



CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

The following file is part of the G. M. Colvocoresses Mining Collection

ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

HISTORY OF THE SENATOR GROUP OF MINING CLAIMS
PHELPS DODGE CORPORATION

Cottonwood, Arizona,
June 23, 1938.

Mr. W. W. Saben, Manager
Phelps Dodge Corporation
United Verde Branch
Clarkdale, Arizona

Dear Sir:

In accordance with your request, I submit to you the following history of the Senator group of mining claims, located in the Hassayampa Mining District, Yavapai County, Arizona, 14 miles south of Prescott.

A well kept, graded highway from Prescott passes over the center of the holdings, which provides movement of ore and material at very low cost.

TIMBER:

The entire surface of the claims is covered with a heavy growth of pine timber which would provide mining timbers for many years.

WATER:

Water, flowing from the mouth of the tunnel, is available for a mill of 200 tons capacity.

HISTORY:

The property was acquired in the early 1880's, and was operated by the Commercial Mining Company until 1893, under the supervision of Mr. Jas. S. Douglas.

The early development was confined largely to the Senator vein, where a shaft was sunk to a depth of 700 ft. with extensive lateral work at 100 ft. intervals. This work no doubt developed very attractive tonnages of ore, as a 20 stamp amalgamating and table concentrating mill was erected on the Hassayampa river, 700 ft. vertically below the collar of the shaft.

Shortly after milling operations began, a 1600 ft. tunnel was driven through very hard rock, encountering the Senator

vein at a depth of 700 ft. This tunnel intersected the vein approximately 100 ft. east of the shaft.

Extensive drifting was done in an easterly and westerly direction on the Senator vein. East of the tunnel there was little or no commercial ore developed. The west drift was driven some 1200 or 1300 ft., but only a small portion of the drift was productive. The ore shoot apparently shortened quite rapidly as depth was gained. Square sets on the sill floor of this drift indicated the ore to be 2 sets wide, but since it had caved before my first visit there, I have no knowledge of its length. Timbers and ladders had rotted out of raises from the tunnel level, making it impossible for me to investigate any of the upper workings without considerable expenditure, which I did not deem advisable.

A winze was sunk from the tunnel 200 ft., and one bunch of tremendously high grade ore was encountered somewhere below the tunnel which produced about \$30,000 in gold from a very small tonnage of ore.

Many of the early employees of the company claimed that at the time operations ceased, some tonnages of commercial ore were left in and on the ends of the stopes, where the ore was said to have ranged in width from a few inches to 8 ft., and the productive area 4 to 500 ft. along the strike of the vein.

SURFACE OF THE SENATOR VEIN:

The cropping of the Senator vein is irregularly exposed for the length of the Senator property, and continues out of the Senator holdings into the Dunkirk property.

In a southerly direction on the surface from the Senator shaft, numerous pieces of high grade gold float were found. Many shallow cuts and trenches were dug in search of ore in place, but with no success.

The early operation of the Senator mine and mill was profitable, but moneys received from the Senator operation were expended at the Boggs, Hackberry and Copper Basin group, resulting in the entire operation in Yavapai County being costly and unprofitable at that time.

SURFACE OF THE TEN SPOT CLAIM:

On the surface of the Ten Spot claim, there is a large oxidized quartz porphyry vein cropping for the entire length of the claim, ranging from 6 to 30 feet wide.

From the southwest end line, the vein has been more or less productive for a length of 800 ft. in a northeasterly direction.

Small quartz veinlets run diagonally through the larger vein material, continuing to a depth of from a few feet to 70 ft. These small stringers occasionally swell to bunches 7 and 8 ft. wide, the average width being 2 to 2-1/2 ft. The ore was not regular on the various veinlets.

Ore production during the life of Louis Milner's lease from this area was 1628 tons, with average value per ton of .4475 oz. Au., 13.39 oz. Ag., and 2.53% Cu.

