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Dr. Gene Callahan

Preliminary Report

PREACHER MOUNTAIN MINING CLAIMS

Hidalgo County, New Mexico

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April 3, 1968

Preliminary Report

PREACHER MOUNTAIN MINING CLAIMS

Hidalgo County, New Mexico

Location

The claims are located some ten miles south of Road Forks, Hidalgo County, New Mexico, and some 70 miles northeast of Douglas, Arizona. They are located on the north side of U. S. Highway 80 a little over a mile northeast of where the highway enters Granite Gap. Most of the claims lie in sections 23 and 24, T. 25 S., R. 21 W., Hidalgo County, New Mexico. They are located along the east side of the central portion of the Peloncillo Mountains.

Property

The property consists of 24 unpatented claims.

Relief and Topography

The claims mainly lie in a valley which rises gently to the northwest. They extend to the head of the valley and slightly over the divide and into the valley on the west side of the Peloncillo Mountains. In addition, they lap onto the sides of the mountains adjacent to the valley. Elevation in the valley ranges from 4600 to 4800 feet above sea level; the adjacent mountains rise to over 5500 feet. The valley is fairly open and accessible but the mountains are quite rugged and steep.

Accessibility

U. S. Highway 80, which connects Lordsburg, New Mexico, and Douglas, Arizona, passes along the southern edge of the claims. From this paved highway unimproved roads and trails lead up the valley and to various prospects in the area. Most of the area is accessible without too much difficulty except for some of the more mountainous portions.

The main line of the Southern Pacific Railroad passes through Steins (just west of Road Forks), about ten miles north of the area.

Climate

The climate is typically semi-arid. Rainfall is scanty but may come as thunder storms in the summer. The days are warm to hot and nights are cool to cold. Weather will not interfere with any mining operations.

Water and Power

Some water can be developed by wells in the valley in which the claims lie, although there is no perenial stream in it. Abundant water can be secured in the Animas Valley along the western edge of which the claims are located.

Electric power lines parallel the highway. Major gas transmission lines are located about two miles south of the claims.

Scope of Investigation

The material used in this preliminary report is based upon a brief visit to the prospect, upon a report by E. Gillerman (Geology of the Central Peloncillo Mountains, Hidalgo County, New Mexico and Cochise County, Arizona; New Mexico Bureau of Mines Bulletin 57, 1958), and upon personal knowledge of the general region.

GEOLOGY

Rocks of the Area

The Granite Gap Granite occupies several square miles to the south, southwest and northwest of the claims. It is a white to slightly pinkish, medium grained, biotite granite of Precambrian age. It is relatively massive and uniform but is well jointed. Where briefly examined it showed no mineralization, but this was lateral to the main mineralized area.

Overlying the Granite Gap Granite, presumably by depositional contact, is the Cambrian Bolsa Quartzite. This is overlain by the Cambro-Ordovician El Paso Formation composed primarily of carbonate rock types. The El Paso limestones are followed by the Montoya Limestone and/or dolomite of Ordovician age. Silurian limestones were not recognized and are probably absent due to non-deposition or to pre-Devonian erosion. Disconformably overlying the Montoya Limestone is the Devonian Percha Shale which consists of a sequence of black shales with increasing limestone content in the upper part of the formation. These are overlain successively by the massive Mississippian Escabrosa Limestone followed by the Mississippian Paradise Formation

which is a somewhat clastic thin-bedded limestone. Disconformably overlying the Paradise Formation is the Horquilla Limestone of Pennsylvanian age. The Permian section is represented by a number of formations but the basal Earp Formation of Permo-Pennsylvanian age is best developed. The Earp Formation is a sequence of limestones, siltstones and sandstones with some shale.

Unconformably overlying the above Paleozoic formations is a thick sequence of Tertiary and Quaternary gravels, sands and alluvial deposits. These thicken from a wedge-edge on the claims to a great thickness east of the pediment flanking the Peloncillo Mountains.

Quartz monzonite porphyry dikes and irregular massive intrusives cut the Paleozoic rocks and are presumably of Cretaceous and/or Tertiary age. These are relatively small masses of light gray to pinkish gray, brownish weathering intrusives. The matrix is very fine grained and probably is composed of quartz and feldspar; the phenocrysts may reach 1 cm. in diameter and are mainly quartz and orthoclase feldspar with some andesine feldspar and biotite. The feldspars show kaolinization. These quartz monzonite porphyries show sulfide mineralization and probably are responsible for the mineralization of the area.

Latite porphyry intrusives cut all of the earlier mentioned rocks and presumably are of Tertiary age. The rock is a light brownish gray which weathers light gray to slightly pinkish. The groundmass is very fine grained; the phenocrysts may be a centimeter or more across and are largely labradorite with some orthoclase, biotite and magnetite.

The bed rock underlying the majority of the claims is the Earp Formation; other Paleozoic formations are found adjacent to the claims and probably underlie them at depth, but if they are present at the surface on the claims, they occupy only small areas. The Granite Gap Granite, the quartz monzonite porphyry, and some latite porphyry intrusives are also found on the claims.

