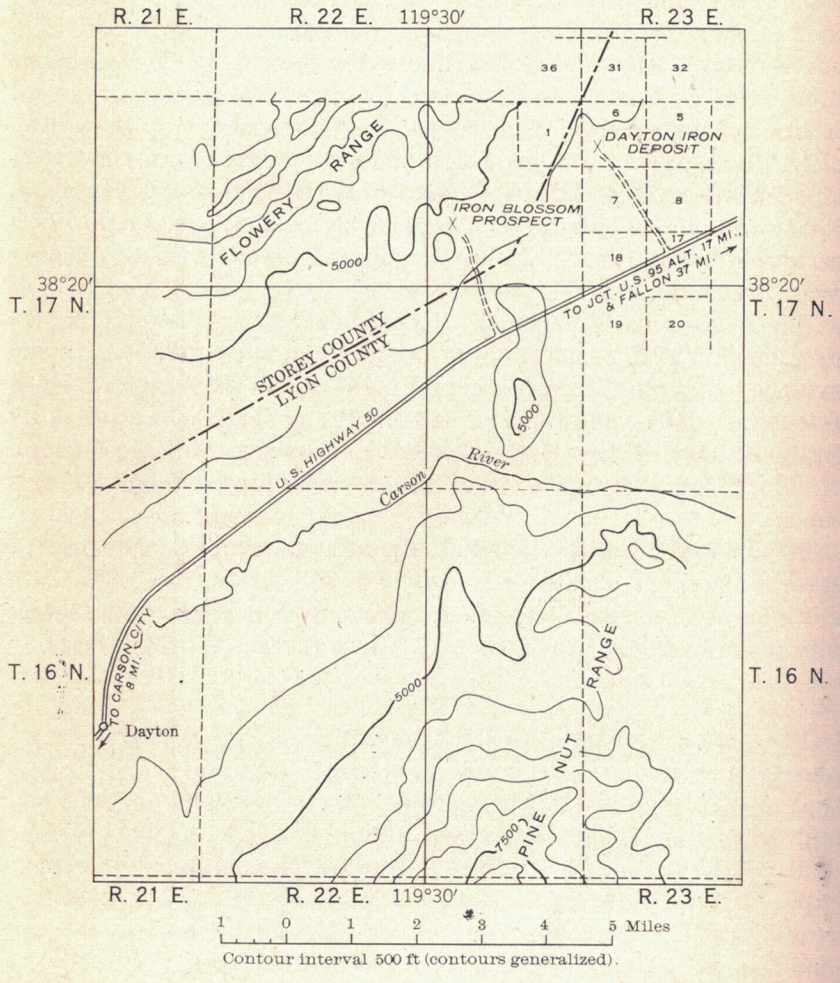

FIGURE 21. Index map showing location of Dayton iron deposit, Lyon County, and Iron Blossom prospect, Storey County, Nev.

E., are owned by the Southern Pacific Land Co. In 1951 the entire property was leased to the Utah Construction Co.

The climate of the area is arid, supporting only sparse desert vegetation. Maximum summer temperatures frequently rise above 100° F., and although temperatures may drop to uncomfortable

lows, work is not curtailed during the winter. Frequent violent sandstorms necessitate protection for individuals and heavier-than-normal building construction.

The nearest rail shipping point is Weeks, 23 miles east of the property by highway. Weeks is on the Hazen to Mina branch of the Southern Pacific Railroad, where a siding and loading ramp are available. The nearest transmitted power is a 60-kilovolt line of the Sierra Pacific Power Co. 2 miles south of the property. A limited water supply of 10 to 12 gallons per minute is furnished by a spring 2 miles north of the property; water is available also from the Carson River 5 miles south of the property. Geehan (1949, p. 3) states, "As the water table in the drill-holes occurred 100 to 160 feet below the surface, wells probably would develop enough water for camp use."

The deposit is described by Harder (1909) and is referred to by Lincoln (1923) and Stoddard and Carpenter (1950). It was explored during World War II by the U. S. Bureau of Mines (Geehan, 1949) and at the same time the geology was studied by Butler (1945) of the U. S. Geological Survey. The sections on "Geology" and "Iron ore" that follow are adapted from Butler's report.

Exploration and development work on the property consists of several prospect shafts and one long adit driven in 1909-1910, and magnetic surveys, trenches, diamond drill holes, and 41 test pits made by the U. S. Bureau of Mines during World War II.

GEOLOGY

The hematite-magnetite deposits are in a series of metamorphosed and folded sedimentary rocks of unknown geologic age that are exposed in trenches and as sparse outcrops on the knoll and have been explored beneath alluvium north of the knoll by drill holes (pl. 13). Scattered shafts and pits north of the knoll expose sedimentary rocks that resemble those that contain the ore, and similar rocks crop out north and east of the main deposit (pl. 13). A reconnaissance magnetometer survey (pl. 13) by the U. S. Bureau of Mines indicates the presence of iron-bearing rocks northwest of drill hole 10, but as these rocks crop out in only two places, their character and relation to those near the knoll is not known.

