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From: Ken Smith of Quintana Min to Ken Polasky (1978) Retyped by Julie Polasky

ITEM 32

LONE STAR MINE (Mims Mine)

Location and topography

The Lone Star mine is in the southwestern slope of Gabbs Valley Range at an elevation of about 5,740 feet. It is just southeast of the Nevada Rand mine, afore described, whose property it adjoins and than which it is about 100 feet higher. It is easy of access. The character of the topography is well shown in figure 3 (topo map) and figure 94 (photo).

History and production

The mineral deposit of the Lone Star mine was discovered December 22, 1907, by K. M. Mims who still owns it. It seems to be also the first commercial deposit desovered in the district. Development work was soon begun on a small scale. The total production is said to be about $80,000.00 in gold-silver ore. The mine began shipping ore in 1912 and by the end of 1914 had shipped $21,000.00 worth of ore that averaged over $40.00 to the ton.

The total production by the end of 1919 was said to be $26,000.00 and that 1,500 tons of $20.00 mill ore lay on the dump. The ore shipped is said to have averaged 45.3 ounces silver to 1.01 ounces of gold or about half and half in money value.

In 1914 the Lone Star claim was said to be bonded to the Thompson Smelter Company for $85,000.00 and the Lone Star No. 1 fraction to P. I. O'Brien for $35,000.00. In 1915 to 1917 the mine was bonded and leased for $60,000.00 to the Queen Regent Merger Mining Company of San Francisco, who did about 1,400 feet of work, deepened the shaft to the 500-foot level, and regularly shipped considerable ore, mostly from a 9-foot ore shoot on the 80-foot level in shaft No. 2, where also a large tonnage of high-grade mill ore was opened up.

In 1922 it was reported that Walker brothers had taken a two-year lease on the mine. By 1925 the total production was said to be $75,000.00.

Development and equipment

The property comprises a group of five claims; the Lone Star group, of which three cover a length of 4,000 feet on the lode beginning at the Nevada Rand line on the northwest; the other two lie on either side of the middle or Lone Star claims. The workings extend continuously about 2,000 feet on the lode.

Like the Nevada Rand mine, the Lone Star mine is dry except that for a while the early (1917) work on the 500-foot level yielded about five barrels of water a day, which, however, seems to have been merely surface water that was impounded in fissures, fractures, and perhaps other reservoir cavities in the rocks and lode and to have had no connection with around-water level.

The mine is open to the depth of 550 feet by about 3,000 feet of work, about half of which is on the No. 2, or 135-foot level, and about 1,200 feet on the No. 3, or 235-foot level. There is also a 75-foot and 175-foot level.

There are three shafts, of which the No. 1 shaft, located about 600 feet southeast of the Nevada Rand mine, is 100 feet deep; No. 2 shaft, located about 1,000 feet southeast of No. 1 shaft is 550 feet deep; and No. 3, which is an inclined shaft located about 600 feet southeast of No. 2, is 250 feet deep. No. 2 shaft is equipped with an 18 horsepower gasoline hoist adequate for sinking to the depth of 700 feet. The surface equipment includes also several buildings adequate to house a small crew of men.

Geology

The geology is similar to that afore described in the Nevada Rand mine, except that the andesite is more brecciated and at the depth of about 250 feet gives way to pyritic rhyolite porphyry which seems to form the core of the range with the contact between the two rocks dipping to the southwest, from which condition the mine is locally said to have andesite on the south or footwall side and rhyolite on the north or hanging-wall side.

As shown in the 100-foot shaft, just east of the Nevada Rand end line, the andesite is a comparitively fresh greenish-hornblende andesite.

The rhyolite begins to appear on the 235-foot level. Here a speciman of it was collected by the writer in the east side crossent 12 feet north of the main shaft, 300 feet deep with its lower part all in rhyolite. Later a specimen was recieved from the bottom of the mine, or 550-foot level, where also the rock is considerably altered hydrothermally and oxidized, though microscopically it appears to be fairly fresh.

The rhyolite, as seen in the mine by the writer, is massive excepting a dim flowage structure and jointing shown in spots. It is a pinkish or reddish-gray, submedium-grained, massive rock composed mainly of a fine-grained or felsitic groundmass with flowage structure in which rest numerous small phenocrysts or fragments of phenocrysts of mainly orthoclase, quartz, and sanadin, ranging up to 1/10 of an inch in diameter and smaller ones of biotite and a little albite, oligodase or altered acidic plagioclase and hornblende. Orthoclase forms about 60 percent of the rock and quartz about 20 percent.