The thickness of the Paleozoic section underlying the claims where the Earp Formation is the surficial rock may be as great as 3000 feet and is composed primarily of carbonate rock types. These sediments will be underlain by Granite Gap Granite. Faulting may cut out some of this section or may cause duplication and added thickness; intrusions of quartz monzonite porphyry may underlie the sedimentary section and may have eliminated parts of it.

Structure

All of the sediments except the recent valley fill are steeply

tilted, generally to the west, but in places, especially along faults, they have been sharply contorted and folded. Elsewhere, there are some minor folds. However, the broad structure is a sequence of steeply westerly dipping beds.

The area has been extensively faulted. In general the faults trend in a northwest-southeast direction and tend to converge into the general area of the claims. One roughly east-west fault along the south edge of the claims (projected under the alluvial cover from exposures to the east and west) possibly cuts off both the sedimentary section and the above mentioned northwest-southeast faults. This transverse fault has brought Granite Gap Granite into contact with the sedimentary and later igneous sequence just west of the claims.

All of the faults appear to be relatively steep angle and do not show any great consistency as to which side is up and which side is down. Numerous minor faults cut across the rocks at a wide variety of angles to the major breaks.

The intrusions generally cut across the sedimentary beds but often parallel structures. The Granite Gap Granite is probably in depositional contact with the Bolsa Quartzite; in other places, and with all other formations, it is in fault contact. The quartz monzonite porphyry and latite porphyry bodies are all intrusive and are generally discordant. Generally these intrusives occur as dikes or sills that cut across the beds of the sediments at a small angle; in places both of them occur in the form of plugs or in one place the quartz monzonite may be considered a small stock.

Mineralization

Because of briefness of the visit, a thorough study of the mineralization was not possible and only a preliminary study of the mineral relationships was made. No samples were taken for assay although the claim owners have numerous assays from the property.

Attached as part of this report is a Xerox copy of pages from Gillerman's report on the central Peloncillo Mountains. He has studied the overall mineralization and certain of the mines in considerable detail.

Mineralization appears to be largely related to alterations and replacements of the sedimentary rocks. The porous zones of the carbonate rocks are the rock types and horizons showing the greatest alteration and mineralization. These include the porous zones of the Escabrosa Limestone, certain zones of the Earp Formation, the Horquilla Limestone and other limestones and dolomites. The mineralization is essentially hydrothermal replacement of the limestones and dolomites with some contact metamorphic types.

The non-metallic mineralization ranges from simple recrystallization of the limestone to the development of extensive quartz, epidote, garnet, wollastonite and other calc-silicate minerals. In places the carbonates show nearly complete epidotization and alteration to skarn. Some of the shales have been metamorphosed to slate gray hornfels types of rocks.

The metallic mineralization consists essentially of copper sulfides such as chalcopyrite, bornite, chalcocite;and/or galena, sphalerite and pyrite. The galena is argentiferous. Various oxidation products, including the carbonates of the above ores, are extensively developed. In addition, scheelite, powellite and manganese oxides are present. Assays reportedly have shown a wide variety of elements present in varying amounts. Among them are copper, lead, zinc, silver, tungsten, molybdenum and bismuth have been reported as being present in various amounts.

Mineralization of the claims appears to be distant from the intrusive bodies and, therefore, is probably hydrothermal and is not metamorphic contact action.

Mineralization of the Granite Gap Granite was not noted but sulfides and their weathered products are present in the quartz monzonite porphyry as disseminated ore type of deposit. The Latite porphyry did not appear to be mineralized. Therefore, it is believed that most of the mineralization is of Cretaceous-Tertiary age related to the quartz monzonite intrusives.

A water well near the margin of the valley and a core hole in the center of the valley both reportedly found sulfides in substantial amounts at approximately 80 feet deep.

Development

A number of prospect shafts, usually less than 30 feet deep, and numerous prospect pits and deeper cuts have been made throughout the claim area. Shows of copper, lead and zinc are well represented in some of them. Many show extensive development of various calc-silicate minerals, quartz veins and similar mineralization.

The only known drilling on the claims are the water well and the core hole mentioned above.

Within a short distance of the claims to the east, north, west and south mines have been operating. The Crystal Mine is within a half mile to the east of the claims. This mine is developed along a fracture in the Escabrosa Limestone

within a few hundred feet of the quartz monzonite porphyry. The vain contains galena, sphalerite, chalcopyrite and pyrite with calcite and quartz gangue. Galena is the most common sulfide. It is a hydrothermal replacement deposit in porous limestone along a fault. Shipping reportedly runs about 600 ounces of silver per ton, 8 percent lead and 11 percent zinc. This mine is currently shipping this ore.

