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Item 11

(1) PALISADE DISTRICT

IRON DEPOSITS

Two deposits have produced iron in this area, (1) the Modarelli Mine and (2) the Barth Mine.

The Modarelli Mine is in Sec. 30, T 29 N, R 51 E, (See Grazing Map No. 37) and is primarily hematite in tertiary ryholite. It has not operated since 1953, Kral, Victor E., "Modarelli Iron Deposit, Eureka County, Nevada", U. S. Bureau of Mines Report of Investigation 4005, 1947, according to reports, because of the high sulfur and phosphorous content of the ore. The Modarelli and immediate area is one of the largest if not the largest potential iron area in Nevada. It is estimated that 6 to 8 square miles is covered by hematite and magnetite outcrops. Half of this area is owned by private individuals who bought the land from the Southern Pacific Railroad and so own the minerals also. The remainder of the land is Federal and has all been claimed as far as could be determined.

It is of interest that the Cortez Mountains north of the Modarelli Mine have a general north-south trend. In the vicinity of the mine they turn sharply to the west. It is quite possible that this break represents some structural control which accounts for the iron deposition here. The west side of the Cortez Mountains drops off steeply into the valley along a major fault scarp which has several hundred feet of vertical displacement. It is probable that

there is also a fault along the east side of these mountains, but this is not as definite.

The Barth deposit is on Southern Pacific Railroad land in Sec. 7, T 31 N, R 51 E, (See Grazing Map No. 37). It is now flooded since it is on the bank of the Humboldt River but has produced several thousand tons of magnetite and hematite from open pit and underground operations. It is now under lease to John Heizer. This deposit produced a very large magnetic anomaly of about 15000 gammas. The ore occurs as a replacement in tertiary andesite.

#### AERIAL PHOTOGRAPHY

Much of this area is covered by existing aerial photos. The Soil Conservation Service has most of these and many of them were checked at the S.C.S. office in Elko where this district aerial photos are on file. After working with the photos for some time, it was decided that they were of very little use as far as direct location of iron or suspected iron ore outcrops. Because of this and also the large area to be checked, it was decided to rent a plane and spend a few hours looking at the area.

#### AERIAL RECONNAISSANCE

A plane from Winnemucca was rented with Lester Pearce, pilot. He is a very good pilot and works for the C.A.A. at Winnemucca. If ever a plane is needed in this area again, he is recommended. The object of the aerial work was to look for any potential iron ore outcrops or structural

trends. The approximate route flown by the plane is shown by a blue dashed line on grazing maps Nos. 37 and 38 included with this report.

Several red outcrop zones were spotted but most of them were the red color associated with volcanics in this district. One red zone which appeared to be worth checking was in Secs. 3, 4, 9, 10 T 28 N, R 50 E. Another zone which looked doubtful but also seemed worth a ground check was in Sec. 23, T 30 N, R 51 E.

A pass was made over the Bullion area but nothing could be seen to help decide whether or not this area warrants some additional work.

There wasn't too much time to look over the Shoshone mountains. Nothing of interest was observed in the part of these mountains which was checked.

There appears to be a major shear zone extending east from the Barth deposit. Although it isn't very prominent, this might be worth covering with a magnetometer in some detail. The Barth deposit is now abandoned but did produce several thousand tons of magnetite in previous years.

Although the aerial reconnaissance trip did not result in locating much of interest, it may be of value in a negative sense that it indicates little can be done in the district now except a very detailed ground check. It also made possible the coverage of a very large area at a fraction of the time and cost that this could have been covered on the ground.

Several zones of alteration in the volcanics were observed. Generally these are a brighter red than is observed in the Modarelli mine area. The Modarelli mine area is not very outstanding where it has not been disturbed. However, a slight dark red color seems to be evident over most of the immediate area.

#### FIELD EXAMINATION

The first area in T 28 N, R 50 E southwest of the Modarelli pit which was observed from the plane did not prove to be worthwhile. It required several hours to drive and walk this zone. The red color noted was due to slight iron stain in what appear to be volcanic rocks. There is definitely no mineralization worth further investigation.

The second area observed from the plane was in Sections 22 and 23, T 30 N, R 51 E. The formations here are red sandstones and shales. There is not sufficient iron in these formations to warrant any further work.

