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Report on the Cram Mountain Group of Mining Claims

By W. G. Gates, M.E.

Said property is located on Cave Creek in the Magazine Mining District, Maricopa County Arizona, Distance from Phoenix, 45 miles.
At Phoenix there are two competing railroads, the Santa Fe and the Southern Pacific.

This group consists of Twenty two mining claims. Size of claims 600' wide and 1500 feet long, making a little over 440 acres.

The formation or country rock is composed of Porphyry, Diabase, Slate and Schist, with three perfect porphyritic iron capped dykes that cut through Cram mountain from the North-East to the South-West. These various dykes are capped over by Hematite and Red Oxide of Iron, with large croppings up through the caps of Carbonate of Copper carrying both Gold and Silver. The iron capping very in width from 70 to 120 feet, length about 7,000 ft.

Development work consists as follows: Main Tunnel (Size 6 x 4½ feet, length 500 feet) at two hundred and fifty feet from its mouth, the tunnel cuts the air shaft vein. Said Air Shaft is vertical. Distance from Tunnel to the surface is one hundred and seventy five feet. The work on the airshaft was commenced on a vein of Carbonate Ore, at the depth of eighty feet bornite ore in bunches was encountered with the carbonate ore. At the connection of the Air Shaft and tunnel the ore is a mixture of Bornite, Red Oxide and Sulphide. At this point, a level has been run twelve feet west showing possibly a hanging wall on the south side, but no foot wall. The ore here is still in bunches as usual.
Forty-five feet farther on this tunnel there is a winz sunk to the depth of seventy-five feet. The ore from this winz is sulphide and Bornite, still some carbonates. Near the bottom of the winz there is a drift run south toward the air-shaft vein. Distance, thirty feet, continuous in ore, but not a solid mass. The gangue matter in this level still shows leaching process. At the face of this drift one-fourth of it is in Sulphide Ore. At this depth in the (250 feet) there is no evidence of a foot wall between winz and the air shaft vein. Twenty feet further on in the tunnel, Nort of the Ore Body, say commencing at the air shaft vein, south side has the appearance of a hanging wall, but the drift south from near the bottom of the winz towards the air shaft vein shows no foot wall, also from the next twenty feet North of the winz, and from the dip of the ore in the tunnel and the ore body between the winz and the air shaft it is in the nature if the formation that these ore bodies converge at the air-shaft vein, but what the width will be no man can tell until further development.

Facilities for treating the ore—At the foot of the mountain, there is an overflowing stream of water, (Cave Creek) also a large growth of timber on the bank, cottonwood, Sycamore, Mountain Ash—an abundance of timber and fuel. So far the mine has required very little timbering.

At the upper end of Cram Mountain where the Creek runs along the side of it (Ohio Claim) there are porphyry dykes on either side that are very near perpendicular, that would make a good wall for the construction of a dam on the creek. There are several boxed places between the one mentioned above and where the creek crosses the south slope claim which I believe could be utilized for power. The distance between these various walls is from 40 to 75 feet.

The six claims east and connecting with the Cran Mountain group show various croppings of Carbonates, Also some living springs on the Maggie Claim and Gulch. No other work other than assessment work has been done on these claims.

Altitude of the Cran Mountain: Top, 4,000 feet; at the base on creek opposite the tunnel, 3,000 feet; at the mouth of the tunnel, 3,700 ft; making the tunnel 700 feet higher than the Creek.

In conclusion I would recommend the sinking of the winz at the bottom of the air shaft at the end of the 12 foot drift spoken of above; by doing so you will encounter the ore body that is at the face of the 30 foot level mentioned above; why I suggest this, I believe that the heavy Sulphide ore body lies towards the hanging wall of the air shaft vein.

Respectfully submitted

(signed) M. E. Gates, M. E.

AVERAGE ASSAYS

From

Mining Claims located on Cran Mountain, Magazine District, Maricopa County, Arizona

Reported by

Tucson Sampling & Refining Co., Tucson, Arizona

Name of Claim	Copper%	Gold	Silver
No. 1 Mars	11.2		
No. 2 Mars	14.2	Trace	3 oz.
No. 3 Mars	24.5	"	7 oz.
No. 1 Security	11.1	5.00	
No. 2 Security	14.4	37.50	27-10
No. 1 Niggerhead	10.11	2.40	2.
No. 1 Richmond	7.3	2.40	
No. 2 Richmond	7.3	1.20	
No. 1 Ascension	8.5	2.40	
No. 1 Venus	10.1	2.00	
No. 1 Jupiter	9.	2.40	21-4
No. 2 Jupiter	14.	3.00	3.1-4
No. 1 Saba	10.0	2.60	
No. 2 Saba	10.5	2.00	1.1-2
No. 1 South Slope	4.	4.00	
No. 2 West End	9.	5.00	
No. 1 North Side	9.		1.1-4
No. 2 North Side	6.3		1.1-4
No. 1 Hope	9.		1.1-4
No. 2 Venus	20.1-10	7.16	
No. 2 Ascension	22.4	1.60	

Department of Mineral Resources
State of Arizona
Field Engineers Report

Mine: Cram Mountain

Date: Sept. 25, 1959

District: Cave Creek, Maricopa County

Engr: Lewis A. Smith

Subject: Mine Visit

Owners: Raymond Rollis, Sterling Price and E. Wolf.

