

which is the most persistent vein in the basin, contains an ore shoot  $2\frac{1}{2}$  to 9 feet thick, and over 200 feet in stope lengths. Parts of the ore shoot contain 40 percent lead and 52 ounces per ton in silver. Huntting (1956, p. 207) reports the average metal content of the ore as follows: 4.7 percent lead, 4.8 percent zinc, 0.35 percent copper, 1.78 percent arsenic, 0.062 ounce per ton in gold, and 9.8 ounces per ton in silver.

Principal Silver Deposits  
of Stehekin District  
(Horseshoe Basin Area)

Doubtful

Location: SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 31, T. 35 N.,  
R. 14 E.

Development: 30- and 100-foot adits.

Geology: 16- to 24-inch quartz vein in gneiss. Vein contains a 4-inch band of sulfides, which assays 87.5 to 100 ozs. silver per ton and 54 to 62 percent lead.

Production: None.

Reference: Huntting, 1956, p. 206.

Franklin

Location: NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 31, T. 35 N.,  
R. 14 E.

Development: Unknown.

Geology: 4-foot-thick quartz vein, select samples of which assayed 89 to 100 ozs. silver per ton and 42 to 54 percent lead.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 206.

Homestake and Star

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 33, T. 35 N.,  
R. 14 E.

Development: 30-foot open cut.

Geology: 4-foot-wide ore body, select samples of which assayed 112 to 400 ozs. silver per ton and 1 oz. gold.

Ore minerals: Unknown.

Production: None.

Reference: Huntting, 1956, p. 285.

Horseshoe Basin

Location: N $\frac{1}{2}$  sec. 29 and NE $\frac{1}{4}$  sec. 32,  
T. 35 N., R. 14 E.

Development: 1,000-foot crosscut adit with  
1,000 feet of drifts.

Geology: Persistent shear zone in granodiorite can be followed for 1,060 feet along strike. Ore shoot 3 feet wide and 330 feet long averages 9.8 ozs. silver, 0.062 oz. gold, 4.7 percent lead, 4.8 percent zinc, 0.35 percent copper, and 1.78 percent arsenic.

Ore minerals: Galena, sphalerite, chalcopyrite, arsenopyrite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 206.

Isoletta

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 5, T. 34 N.,  
R. 14 E.

Development: 215-foot adit.

Geology: Unknown. Select samples assayed  
300 to 700 ozs. silver per ton.

Ore minerals: Unknown. Probably argentiferous galena.

Production: 1 ton in the early 1900's.

Reference: Huntting, 1956, p. 286.

Quien Sabe

Location: SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 31, T. 35 N.,  
R. 14 E.

Development: 250-foot drift.

Geology: Quartz vein, select samples of  
which assayed 103 to 204 ozs. silver  
and 0.1 oz. gold.

