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# PROJECT DESCRIPTION *

☐ Check if preliminary and expanded report is being prepared.

Date
Examined by
USGS or NTS Map Coverage

1. PROJECT NAME Silver King Mine COMMODITY Ag-Pb-~~Zn~~-Cu
2. LOCATION: General Statement about 3mi. N. of Superior, AZ
   Lat. Long.
   State or Province Arizona County Pinal
   Accessibility Km/Mi From Via(Road,Rail,Air
3. LAND STATUS: (Claims: Name, Number, Size,etc.) 64 unpatented claims, 3 patents
   Due Dates
4. REFERRED BY Maynard Ayler to George Dexter DATE 11/82
5. OWNERSHIP: (Names & Addresses of Owners, Interests held)
   presently leased to a limited partnership
6. GENERAL GEOLOGY: (Type of Deposit, Geological Setting, etc.)
   Fissure vein zone and some stockwork veinlets in altered porphyry, shaft to 900 ft. Mostly mined out from surface to 400' level, some introduced quartz. Argentite galena primary ore mineral. Much ore because of secondary enrichment.
7. TARGET More ore as was mined in past production, possibility of >400,000 Tons of 7½ oz/T Ag, 1½% Pb
8. MINERALIZATION, ASSAYS, RESERVES Has produced > 6,000,000 ozs. of Ag
9. POTENTIAL Good
10. WORK DONE ON PROPERTY TO DATE: (History of DEVELOPMENT) 900 ft. shaft, extensive workings above 500 ft. level, some open pits. While property under current lease have spent about $1.2 x10⁶
11. OWNER'S PROPOSED TERMS: (if known)
    Interest to be Acquired >50 % Subject to Buyout of $3.0x10⁶
    Cash Payments Totalling$ Over Period Of Years
    Work Expenditures Totalling$ Over Period Of Years
12. INITIAL COMMITMENT (If Any): Cash$ by
    Work Expenditure$ by
    Other Current prop. payments are $4000/mo, current expenses of ~$8,000/mo, 6% NSR, 10 year buyout
13. WORK PROGRAM: Nature & Extent of Work, Objective, Cost, Time Required
    Need to detail map, sample, rehab. old workings, do core drilling
14. IF SUCCESSFUL, FOLLOW-UP PROGRAM
15. TIMING
16. ECONOMIC APPRAISAL (if appropriate)
17. RECOMMENDATIONS/ADDITIONAL COMMENTS:

This property has some potential but the deal is tough and the people you are working with could also be tough. So far have spent much money with nothing to show for it. Should probably investigate and see if they will drop out.

* Use additional pages where more space is needed.

WHITE COPY–DENVER YELLOW COPY–DISTRICT OFFICE PINK COPY–GEOLOGIST

on this level is weaker than on those above. The wall rocks are highly silicified, and the vein contains minor amounts of pyrite, chalcopyrite, and sphalerite. Mineralization is strongest where both walls are diabase. Westward the vein feathers out and becomes indefinite; at a point 900 feet west of the shaft it could not be located.

### Silver King Mine

*Operations and production:* The Silver King mine, about 2 miles north of Superior, was worked almost exclusively for silver, but its ores contained also important quantities of base metals which were not recovered. Under present-day metallurgy, those ores might have yielded substantial amounts of zinc, lead, and copper.

Production of the Silver King mine has been reported[16] as follows:

| Years | Ounces silver | Value |
|---|---|---|
| 1875-89 | 5,943,157 | $6,526,094 |
| 1918-28 | 232,764 | 252,674 |
| Total | 6,175,921 | $6,778,768 |

During 1876-96 the mine was operated by Silver King Mining Company which paid $1,950,000 in dividends to the end of 1887. Most of the ore was milled at Pinal, on Queen Creek at the base of Picket Post Mountain. In 1883 this mill treated about 50 tons per day, with a concentration ratio of nearly 2 to 1. The average grade of the heads was $61.08 in silver, and the reported extraction was 92.31 per cent. In addition to silver, the concentrates assayed 21.5 per cent lead and 18 per cent zinc.[17]

As stated by Ransome,[18]