The tonnage, lengths and widths of ore remaining in this area is problematical. From my observation on various inspection trips during Milner's lease, I believe that a fairly substantial tonnage of ore ranging from \$4.00 to \$10.00 a ton could be produced profitably if a small mill was built at the Senator tunnel where water is available.

In the early operation, a shallow crosscut tunnel was driven through the Ten Spot vein connecting with the Senator shaft, for ventilation, no doubt.

Old timers who worked in this tunnel claimed that two narrow stringers of high grade ore were cut within the Ten Spot vein, but no lateral work was done on them.

Prior to my supervision there, the construction of a highway over the property had entirely obliterated this tunnel.

There was also a shaft on the surface about 100 ft. easterly from the west end line of the claim, sunk to and connected with the Senator tunnel, about 500 feet at this point. Fritz Viertholer, foreman of this work, repeatedly stated that at about the 250 level a bunch of very high grade gold ore was encountered, but no lateral work was done on it.

Major A. J. Pickrell, former superintendent, said that the average values in the shaft were very low.

DEVELOPMENTS ON TEN SPOT VEIN, SENATOR TUNNEL LEVEL:

A drift was driven a few hundred feet southerly from the Senator tunnel, but no commercial ore was found. Another drift was driven easterly on the same vein about 800 ft., encountering an ore shoot about 700 ft. from the tunnel. This shoot ranged in width from a few inches to 30 inches, and assayed \$14.00 to \$29.00 per ton in gold, silver and copper. In the breast of the drift when stopped, the ore was 10 in. wide and assayed \$14.00 in gold, silver and copper, when gold was \$20.00, silver \$1.00, and copper 23-1/2 cents.

This shoot was never developed vertically, but might continue up from the zone worked by Milner on the surface.

Since the track was removed and the drift was in a bad state of repair at the time of my operation there, I did not think it advisable to undertake farther development of this shoot, due to the cost of getting the drift negotiable, and then I knew very little of the surface ores indicating any regularity to the ore shoots on this vein.

TREADWELL CLAIM:

From the southwest end of the Treadwell claim, the Treadwell vein was largely productive along the surface for about 700 ft. easterly; the widths narrow, ranging from a few inches

to 2½ feet. A shaft sunk on this vein near the west end to a depth of 90 ft. was productive to the 80 ft. level, with 6 in. of ore continuing in the bottom. The stoped area ranged from 6 in. to 2 ft. and was not over 40 ft. long. This area produced 280 tons of ore that yielded 9½% copper, \$7.75 gold and silver at the Hayden smelter.

150 ft. easterly on the vein, it was productive to a depth of 30 ft. and produced 250 tons of about the same grade of ore as the shaft. This area was about 60% productive for 150 ft. in length, but with no ore continuing in the bottom.

Easterly along the bottom of Maple Gulch the ore was regular along the surface for 300 ft., but was from 6 to 18 inches wide only and it pinched out at a depth of 25 ft. This area produced 160 tons of ore that sampled about \$60.00 at El Paso smelter in gold, silver and lead, though I do not recall the ratio of values in the ore.

Fred Gronlund and associates, present leasers, have encountered another small ore shoot on the 80 ft. level from the shaft that may produce a few carloads of ore, but this is all that can be hoped for.

SENATOR TUNNEL LEVEL

When the Senator tunnel encountered the Treadwell vein, it intersected 5 ft. of gold, silver and copper ore, the values being largely in gold with a small percentage of iron and copper. This bunch of ore was stoped later, and produced 240 tons that averaged 1 oz. gold and about \$5.00 per ton silver and copper. The bunch was short--not over 40 ft. long,-- and narrowed down to a few inches, at 20 ft. above the tunnel level. A shallow winze was sunk on this bunch just south of the tunnel, passing through the ore at a depth of 12 ft.

Due to no equipment to handle water, the ore remains below the tunnel level, but from all evidence, only a car or two could be hoped for there.

A drift was driven south on this vein for a considerable distance, but no ore was found.