There was a narrow high magnetic anomaly along the road from Palisade to Hwy. 40. This was found with United's Momag but was never checked since it was so narrow and no evidence of magnetite was found in the area. It was concluded that this anomaly was due to polarization in the volcanics and this is very likely still the case.

Mr. Robert Reeves, U. S. Geological Survey, probably knows as much about iron in Nevada as anyone since he worked with Victor Kral on this project. Mr. Reeves suggested that the most potential area in the Palisade dis-

trict is between the Modarelli Mine and the Barth deposit. Most of this area is covered with volcanics and sediments which dip to the east. These formations comprise a low mountain range which slopes to the east along the dip of the beds but breaks sharply on the west into a broad valley along a fault scarp. After looking over this area from the plane as well as on the ground where possible, it is doubtful that any iron not already found will be discovered except by the use of magnetometer. Geologically there isn't much information on which to make a decision as to the best part of this area to check. This being the case, a large reconnaissance program would be required which could only be carried out economically with an airborne magnetometer. U. S. Steel has flown some, if not all of this area with an airborne magnetometer and should have detected anything large if it exists. However, the Modarelli deposit is primarily hematite so that the magnetic anomalies due to this ore body are not very large or outstanding. If additional bodies of this type occur under the volcanics and sediments, they may not cause very large or obvious magnetic anomalies. To cover this area adequately would require 300 to 400 miles of airborne magnetometer work at a cost of not less than \$5000.00. When the survey is completed it is still possible that large hematite zones could be missed. In addition, the volcanics in this area could easily cause anomalies which might be mistaken for those caused

by magnetite. This being the case, a survey here would be rather speculative.

Assuming bedrock is not too deep, there is some potential alluvial covered ground to the east of the Modarelli Mine on an extension of the presumed strike of the mineralized zone. Valleys cut into the alluvium indicate at least 50 to 75 feet of gravel and old lake bed cover in several places. This area of about 3 square miles could be covered with a hand magnetometer in about a week at an approximate cost of \$750.00.

#### BULLION AREA

This area was checked because of a talk with Mrs. Inez Butler of Lovelock, Nevada. She said that her brother, Mr. Bert Harmer, Lamoille, Nevada, which is about 20 miles southeast of Elko, had some iron showing on some claims near Bullion. Mr. Harmer was ill when I went to see him so he gave me a very general description of the claims, in fact too general as I never did find them. However, on driving on up toward Bullion, considerable magnetite float was observed along the road. This was first noticed in Sec. 25, T 31 N, R 53 E, (See Grazing Map No. 37). The magnetite pebbles and boulders were well rounded indicating that they had undergone considerable erosion. Some pebbles were found several feet back from the road plus the fact that they were well rounded would indicate that they had not been hauled into the area. Magnetite is associated with Cu, Ag, Pb ore at the Bullion Mine in Sec. 4, T 30 N, R 53 E

and is probably the source of the magnetite found 4 to 5 miles away. However, it is possible that the magnetite float is from another source and if so it might warrant some magnetic work in Secs. 25, 26, 35, 36, T 31 N, R 53 E. Half of this area is held by private ownership. Since it is within 20 miles of the railroad, the minerals are also probably included with the ownership. A check made to determine whether or not the Southern Pacific sold mineral rights with the surface, indicates that this was done in some cases.

This area may have some potential. However, it will probably be a contact metamorphic deposit which have generally been small. It is very probable that the source of the magnetite is the Bullion Mine area. It could require at least two weeks work with a magnetometer to determine whether or not magnetite exists in the recommended area. If favorable results are obtained, additional time would be required to outline the zone. The initial work would cost about \$1500.00.

#### OTHER AREAS

The other areas in this district to the east and south do not appear to be too favorable for iron exploration.

The area to the east, Pine Valley, is alluvial lake bed fill which may be deep. Favorable formations may exist but this is the factor that must be considered.

The area to the south of the Modarelli mine is not

favorable because of the change in formations. This area does have several lead, silver and gold prospects but does not appear favorable for iron.

#### CONCLUSIONS

Several areas in the Palisade district were found which may warrant some magnetometer work. However, none of them are outstanding areas.

The Shoshone Mountain area was checked very little, but nothing was observed which looked favorable. One disadvantage to much of this area at the present time is the hard surfaced road from Austin to Battle Mountain. According to reports, this road was not designed to carry heavy loads so that long iron ore hauls are almost impossible because of low tonnage restrictions.