> Some idea of the character of the ore during a rather late stage in the activity of the mine is obtainable from the company's report for 1887, wherein it is stated that Mill No. 1, employing wet crushing and concentration, treated 2,699 tons of ore with an average content of 21.08 ounces of silver to the ton. The product was 577.813 tons of first-class concentrates averaging 83.4135 ounces of silver to the ton and 31 per cent of lead. Of the total silver contents, 53.95 per cent was native silver. In addition the mill turned out 1,261 tons of second-class concentrates carrying 31.77 ounces of silver to the ton, chiefly combined in zinc blende and galena. Mill No. 2, in which chloridizing, roasting, and pan amalgamation were employed, treated 8,840 tons of first-class ore, 1,914 tons of second-class concentrates, and 3,875 tons of old tailings.

In 1916 the property was acquired by Silver King of Arizona Mining Company. The old shaft, 987 feet deep, was unwatered, and a new shaft was sunk to a depth of 615 feet. A small flotation mill treated 12,546 tons of ore and dump material during 1916-20. Its concentrates contained 1,000 to 1,980 ounces of silver per ton, 20 per cent lead, and 7 to 8 per cent copper. Subsequently

[16] Ariz. Bur. Mines Bull. 151, p. 144.
[17] Ariz. Bur. Mines Bull. 151, p. 142.
[18] F. L. Ransome, Copper deposits near Superior, Arizona: U.S. Geol. Survey Bull. 540, pp. 139-58 (1914).



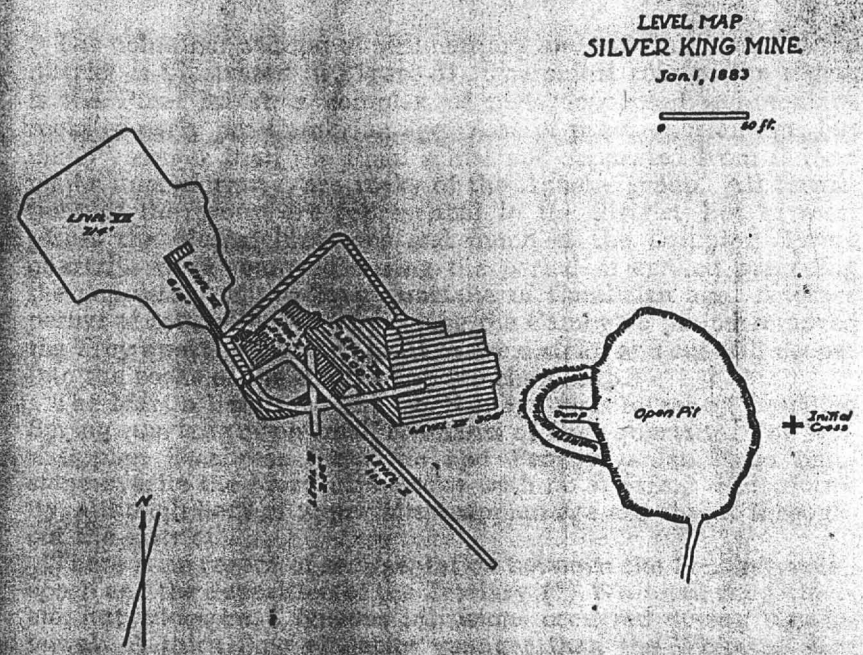


Figure 30.—Map of Silver King mine levels (after Blake).

the property was acquired by Bat Gays who has carried on small-scale operations. Several shipments have been made from the dumps. During 1945-46 some of the area was prospected by diamond drilling.

*Geology:* The Silver King porphyry, in which was developed the Silver King ore body, crops out as an irregular mass approximately 2,500 feet long from east to west by 1,200 feet wide. It was intruded into the southeastern part of a much larger stock of quartz diorite.

The pit marking the former outcrop of the ore body shows brecciated quartz and porphyry. Extending N. 60°-70° E. from the breccia mass is a steeply northwestward-dipping fissure which was mineralized for a few hundred feet along its strike. Evidence for other structural control of the breccia mass is not readily apparent; alluvium and mine dumps conceal most of the area north, south, and west of the pit, and the mine workings are not accessible.