At a point vertically over the tunnel, a raise was driven 125 ft. on the vein, but no commercial ore was found, and 100 ft. south from the tunnel a second raise was driven 100 ft. Very small, short lenses of ore were encountered in both of these raises, but these lenses were about 6 in. wide with no height or length.

CASHIER VEIN: (Cashier)

Where the tunnel intersected the Snoozer vein, it was only 8 in. wide and contained no values, so no drifting was done on it.

The Cashier vein was the last encountered where the tunnel stopped at a length of 3270 ft. A drift was driven southerly from this point 1300 ft., starting on the Cashier vein, finally leaving it, bearing northerly in view of intersecting the Snoozer vein. I drove a raise from this drift 195 ft., definitely determining that the Snoozer vein was never encountered southerly from the tunnel or under the commercial zone of the Snoozer upper workings.

When stoping on the upper levels stopped, this stoping seemed to have changed the downward water courses through the Snoozer vein, a heavy flow of copper water coming from a cross fracture, which, beyond any doubt, led to the ore shoot, in my opinion 50 to 60 feet away. This indicates strongly to me that the Snoozer ore shoot continues down to the tunnel level and might contain attractive grades and tonnages if developed there. This cross fracture is about 300 ft. easterly from the Snoozer raise.

UPPER WORKINGS ON THE SNOOZER VEIN:

During the early supervision of Mr. J. S. Douglas, about 500 ft. from the Snoozer endline a shaft was sunk about 300 ft. The shaft continued regularly in ore to a depth of 225 ft., the ore shoot raked easterly, and the shaft passed out of it on the

southwest end of the shoot. (Vertical section map herewith enclosed.) This shoot was regularly productive on the surface for 200 ft., shortening to 150 ft. on the 100 level, and to 100 ft. on the 200 level. The ore ranged from 8 in. to 5 ft. from the 200 level to the surface, average width 24 in.

About 4000 tons was produced from this area, average value 0.95% copper, 9 oz. silver, no gold present in this vein.

From the 250 level in the shaft a drift was driven easterly about 100 ft., entering the ore shoot about 15 ft. from the shaft. The values at this depth had scattered through wider vein material which dropped the average value to .5% copper, 5 oz. silver. Because of the lower values, little stoping was done on this level, and the drift was never continued to the east end of the ore shoot. Widths probably averaged 3-1/2 ft.

De VERNON CLAIM

The DeVernon vein is thought to be the continuation of the copper vein of the Storm Cloud group, which in the Storm Cloud produced many thousand tons of shipping grade of gold-silver-copper ore. On this claim the ore shoot was uniform and regular, about 700 feet long, and ranged in width from 1 ft. to 8 or 9 ft. This ore was practically all stoped out to a depth of 300 ft.

Below the 300 level, the ore changed to a massive iron pyrite with very low values, so prospecting was done only to the 400 level. (On the Sheldon property, 3 miles north of the Storm Cloud, on the same strike, same mineral belt, and identical surface showing, the vein was profitably productive to a depth of 200 ft.) Between the 200 and 300 ft. levels the same conditions prevailed as at the Storm Cloud, the iron pyrite giving way to copper, gold, silver ore at about the 300 level, and the Sheldon vein was about 60% productive for 1000 ft. long and 900 ft. deep. This development on the Sheldon leads me and many others familiar with the district to believe that the Storm Cloud deposit might

be at greater depth and might produce large tonnages of commercial ore; it being 700 or 800 ft. higher altitude than the Sheldon, the Storm Cloud might continue to the same horizontal depth as the Sheldon. The above indicates what might be expected if the DeVernon claim is prospected).

300 ft. easterly from the west end line of the DeVernon claim, a shaft was sunk 50 ft. deep, where the vein material was over 30 ft. wide. There was milled from this shaft a few tons of \$9 gold ore. Little or no drifting or crosscutting was done, so little is known of the DeVernon claim. It is an outlying claim from the Senator group, with about 1000 ft. of ground owned by others between it and the Cashier claim. Remnants of sulfide ore on the dumps assayed \$14 in gold and silver at the old prices.