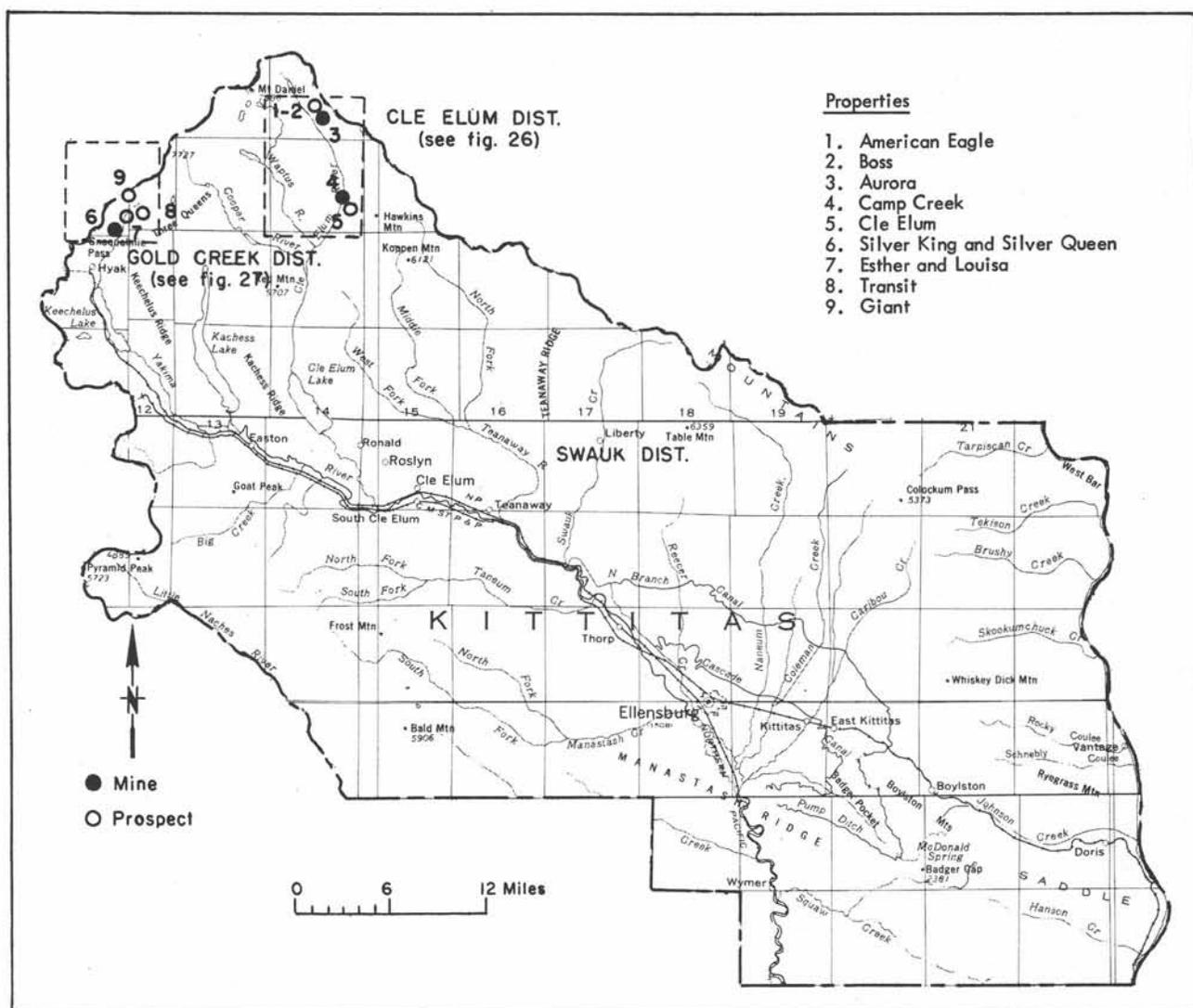
Ore minerals: Galena, chalcopyrite, arseno-  
pyrite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 207.

KITTITAS COUNTY

Silver has been reported at many metal occur-  
rences in Kittitas County, but the county has never  
had a major silver-producing mine. From 1884 to

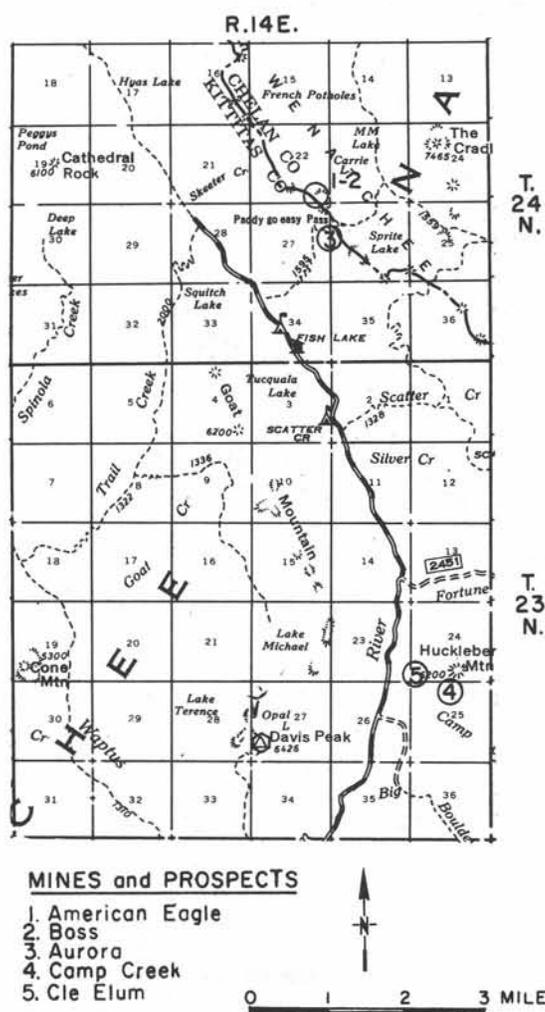


Bose from U.S.G.S. State of Washington  
1:500,000, 1962

FIGURE 25.—Silver deposits of Kittitas County.