*Ore body:* Blake published an original description of the Silver King ore body and a map (Fig. 30) of the workings as of 1883.[19] Ransome gave a summary of Blake's report together with data collected by himself.[20] Quoting from Ransome,

> The ore body formerly cropped out at the top of a little hill about 75 feet high, composed of much-altered yellowish-brown to greenish-

[19] W. P. Blake, The Silver King mine of Arizona. New Haven (1883).
[20] F. L. Ransome, work cited, pp. 156-8.

gray porphyry. Stoping was carried to the surface, and a craterlike pit from 100 to 125 feet in diameter marks the site of the former outcrop. Here and there in the porphyry walls of the pit may be found small veinlets of rich, partly oxidized silver ore, but so far as can be seen from the surface, the ore body was not part of a vein, and there is nothing to suggest that it was determined by the intersection of two or more persistent fissures. It apparently was a compact plexus of veinlets inclosed in comparatively unfissured porphyry.

Blake's description and the maps of underground workings show that the ore body was a stockwork about 130 feet in maximum diameter, with a general dip of 70° west. The stockwork was disposed about an irregular core or axis of milk-white quartz, containing some bunches of rich ore but as a whole comparatively barren. The ore consisted of altered porphyry traversed in all directions by innumerable veinlets carrying stromeyerite, tetrahedrite, galena, sphalerite, chalcopyrite, and pyrite in a gangue of quartz with some barite. Blake makes the interesting observation that stromeyerite and highly argentiferous tetrahedrite with more or less argentite were the most important constituents of the ore on the upper levels, whereas argentiferous sphalerite had become the principal ore mineral on the seventh level.

Other minerals listed by Blake were native silver, native copper, cuprite, oxidized lead minerals, bornite, calcite, and siderite.

The paragenesis of the minerals has been described in detail by Galbraith,[21] who noted that sphalerite was the most abundant sulfide mineral, and galena the next most abundant.

Ransome's[22] conclusion was:

Various explanations are given locally for the failure of this interesting deposit below the 800-foot level, some stating that the ore body was faulted, some that the ore changed in character and grade. The latter is probably true. The worked-out part of the deposit appears to have been a striking example of deep downward enrichment. If so, the time may come when the old mine will be reopened and its low-grade ore utilized.

[21]Ariz. Bur. Mines Bull. 151, pp. 146-154, 2 pls.
[22]F. L. Ransome, work cited, p. 158.

# CHAPTER VIII.—LEAD AND ZINC DEPOSITS IN THE GLOBE-MIAMI DISTRICT, ARIZONA[1]

By Nels P. Peterson[2]

## INTRODUCTION

The Globe-Miami district is in the northern foothills of the Pinal Mountains about 90 miles by road east of Phoenix, Arizona. It is almost entirely within the Inspiration and Globe quadrangles as mapped by the U. S. Geological Survey in 1945. The topography of the district is fairly rugged, the altitude ranging from 2,400 feet at Miami to 5,060 feet on Needle Mountain near the southern edge of the Inspiration quadrangle.

[1]Published by permission of the Director, U. S. Geological Survey.
[2]Geologist, U. S. Geological Survey.



The columnar section of sedimentary and volcanic rocks in the district is illustrated in Figure 31. The oldest rock of the region is the Pinal schist, a complex of metamorphosed sedimentary rocks of early pre-Cambrian age. Also of pre-Cambrian age, but much younger than the Pinal schist and separated from it by a major unconformity, are rocks of the Apache group. All formations of the group are represented in the district, but in most places the Mescal limestone and much of the Dripping Spring quartzite were removed during the period of erosion preceding the deposition of the Troy quartzite of Cambrian age. Another period of intense erosion following the Cambrian period removed the Troy quartzite in most parts of the district and cut still deeper into the rocks of the underlying Apache group.

The Martin limestone of Devonian age rests either on Dripping Spring quartzite or on small remnants of Troy quartzite. The Mississippian Escabrosa limestone and Pennsylvanian Naco limestone overlie the Martin limestone with no apparent disconformity, although beds of upper Mississippian age are absent throughout the district.