Respectfully,

(Signed) A. B. Peach

(Written from memory)

SENATOR MINE

The old and well-known Senator Mine, situated on the headwaters of the Hassayampa, has been the property of the Phelps Dodge interests since 1889. It was worked from 1883 to 1899. It is principally a gold property consisting of several parallel veins striking north-northeast. Among them are the Senator vein, carrying lead-zinc ores only and containing mostly gold with some silver; the Ten Spot vein, which carries mainly pyrite; the Tredwell vein, carrying heavy pyrite with specularite and gold; and the Snoozer vein, carrying copper ores with specularite. The shipping ore yielded \$30 in gold and silver to the ton. There is a small mill on the property in which the ore from the Senator shoot was worked. The total production is said to be about \$530,000 net, almost all of which came from the Senator ore shoot. Of this about \$330,000 was extracted since 1890.

Most of the veins crop out near the loop in the wagon road, which here ascends the Mount Union pass (altitude 7,188 feet) and also crop out on the ridge a short distance to the west. Here the main shaft was sunk 635 feet deep to the tunnel level (altitude about 6,500 feet). Below this tunnel, which extends eastward to the Cash mine, the shaft is continued for 200 feet, giving a total depth of 835 feet.

The geology is complicated. There are lenses of diorite, amphilbolite, and Yavapai conglomeratic schist, all traversed by dikes of rhyolite porphyry. One dike of this kind, about 40 feet wide, cuts the Yavapai schist along the road a short distance below the Mount Union pass. A vein striking No. 40° E. from which a shipment was recently made crosses near the same place. It is probably the Ten Spot vein. The ore here, as exposed in a tunnel of quartose ore, carries pyrite, chalcopyrite, and specularite.

According to information kindly given by Mr. J. S. Douglas, who operated the mine between 1891 and 1893 and from 1896 to

1899, there was only one profitable ore shoot in the Senator properties, that of the Senator vein. This shoot starts just to the west of the old Senator shaft on top of the hill and pitches southward until on the tunnel level, 600 feet below the collar of the shaft, the center of the shoot is 450 feet south of the shaft. The shoot had a stope length of 250 feet and averaged 18 inches in width. The Senator shoot carried milling ore with free gold associated with quartz, pyrite, galena, and zinc blende. Magnetite occurred in the vein only north of the shoot, where it crosses Maple Gulch.

The Ten Spot, Snoozer, and Tredwell veins contained low-grade shipping ore with magnetite, specularite, chalcopyrite, and gold, but in the Senator property none of this material was extracted at a profit.

--From Bulletin 782
Ore Deposits of Jerome &
Bradshaw Mountain Quadrangles,
by Lindgren.

SENATOR MINE

File

The old and well-known Senator Mine, situated on the headwaters of the Hassayampa, has been the property of the Phelps Dodge interests since 1889. It was worked from 1883 to 1899. It is principally a gold property consisting of several parallel veins striking north-northeast. Among them are the Senator vein, carrying lead-zinc ores only and containing mostly gold with some silver; the Ten Spot vein, which carries mainly pyrite; the Tredwell vein, carrying heavy pyrite with specularite and gold; and the Snoozer vein, carrying copper ores with specularite. The shipping ore yielded \$30 in gold and silver to the ton. There is a small mill on the property in which the ore from the Senator shoot was worked. The total production is said to be about \$530,000 net, almost all of which came from the Senator ore shoot. Of this about \$330,000 was extracted since 1890.

Most of the veins crop out near the loop in the wagon road, which here ascends the Mount Union pass (altitude 7,188 feet) and also crop out on the ridge a short distance to the west. Here the main shaft was sunk 635 feet deep to the tunnel level (altitude about 6,500 feet). Below this tunnel, which extends eastward to the Cash mine, the shaft is continued for 200 feet, giving a total depth of 835 feet.