1970, mines of the county produced around 25,000 ounces of silver, almost all of which came from the refining of placer gold that was mined in the Swauk district. Lode gold mines in the Swauk district also produced silver, but the production was minor. In the Cle Elum and Gold Creek districts, silver was a byproduct of gold, copper, and lead mining operations; however, the combined metal production from mines of these districts was less than \$10,000. Currently no lode mines are operating in the county, and only small-scale placer mining is taking place in the Swauk district.

Although many mines in the Cle Elum and Gold Creek districts report the presence of silver, only at a few properties does the silver content of the veins exceed 10 ounces per ton. Most silver deposits appear to be small and consist of sparsely metallized shear zones and quartz veins in andesite and granitic rocks. The andesite is part of the Keechelus Andesite (Oligocene and Eocene), whereas the granitic rocks are part of the Mount Stuart batholith (Cretaceous). Common ore minerals of metallized shear zones and quartz veins are pyrite, pyrrhotite, arsenopyrite, chalcopyrite, galena, and sphalerite. Free gold, pyrargyrite, and tetrahedrite are rarely present.



CLE ELUM DISTRICT

Principal Silver Deposits

American Eagle

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 22, T. 24 N., R. 14 E.

Development: Unknown.

Geology: 6-foot vein with 1½ feet of ore that assays up to 1.5 ozs. gold and 15 ozs. silver per ton.

Ore minerals: Unknown.

Production: None.

Reference: Bethune, 1892, p. 133.

Aurora

Location: Secs. 26 and 27, T. 24 N., R. 14 E.

Development: 2 shafts, each over 200 feet deep.

Geology: 4-foot-thick quartz vein. Select samples of vein assayed 1 oz. gold,

FIGURE 26.—Index map of the Cle Elum district.

14 ozs. silver, 6 percent copper, and 28 percent arsenic.

Ore minerals: Free gold and arsenopyrite.

Production: Minor.

Reference: Huntting, 1956, p. 130.

Boss

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 22, T. 24 N., R. 14 E.

Development: Unknown.

Geology: 6-foot thick vein with 1 $\frac{1}{2}$  feet of ore that assays 1.5 ozs. gold and 20 ozs. silver per ton.

Ore minerals: Unknown.

Production: None.

Reference: Bethune, 1892, p. 134.

Camp Creek

Location: Near N $\frac{1}{4}$  cor. sec. 25, T. 23 N., R. 14 E.

Development: 40-, 60-, and 160-foot adits.

Geology: Narrow quartz veins in greenstone. Ore from veins carried 42 ozs. silver and 0.14 oz. gold per ton.

Ore minerals: Galena, chalcopyrite, sphalerite, and pyrite.

Production: 15 tons.

Reference: Huntting, 1956, p. 298.

Cle Elum

Location: Near SW. cor. sec. 24, T. 23 N., R. 14 E.

Development: 700-foot inclined shaft.

Geology: 4-foot vein, select samples of which assay up to 55 ozs. silver and 0.2 oz. gold.

Ore minerals: Pyrite.

Production: None.

Reference: Huntting, 1965, p. 298.

GOLD CREEK DISTRICT

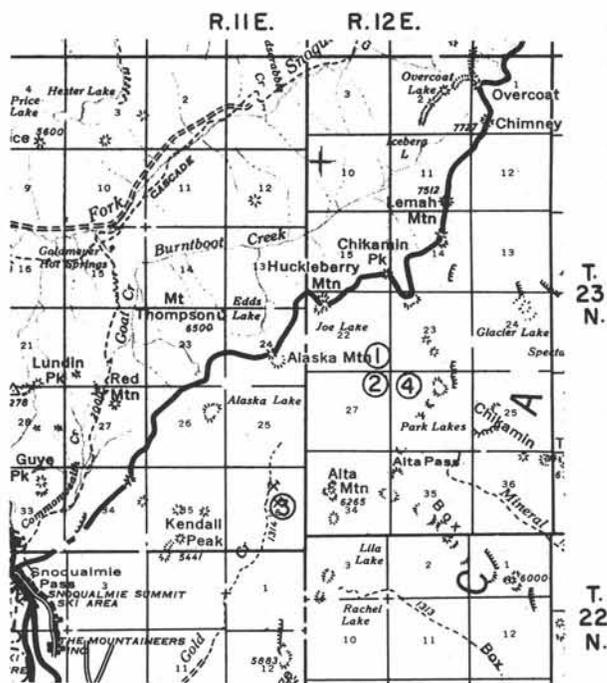
Principal Silver Deposits of Gold Creek District