An equal distance to the west is the Ward Mine which is a small prospect developed along a fault plane and in shattered country rock. Chalcopyrite, bornite, argentiferous copper sulfides, argentiferous galena are the main ore minerals; these are found as replacements in limestone as well as filling the fracture.

Some three miles to the north are the Carbonate Mine, Silver Hill Mine, Johnny Bull Mine and others. Reportedly production from the Carbonate Mine was some one and a half million dollars as of 1958 (silver was under $1.00 at that time). These mines are generally base metal deposits which Gillerman considers to be of pyrometasomatic origin. The ores are mainly lead-zinc with some silver. Except for the Johnny Bull Mine copper is very minor at the surface and was not being recovered. Most of the mineralization is in limestone which is closely associated with quartz monzonite intrusives.

About two miles to the south are the Granite Gap Mines. These mines may have produced about one million dollars worth of ore at a time when prices for the metals werelow. The ore is mainly lead-zinc with silver and some copper. It all is found in Escabrosa, Horquilla and possibly some other limestones. These limestones are closely associated with intrusives (quartz monzonite porphyry ?) and the limestones have been greatly brecciated prior to mineralization.

Reportedly on some claims adjacent to the Preacher Mountain Claims herein being discussed, considerable drilling has been done and a good ore body has been blocked out.

SUMMARY

1. The Preacher Mountain Claims are underlain by a carbonate sequence of rocks which is locally porous and which shows extensive mineralization.

2. The carbonate rocks have certain horizons in them which contain primary porosity; elsewhere, they have developed porosity and permeability through secondary action of various geological agencies, especially through shattering and brecciation along fault planes and fractures.

3. The area has been thoroughly fractured by a distinct fault system which trends generally northwest-southeast with numerous minor cross faults and at least one major east-west fault.

4. A thick section consisting of some 3000 feet of primarily carbonate rocks will underlie the claims unless the section has been cut out by faults or by intrusions.

5. Mineralization of both non-metallic and metallic varieties is present.

6. The metallic mineralization that was identified in the preliminary examination showed chalcopyrite, chalcocite, bornite, galena (argentiferous), sphalerite and pyrite; in addition scheelite, powellite and manganese oxides are present and bismuth and molybdenum have been reported as metals in the assays; carbonates of copper, lead and zinc metals are found as well as oxides of most of the metals (iron and manganese are the common ones); some chlorides may be present.

7. Non-metallics are present as gangue or as replacements and vein fillings in country rock; the main non-metallics are quartz, carbonate and calc-silicate metamorphic minerals.

8. Mineralization is probably mainly hydrothermal replacement of limestone, although some contact metamorphic mineralization is present.

9. Mineralization is closely associated with quartz monzonite porphyry intrusives.

10. No sulfides were found in the Granite Gap Granite, although in one prospect it has been reported mineralized by sulfides; under proper conditions it might be mineralized by the younger mineral-bearing quartz monzonite.

11. Mines are present in all directions from the claims; these mines have all been small and were operated by individuals, but they have produced substantial values of silver, lead, copper and zinc ore; total production from the area is probably over two and a half million dollars using old values for the price of metals.

12. Some development work has been done upon the Preacher Mountain Claims and this has shown areas of distinct mineralization; however, to date no systematic study either of the concentrated mineralized area in the claim area, or of the possible extent of weaker minerali-

zation into some of the limestones, sandstones and igneous rocks found on the claims; many of these rocks at first hand look essentially barren but they might have small amounts of significant minerals.

13. Although surficial metallic minerals are mainly in the form of oxides or carbonates on the claims, some residual sulfides are present and a bore hole and a water well reportedly recovered rich sulfides at about an 80 foot depth.

14. Since the area has been mineralized, it is quite likely that other minerals may be present which were not considered important at an earlier date.

CONCLUSIONS

The claims lie in a definite mineralized area and in numerous pits, cuts, shafts and bore holes the rocks have shown substantial mineralization. The sedimentary, igneous and structural history is favorable for the development of an ore body which could be of substantial size based upon the extent of mineralization in the claims and surrounding areas.

RECOMMENDATIONS

It is recommended that a systematic exploration of the claims be made to determine their ore potential. Such exploration would involve geological work, geophysical and/or geochemical work and close pattern core drilling.

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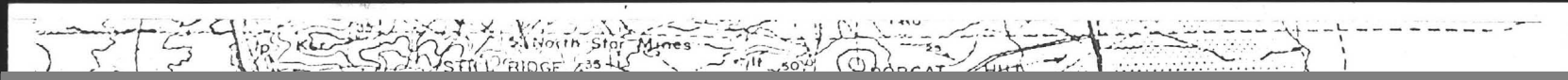
From Gillerman, N. Mex. Bur. Mines Bul. 57, 1958

Mineral Deposits

1928. In 1956 the property was leased to Strong and Mosely, the shaft repaired, and mining operations

northwestward about a mile

found elsewhere in the area, but some is dark reddish brown or brown, and may be spessatite or a manganesian andradite. Scheelite is present in small grains throughout the skarn rock.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