The geology is complicated. There are lenses of diorite, amphilbolite, and Yavapai conglomeratic schist, all traversed by dikes of rhyolite porphyry. One dike of this kind, about 40 feet wide, cuts the Yavapai schist along the road a short distance below the Mount Union pass. A vein striking No. 40° E. from which a shipment was recently made crosses near the same place. It is probably the Ten Spot vein. The ore here, as exposed in a tunnel of quartose ore, carries pyrite, chalcopyrite, and specularite.

According to information kindly given by Mr. J. S. Douglas, who operated the mine between 1891 and 1893 and from 1896 to

1899, there was only one profitable ore shoot in the Senator properties, that of the Senator vein. This shoot starts just to the west of the old Senator shaft on top of the hill and pitches southward until on the tunnel level, 600 feet below the collar of the shaft, the center of the shoot is 450 feet south of the shaft. The shoot had a stope length of 250 feet and averaged 18 inches in width. The Senator shoot carried milling ore with free gold associated with quartz, pyrite, galena, and zinc blende. Magnetite occurred in the vein only north of the shoot, where it crosses Maple Gulch.

The Ten Spot, Snoozer, and Tredwell veins contained low-grade shipping ore with magnetite, specularite, chalcopyrite, and gold, but in the Senator property none of this material was extracted at a profit.

--From Bulletin 782
Ore Deposits of Jerome &
Bradshaw Mountain Quadrangles,
by Lindgren.

SENATOR MINE

The old and well-known Senator Mine, situated on the headwaters of the Hassayampa, has been the property of the Phelps Dodge interests since 1889. It was worked from 1883 to 1899. It is principally a gold property consisting of several parallel veins striking north-northeast. Among them are the Senator vein, carrying lead-zinc ores only and containing mostly gold with some silver; the Ten Spot vein, which carries mainly pyrite; the Tredwell vein, carrying heavy pyrite with specularite and gold; and the Snoozer vein, carrying copper ores with specularite. The shipping ore yielded \$30 in gold and silver to the ton. There is a small mill on the property in which the ore from the Senator shoot was worked. The total production is said to be about \$530,000 net, almost all of which came from the Senator ore shoot. Of this about \$330,000 was extracted since 1890.

Most of the veins crop out near the loop in the wagon road, which here ascends the Mount Union pass (altitude 7,188 feet) and also crop out on the ridge a short distance to the west. Here the main shaft was sunk 635 feet deep to the tunnel level (altitude about 6,500 feet). Below this tunnel, which extends eastward to the Cash mine, the shaft is continued for 200 feet, giving a total depth of 835 feet.

The geology is complicated. There are lenses of diorite, amphibolite, and Yavapai conglomeratic schist, all traversed by dikes of rhyolite porphyry. One dike of this kind, about 40 feet wide, cuts the Yavapai schist along the road a short distance below the Mount Union pass. A vein striking No. 40° E. from which a shipment was recently made crosses near the same place. It is probably the Ten Spot vein. The ore here, as exposed in a tunnel of quartose ore, carries pyrite, chalcopyrite, and specularite.

According to information kindly given by Mr. J. S. Douglas, who operated the mine between 1891 and 1893 and from 1896 to

1899, there was only one profitable ore shoot in the Senator properties, that of the Senator vein. This shoot starts just to the west of the old Senator shaft on top of the hill and pitches southward until on the tunnel level, 600 feet below the collar of the shaft, the center of the shoot is 450 feet south of the shaft. The shoot had a stope length of 250 feet and averaged 18 inches in width. The Senator shoot carried milling ore with free gold associated with quartz, pyrite, galena, and zinc blende. Magnetite occurred in the vein only north of the shoot, where it crosses Maple Gulch.

The Ten Spot, Snoozer, and Tredwell veins contained low-grade shipping ore with magnetite, specularite, chalcopyrite, and gold, but in the Senator property none of this material was extracted at a profit.

--From Bulletin 782
Ore Deposits of Jerome &
Bradshaw Mountain Quadrangles,
by Lindgren.