Esther and Louisa

Location: N $\frac{1}{2}$ NE $\frac{1}{4}$  sec. 27, T. 23 N., R. 12 E.

Development: 2 adits.

Geology: Quartz vein in andesite. Vein



MINES and PROSPECTS

1. Giant
2. Esther and Louisa
3. Silver King and Silver Queen
4. Transit

FIGURE 27.—Index map of the Gold Creek district.

sparsely metallized but high-grade ore assayed 240 ozs. silver and 0.5 oz. gold per ton.

Ore minerals: Pyrrargyrite, galena, sphalerite, and pyrite.

Production: Minor production in 1896.

Reference: Huntting, 1956, p. 298.

### Giant

Location: SE $\frac{1}{4}$  sec. 22, T. 23 N., R. 12 E.

Development: 500-foot adit with short drifts and a 100-foot adit with a winze.

Geology:  $\frac{1}{2}$ - to 6-foot-wide metallized shear zones in granitic rocks. Ore minerals make up less than 5 percent of the shear zones, and assays show up to 14.96 ozs. silver, 0.14 oz. gold, 0.08 percent copper, and 0.16 percent lead. Select dump samples assayed 12.40 ozs. silver, 2.40 oz. gold, 0.3 percent copper, and 2.1 percent lead.

Ore minerals: Galena, chalcopyrite, and pyrite.

Production: Unknown.

Reference: Gualtieri and others, 1973, p. 64-66.

### Silver King and Silver Queen

Location: Near center sec. 36, T. 23 N., R. 11 E.

Development: Caved adit and inclined shaft.

Geology: Quartz vein in andesite assays up to 22.4 ozs. silver, 0.07 oz. gold, and 0.063 percent copper.

Ore minerals: Unknown.

Production: None.

Reference: Gualtieri and others, 1973, p. 68-69.

### Transit

Location: NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 26, T. 23 N., R. 12 E.

Development: 100-foot adit and a 60-foot drift with a winze.

Geology: Narrow metallized shear zones in andesite. Sample from the shear zone assayed 10.70 ozs. silver, 0.08 oz. gold, and 0.56 percent copper.

Ore minerals: Pyrite.