The rock is freely desemminated with pyrite is minute macro-cubes and finer grains and contains as accessory minerals apatite and magnetite. On the whole it is considerably altered--much of the ortoclase to kaolin and sericite and secondary quartz; the biotite and hornblende to greenish chlorite, calcite, and vermiculite; some of the pyrite to iron oxide. Some quartz is partially wine-colored by hematite derived from pyrite. Fragments of other rock material or earlier consolidations of the rhyolite that are contained in the rhyolite indicate that it may be related to, or be a flow breccia or tuff. The rhyolite owes its pinkish or reddish hue to the presence of hematite derived by oxidation from the pyrite. This is best shown in the bottom of the mine where much of the pyrite as seen in individual crystals is plainly altered to iridescent hematite which has stained the quartz a mild wine- red color, which in milder form is diffused throughout and stains the entire rock.

A dike found on the 550-foot level and said to resemble diorite is probably andesite. In this connection it may be noted that the writer observed lying by the roadside in Lone Star wash, just above the Rand camp, a boulder 1½ feet in diameter of a rock resembling diorite but which seemed to be too weathered for satisfactory determination.

Deposits

The deposits are gold-silver deposits, similar to those of the Rand mine, afore described, and occur on the southeastward continuation of the same mineralized fault or lode which here varies from 10 to 100 feet in width, strikes about N. 60° west, and dips steeply 85° NE., or stands nearly vertical, especially on the 75- and 135-foot levels. The deposits occur irregularly in ore shoots in the lode, and they favor its north or hanging-wall side where some adjacent deposits also occur as replacements in the wall rock, andesite.

The south or footwall side of the lode on practically all levels carries a very persistent 1 to 8-inch sheet of dark greenish-brown to yellowish-brown or bluish tough clay gouge, called "gumbo gouge", also locally known as talc. It is also present elsewhere, as with ore shoots, faults, etc.

As shown by disseminated pyrite in the andesite and gouge on the 135-foot level, sulphidization is general, although the deposit is mostly oxidized.

The deposits consist mainly of crushed or brecciated quartz and andesite with a little calcite, limonite, jarosite, manganese, and gypsum.

Limonite and jarosite are the best indications ore, though on the 135-foot level occurs some primary boulderey ore with milky white vuggy quartz gangue carrying disseminations and small bunches and bodies up to 3/4 inch in diameter of galena, pyrite, chalcopyrite, light-brown sphalerite and argentite (?). This ore, which is more or less a quartz breccia, occurs along the fault or slip. It occurs mainly in irregular boulder-like bodies ranging up to five or six inches in diameter and which are encased in or associated with a light-gray, hard, siliceous, lithified fault breccia, gouge or matrix composed mainly of finely comminuted or ground-up quartz, and containing angular fragments of quatz up to $\frac{1}{2}$ inch in diameter and sparsely disseminated fine-grained pyrite. In places the gouge is closely laminated by pressure. Some of the ore boulders have been fissured or broken in halves and the parts recemented by comby banded veinlets 1/3 of an inch wide of later quartz. Some contain nucleilike inclusions of fragmentary andesite up to 3 inches in maximum dimension, which also are cut by quartz veinlets.

The microscope shows this boulderey ore to be mostly fine-grained vein quartz in narrow prisms with rough or jagged edges and dagger-like terminations containing in places a mixture of the ore minerals--chalcopyrite, sphalerite, and galena. In the quartz and associated with the chalcopyrite is a small amount of adularia or vein orthoclase, some in perfect rhombohedral crystals.

When visited by the writer in 1916 this ore was well exposed in the east drift on the 135-foot level, where it formed an ore shoot 8 feet wide, of which width 2 feet on the hanging wall side in the last 30 feet of the drift was said to run about $52.00 to the ton and to average 13 percent lead and 8 percent copper with the balance of the values in gold and silver. From this it appears that the galena is probably argentiferous and both it and the chalcopyrite are probably auriferous. Later work showed this ore shoot to continue with considerable gain in depth to a point more that 300 feet beyond the face of the drift, or about 1,200 feet east of Shaft No. 3, and the crosscuts indicated it to be confined to the fault. This primary boulderey ore is in general similar to the ore (spec. 728) from the upper stope of the Gold Pen mine, which also contains galena, chalcopyrite, and light-brown sphalerite in milky white vuggy quartz. *where?*

The best ore is said to be the "fines" and to have much associated black manganese oxide. The andesite is more favorable for ore than the rhyolite and the gouge nearly all appears to be of andesite origin.