President: " " 314 N. 15th St., Phoenix (AL 3-4310)

Agent: James H. Thompson, 2201 N. 27th Place, Phoenix

Property: 18 claims

Location: T7N, R4E, Sec. 1 & 2

Wor: The mine consists of 2 tunnels and several pits and cuts. The main, or upper tunnel is 150' long and is connected to the surface by a ventilation raise. A 10' winze was sunk under the ventilation raise at the end of the tunnel. The raise was inaccessible but the drift and raise showed strong mineralization by sulphides along with rhodochrosite. The tunnel trends nearly at right angles to the older structural trend. A drift was driven south for 30' along a shear zone at a point 100 feet from the portal. The second, or lower tunnel (now mostly inaccessible) which is about 125 feet lower in elevation, was driven to a depth of 70-75 feet, according to Mr. Thompson. The size of the dump would roughly substantiate this figure. This tunnel follows an intimately sheared zone trending northwest-southeast. The mineralization here was entirely oxides of copper.

Roughly 400' to the southwest from the tunnels several pits and cuts were made in a transverse fracture zone. These showed azurite, malachite and melaconite which were replacing rhodochrosite and sulphides.

Geology: The study of the geology was somewhat handicapped by soil and detrital covers which are quite thick in some places. However, it appears that the immediate area is composed of a dense diorite mass of large dimensions. This mass either grades into a porphyritic diorite or is intruded by it in a dike-like form. m The "dike" and the formations surrounding the diorite mass trend northeast-southwest and these formations pitch away from the dioritic mass. These latter formations appeared to be composed of schists and marblized limestone and these were only observed along the northwestperiphery of the diorite mass at a distance of at least 6 miles from the mine. This northwest trending older structure complex has been disrupted by shears which roughly parallel northeast trend and by other shears which are more or less transverse. Most of these later shears trend N 20/degrees to N 40 degrees W and are apparently later than the conformable shears. In addition the sheared mass was cut by transverse faults which trend N 30 degrees W to N 50 degrees W. The dioritic mass is jointed by conjugate type of shattering which may have been caused by the extensive shearing and faulting. The intersections of these various shears and faults may have created mineralization loci. No noticeable transition from the dense diorite to the more porphyritic phase was observed, but the presence of intense epidotization in both phases was seen. The epidotization appeared, from the few exposed places to be more intense in and adjacent to the porphyritic phase. The heavy cover prevented a determination of the true extent of the epidotization. The epidotization is affiliated with the sulphides in both types but in both types but is apparently coarser in the prophyritic phase.

Rhodochrosite, in disseminated crystal aggregates, is prevalent, especially in the porphyritic phase, and the supergene solutions have partly, or wholly, converted this to cuprite, malachite and melaconite. In most places, residual rhodochrosite is still present. This would probably indicate that the chance for enrichment is very limited since carbonates tend to hold copper in the oxidized zone. For the most part the oxide copper minerals have not been formed far from the original sulphide blebs or grains and in many cases form halos around, or remain in the cavities formed by the oxidation of the sulphides. However, in the lower tunnel the oxides appear to have concentrated within the fractures of a shear and may have moved out from the source material.

The "Porphyritic" phase is more coarsely crystalline than the "straight" diorite, showing well defined augite and rhodochrosite phenocrysts scattered through a finely crystalline ground mass. The "straight" diorite is dense and much much finer grained. The "straight" diorite adjacent to the more porphyritic phase contains minute grains of chalcopyrite, pyrite, and pyrite with no observable rhodochrosite. As far as could be seen, without microscopic work, the sulphide blebs were much larger in the porphyritic phase.

The sulphide blebs show no distinctive shape, or do they show particularly selective replacement of any part of the rocks. This might indicate a transition from "straight" diorite to the "porphyritic" diorite due to phases of differentiation. This along with the erratic distribution of the sulphides in size, shape and location within both rocks may indicate magmatitic differentiation. The apparent absence of veinlets coupled with the absence of observable fractures leading to the sulphide blebs is also suggestive. This also indicates that the jointing may have been superimposed upon the sulphide bearing rocks at some later date.

Conversely the "porphyritic" phase appears in bolder topographic relief than the "straight" diorite, indicating that it is either a harder rock, or was hardened by the more intensive epidotization present in the "porphyritic" phase. The impression, gained from a distance, was that the area occupied by the more porphyritic phase may represent a dike-like body of considerable lineal extent.

Some bornite, pyrite and chalcopyrite boxworks were present, especially in the more "porphyritic" phase. In the upper tunnel incipient oxidation is producing a "boxwork" pattern similar to the more mature "boxes" found above.

Three interpretations of the origin of the deposit from the incomplete evidence are suggested:

(1) That the "porphyritic" diorite is intrusive into the "straight" diorite, and the intrusion is accompanied by intensive contaction metamorphism and the introduction of epidote along with the sulphides. This is also the possibility of a hidden intrusive.

(2) That the contact between the two phases of the diorite is transitional due to variable temperatures of cooling in the magma. If this is true, then a central core of "porphyritic" diorite would gradually become finer in texture until the "dense" phase was reached. The

decrease in size of the sulphide blebs, and other mineral blebs or crystal, would be probable also. This process could be repeated in a bands or as a halo. If this proves true then the deposit could be due to magmatic segregation. The apparent absence of fracture control is also suggestive of this type of origin. The decreasing size of the sulphide blebs out from the "porphyritic" phase, coupled with the irregular character of the sulphide blebs is also indicative.

(3) That intersecting fractures and shears localized the hydrothermal mineralization, especially within the more receptive "porphyritic" phase of the diorite. However, the apparent absence of mineralization along fracture and irregular sulphide bleb forms are against this theory. The only explanation which would favor this theory, in view of the physical sulphide distribution, would be some form of mineralization "soaking" which would selectively replace certain irregular areas of different composition with the rock itself. Both of the two phases of diorite appear to show fairly consistent character.

Which of these three theories are correct will only be determined by careful core drilling or far more intensive underground development than has been done to date.