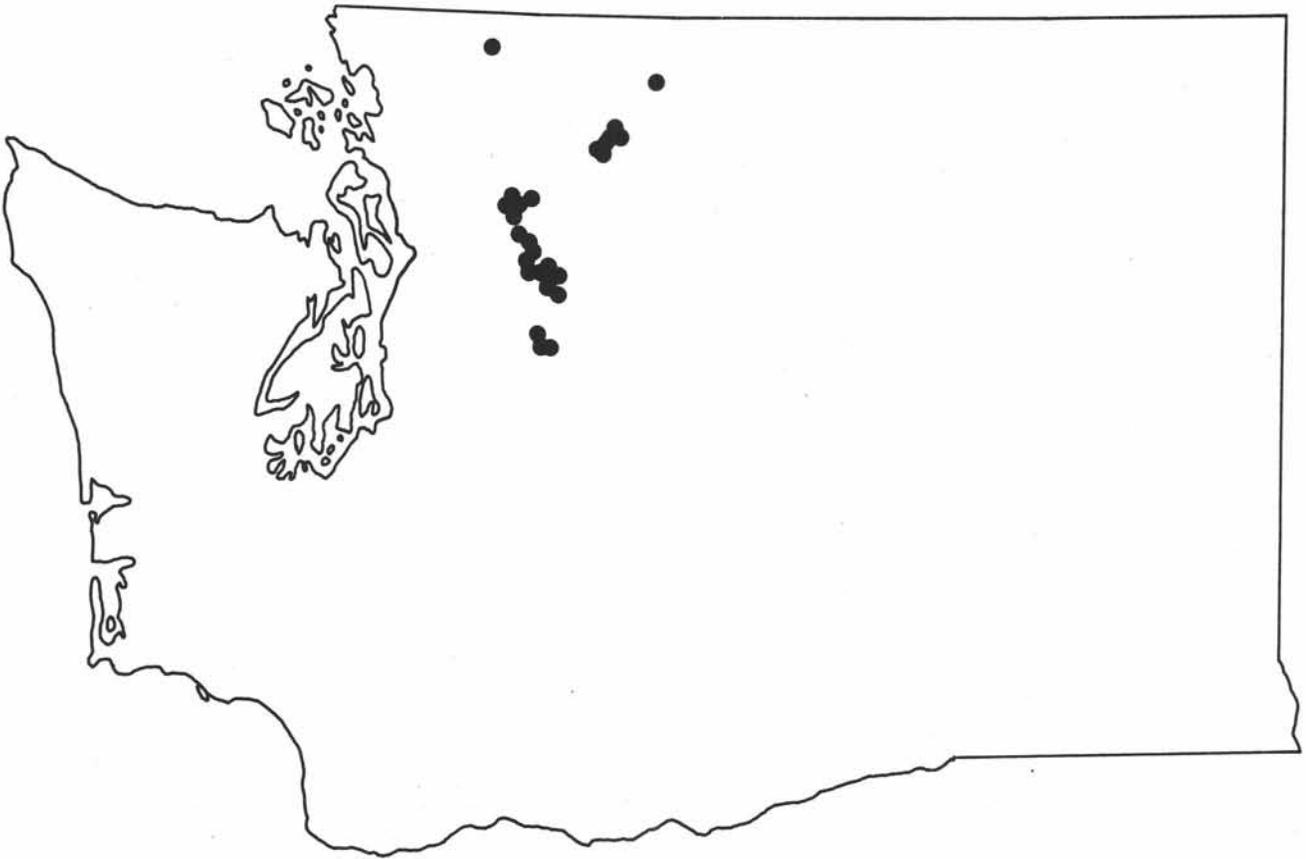
Production: None.

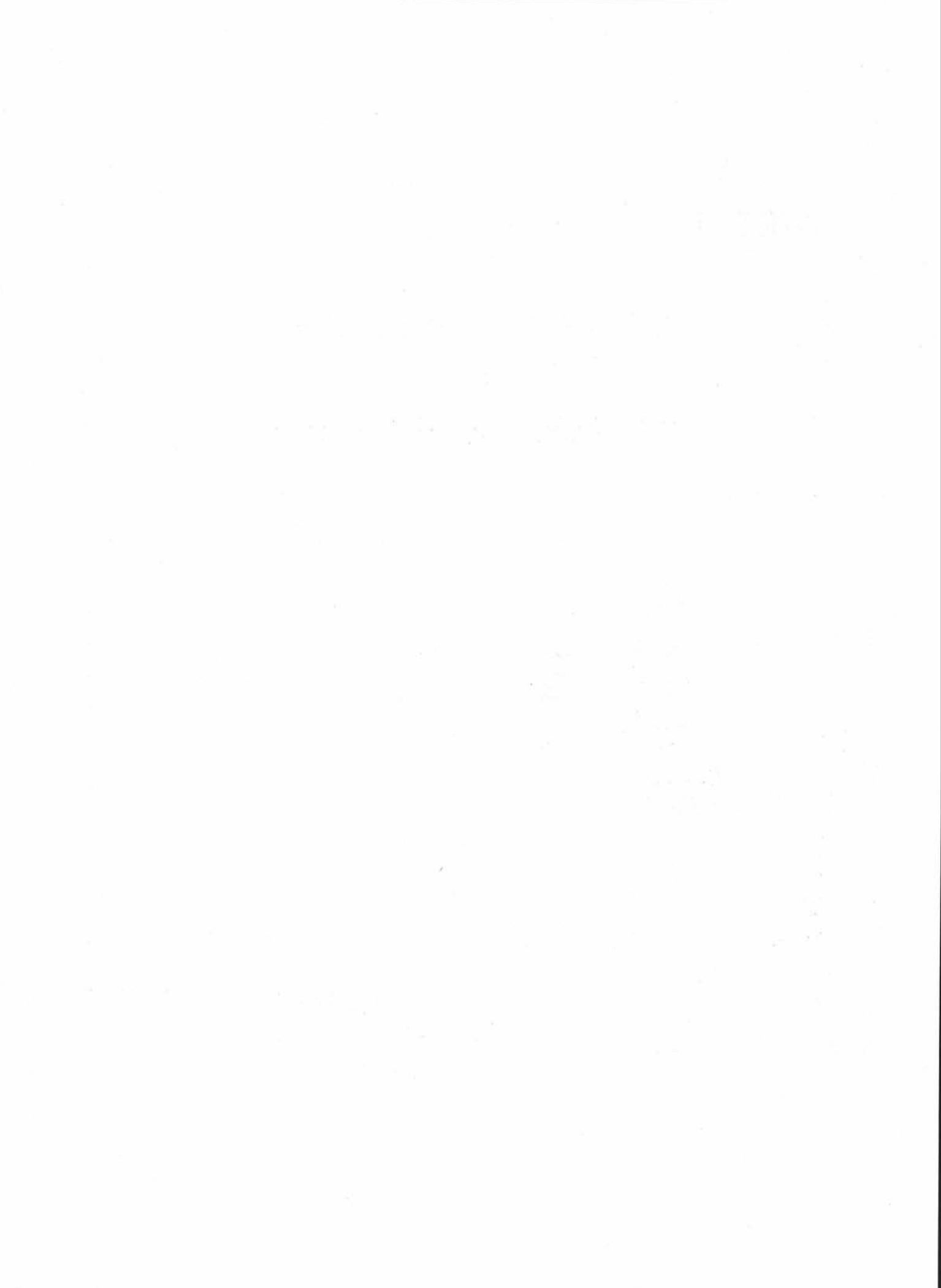
Reference: Gualtieri and others, 1973, p. 66-67.