The sedimentary rocks are divided into three units (pl. 14). The lower unit, at least 400 feet thick, consists mostly of interbedded limestone and chloritic rocks and includes 10 to 20 feet of chloritic quartzose rocks at the base. This unit contains the

hematite-magnetite deposits. The proportion of limestone to non-calcareous rocks is not known, and rocks of these two kinds probably intertongue. Limestone that crops out on the west end of the knoll is relatively pure, medium- to coarse-grained, and contains little interbedded chloritic rock. Most of the rock in the central shaft is coarse-grained limestone, and drill hole 6 is in limestone with occasional chloritic rocks for 150 feet. Farther east, however, as shown by exposures in cut A and by cores from drill holes 1, 5, and 7 (pl. 14), beds believed to be the stratigraphic equivalent of this limestone consist in some places of alternating layers of limestone and chloritic rocks and in other places of dominantly chloritic rocks. The middle unit, about 200 feet thick, consists of chloritic rocks, chlorite-epidote rocks that are in part feldspathic, and subordinate amounts of mica and quartz-mica rocks that increase in abundance toward the top of the unit. The upper unit of the sequence consists of relatively pure fine-grained quartzite of undertermined thickness.

The sedimentary rocks are cut by granitic rocks, which are exposed in a few places in the mapped area and crop out extensively in the surrounding area. Both the granite and the sedimentary rocks are cut by aplite dikes.

Part of the deposit and much of the surrounding area are covered with moderately indurated conglomerate of unknown age and by alluvium and slope wash.

The principal structure in the area where the iron ore is exposed is a complex asymmetric anticline that plunges 20°-30° SSE. (pl. 14). East of the axis of the anticline the beds strike northward and dip 70°-90° E. and are locally overturned. West of the axis the beds strike from about west to north and dip 10°-60° S. Drill cores from holes 9 and 10 show dips ranging from 35°-70°. Directions of dip were not obtainable from the drilling, but northeast and east dips are inferred.

A well-defined fault that strikes north-northwest and dips 50°-55° NE. is exposed in the west adit (pl. 14). This fault brings iron-bearing limestone on the east into contact with granite on the west. Three other faults, all probably small, are exposed; two in cut B and one in cut A.

IRON ORE

The main hematite and magnetite bodies underlie the prominent small knoll, although one body, the North Flat, extends at least 800 feet north of the knoll crest, and small isolated bodies are found still farther north. The bodies are in steeply dipping

beds on the east flank and flatter beds near the crest of a complex anticline. Most of the hematite and magnetite is in the chloritic rocks, but some beds of limestone have been sufficiently replaced by magnetite to form ore. Mica and quartz-mica rocks are generally almost barren. The ore bodies are irregular-shaped lenses and in places several of these probably join to form fairly continuous podlike bodies. The actual size, shape, and distribution of the bodies is uncertain because of the scarcity of outcrops and because they have not been fully explored. Hematite and limonite accompany the magnetite oxidized zone; pyrite has been oxidized and leached. Gypsum formed from reaction between the resulting sulfates and calcite has been deposited locally in fractures.

The main hematite-magnetite body is exposed in the central shaft and is penetrated by diamond drill holes 1, 5 (sec. A-A', pl. 14), 6 (sec. C-C', pl. 14), and 7 (sec. B-B', pl. 14). Little ore is exposed at the surface at drill hole 5; the top of the ore body is probably irregular. In the vicinity of drill hole 6 and west of the shaft the ore intertongues with limestone and partly replaced rock, indicating that the body thins out westward. Drill hole 11 penetrates only a few thin layers of magnetite and is probably north of the edge of the main body. The main body as shown by map and sections on plate 14 is about 800 feet long, 40 to 180 feet thick, and 200 to 370 feet wide.

Drill holes 8, 9, and 10 (sec. B-B', pl. 14) indicate the presence of another hematite-magnetite body, or group of bodies, called the North Flat body, which may or may not be continuous with the body beneath the hill. Each hole intersects several layers of ore, each 10 to 40 feet thick, separated by layers of low-grade ferruginous material and barren rock that are 5 to 15 feet thick. A layer of ore cut between 85 and 125 feet in drill hole 8 is probably continuous with an outcrop west of cut C (pl. 14). This ore pinches out south of the hole. The North Flat body is estimated to extend for 200 feet down the dip, 50 feet north of drill hole 10, and 100 feet south of drill hole 10. Magnetometer measurements made by the U. S. Bureau of Mines (pl. 13) indicate iron-bearing rock extends at least 600 feet northwest of drill hole 10 and at least 250 feet north of drill hole 8. The average thickness of the ore in this area is about 80 feet; the ore and lower grade material together total about 170 feet. Granite that crops out 70 feet west of drill hole 9 and is exposed in shaft No. 1, north-northwest of drill hole 10, probably bounds the North Flat body on the west.

Two small lenticular bodies of hematite, partly explored by shafts No. 2 and 5 and several pits, crop out about 1,300 feet north of the hill (pl. 13). They are in steeply dipping metamorphic rocks resembling those of the middle unit. These hematite lenses are 10 to 20 feet thick. The length of the easternmost body is about 500 feet; that of the westernmost is not known but is probably much less. Still farther north, about 4,500 feet from the hill, are three bodies of hematite in limestone near a contact with granite (pl. 13).

The Dayton iron ore deposit is of contact-metamorphic origin (Harder, 1909, p. 245). The unoxidized ore is composed of magnetite associated with epidote, garnet, quartz, chlorite, and mica that have partly, and in places almost wholly, replaced beds in the lower two units of the sedimentary rocks. The pyrite content of the ore ranges from 1 to 10 percent but is usually between 5 and 6 percent. The gangue includes quartz, chlorite, calcite, mica, epidote, garnet, and probably feldspar. Hematite and limonite accompany the magnetite in the oxidized zone to a depth of about 125 feet. A composite sample of drill cores from the ore zones in holes 5, 7, 8, 9, and 10 assayed 51.6 percent iron, 7.0 percent silica, and 4.1 percent sulfur.[10]