There is no record of sedimentation between the Pennsylvanian epoch and the deposition of the Tertiary (?) Whitetail conglomerate, but widespread igneous intrusions occurred during this interval. A thick flow of dacite younger than the Whitetail conglomerate covered the entire region. In later Tertiary and Quaternary time the Gila conglomerate was deposited as great coalescing alluvial fans and stream deposits filling valleys and spreading more thinly over much of the higher parts of the region.

All the rocks of the district are cut by a complex pattern of faults which Ransome[3] aptly described as "regional brecciation." The deformation of the rocks by faulting appears to have been continuous from pre-Cambrian time until after deposition of the Gila conglomerate when many of the largest displacements of the rocks occurred.

Diabase magma in great volumes was intruded into the earlier rocks probably during Mesozoic time. The diabase forced its way between beds of sedimentary rock as sills and occupied many of the faults. Great blocks of strata, particularly those of pre-Cambrian and Cambrian age, were pushed apart and in places completely enveloped in diabase.

Several other intrusions of igneous rocks, ranging from granodiorite to quartz monzonite, took place probably during late Mesozoic and early Tertiary time. The latest of these is the mass of Schultze granite, which underlies the southern part of the district, and numerous smaller bodies of granite porphyry which may be offshoots of the main Schultze granite mass. The mineralization of the district is most nearly contemporaneous with the Schultze granite and the granite porphyry and is probably genetically related to them.

[3]Ransome, F. L., Geology of the Globe copper district, Arizona: U. S. Geol. Survey Prof. Paper 12, p. 99, 1903.

11/29 talk w/ George

= Maynard Ayler -

- worked w/ George at USBM
- geologist
- taught at CSM
- Knows Colo. geolo.
- optimist

- prop. in Arizona
- overthrust flt - workings

400,000 7½ oz Ag -

9 oz oAg -

various level

"much" potential

- land position unclear

(303) 234-1927

maybe have KME check out area

Finder's Fee —

no front end — only benefit if we go
profitable mine

30% net profits

DNR reports

present leaseholder - promoter
w/ limited partnership
17 partners
general partners getting tax advantages

1.2 M spent ~ prop to date
have generated some data
have talked w/ Phelps Dodge

may float stock to get addit. funds

retained interest of 50% or less
subject to total buyout

- maybe pay only prop. payments ($4000/mo).

---

This prob. is the Silver King Mine
~2 mi N. of Superior, p96-97, AZBM Bul 156
AZ Pb-Zn deposits

Mining Consultant - Maynard Ayler

last 1½ yrs. - account for client (individual)
- checked out properties
- submittal too big for him, good size potential
- finders fee - 3% finders fee - carried working interest
- near Florence - ½ way between Florence and Miami
road up wash - mine camp near mine
1880's - lots of engineering reports
- thinks is related to overthrust fault
3 flts - 1 in mine
2 below show stope miner.
main orebody - extensive workings, lots of x-cuts, some drillings
zone 60' wide (breccia)
dip to W 45°
bottom is 500' below surface where open pit was mine
proven 400,000 T 7½ oz/T Ag 1½% Pb $CO_3$
400-500' lateral distance

potential is below main mine workings
400 level 4th level shows 7½ oz/T Ag 1½% Pb
500 level 5th level 9½ oz/T Ag 3½% Pb

mined from 2 stopes also
main potential down dip

breccia is ~≤4-5 in, not qtz cemented but stands well - 1.
- late stage barite - flourite

$H_2O$ level 400-500' below 500 level

Test downward continu. of ore body w/ 600-700' holes

1500' adit to under ore body

- 64 claims - 3 patented

large part of area is silic. - along the flts

No Au assays as yet for some reason

- property owned by old sisters
present lease holder has purchase price of 3M
paid 280K
4000K payout / no payment
6% [redacted] advance payment on prod. applies to purchase price
1 March 84 - $150,000 pay. -

10 year payments to 1992 $8,000/mo expenses

Map Quickly Quick Drilling

for present leaseholders need to pay 4-6 mo option.