The most of the production has come from the ground in the vicinity of Shaft No. 3 and which extends from there southward where a block of the vein 7 feet wide by about 1,000 feet in extent and ranging from near the surface to 120-feet deep on the northwest and 200-feet deep on the southeast, is said to have averaged about $30.00 to the ton. Below that block to the east of the shaft occured a 10-foot shoot of $8.00 ore and to the west of the shaft a 25-foot shoot of $3.00 ore.

Shaft No. 1

On the surface at 120-feet west of the Shaft No. 1 are prominent siliceous oxidized croppings of "primary ore". At the shaft the vein is 12 to 30 feet wide; on the 76-foot level it stands 30 feet northeast of the shaft. In the workings east of the shaft the vein or ore shoot is 29 feet wide and is mostly $9.00 ore and has 2 feet or more of relativeely pure quartz ore on the footwall side, which is succeeded by bluish clayey gumbo gouge.

On the second, or 135-foot level, at from 100 to 300 feet northwest of the shaft the vein was 10 to 20 feet wide, of which only 10 to 2 feet was $6.00 ore; but southeast of the shaft the ore shoot was 10 feet wide and was mostly $5.00 ore. Beneath this level, however, ore of medium grade was more or less continuous from 300 feet northwest of Shaft No. 1 to several hundred feet southeast of Shaft No. 2. On the third, or 235-foot level, only small bunches of quartz were found representing the vein.

Shaft No. 2 (550 feet)

On the 76-foot level of Shaft No. 2 the vein carries a 9-foot ore body, of which 2 feet is shipping ore and 7 feet high-grade milling ore.

On and below the 135-foot level, and especially below it, medium- to low-grade ore is exposed both east and northwest of the shaft for about 250 feet. Northwest of the shaft the vein is 7 to 15 feet wide and carries mostly $2.00 to $3.00 ore.

A crosscut on the 300-foot level shows 10 feet of good looking quartz and vein material which, however, carries only small values. The crosscut on the 400-foot level is said to show ore containing much silver sulphides, argentite, stephanite, and a little chalcopyrite supposed to be primary.

On the bottom or 550-foot level, the 35-foot crosscut to the southwest is in pyritic reddish-gray rhyolite which is said to assay a trace of gold and 1 ounce of silver to the ton. As there seems to be no trace of silver minerals present, the condition suggests that the silver as well as gold is probably contained in the pyrite. Cu ?

On the 76-foot level the vein carries about 7 feet of mostly stoping ore both southeast and northwest of the shaft as afore noted.

On the 135-foot level west the vein is 25 feet wide and has considerable $3.00 ore. East of the shaft the vein carries 10 feet of $8.00 ore and for 1,200 feet east it carries 7 feet of the primary boulderey quartz sulphide ore. Also on this (135-foot)level, as shown by a crosscut 1,200 feet southwest of the shaft, there occurs at 125 feet northeast of the primary boulderey vein a 75-foot mid-zone of hydrothermally altered crushed, but hard dark-greenish chloritic andesite porphyry (740-A) which in fractures and cleavage contains much MnO in dentritic form and carries sufficent free gold and cerargyrite to constitute low-grade ore, though it may not as yet be regarded as an important asset of the mine.

The gold and cerargyrite in this zone apparently are of secondary deposition and were derived by oxidation and leaching from higher levels, and the andesite as shown by the microscope is altered to mostly a greenish mat of chlorite scales and radial fibrous actinolite derived from biotite and hornblende and forming in places "spherolites". In the mass occur phenocrysts and fragments or remants of basic plagioclase in prisms and lathes, also hornblende, biotite, small bodies of calcite, sericite and magnetite. Here we have apparently a 75-foot oxidized zone of secondary ore separated from the primary ore vein along the fault by 125 feet of less altered county rock andesite. This later andesite is the same as that which appears on the surface above. It is broken, contains disseminated pyrite in small cubes and in its fractures gouge similar to that found in general along the fault.

Outlook

From the forgoing sketch it is apparent that nearly all the production of the mine has come from relatively shallow depths, from ground lying between the surface and the 250-foot level and the most of it from ground not extending much below the first or 135-foot level. This pro-

bably is in large measure due to the fact that below the 250-foot level the mine is mostly in rhyolite, which rock, though hydrothermally altered, seems to have been less favorable for ore deposition than the overlying andesite. So far is learned but little if any commercial ore has yet been found in the rhyolite, though this rock has been penetrated about 300 feet by Shaft No. 2. However, it seems advisable to extend Shaft No. 2 a few hundred feet deeper if need be, and crosscut for the lode to guard against missing any secondary enrichment that may have taken place at the top of the sulphide zone.