PART III

SILVER OCCURRENCES  
of  
WESTERN WASHINGTON





## CASCADE MOUNTAINS

### INTRODUCTION

No major silver districts are present in western Washington; from 1890 through 1969, western counties produced only 2,255,585 ounces of silver valued at around \$1,888,745. From 1903 through 1956, Snohomish County produced 31,099 ounces. The combined production of Skagit, Pierce, Lewis, and Skamania Counties is only around 3,000 ounces. Silver from Snohomish County was produced as a byproduct of the gold and copper mining operations in the Monte Cristo and Index districts; silver from Whatcom County was mainly a byproduct of gold mining operations in the Mount Baker district; in King County silver was a byproduct of gold mining operations in the Miller River district.

Currently (1975), no metal mines are operating in western Washington. However, in recent years exploration has been undertaken on several large low-grade copper deposits. If placed into production, appreciable amounts of silver would be produced as a byproduct of copper mining operations.

### PHYSIOGRAPHY

The principal silver deposits of western Washington are in the parts of Whatcom, Skagit, Snohomish, and King Counties that fall within the north half of the Cascade Mountains physiographic province. This is an area of extremely rugged terrain resulting from

alpine glaciation. Throughout much of the area, serrated rocky ridges and rocky pinnacles of the alpine type of topography dominate the landscape. Much of the terrain has elevations in excess of 6,000 feet, which is the general timberline. Above timberline, many small lakes occupy glacial cirques, and along rocky ridges glacial tarns are common. Above 7,000 feet elevation, snowfields and glaciers may be found throughout the year. Mount Baker (10,778 feet) and Glacier Peak (10,436 feet), which are Pleistocene volcanoes, are the highest mountains in the Northern Cascades. Numerous streams occur throughout the region and many of them occupy deep, glaciated valleys. Major rivers include the Snoqualmie, Snohomish, Skykomish, Stillaguamish, Skagit, and Nooksack. Up to 120 inches of rain per year on the western slopes of the Northern Cascades produce thick stands of Douglas fir, western hemlock, and western red cedar. Undergrowth is dense, and consists of alder, willow, maple, salmonberry, blackberry, ferns, and devil's club. Above timberline the forests give way to typical alpine vegetation, consisting of groves of mountain hemlock and alpine fir surrounded by meadows of heather, huckleberry, and blueberry.

### GENERAL GEOLOGY AND MINERALIZATION

The Northern Cascade Mountains are composed of a core of granitic rocks and metamorphosed sedimentary and volcanic rocks, which are flanked by younger sedimentary and volcanic rocks (fig. 6).

The older metamorphosed sedimentary and volcanic rocks consist mainly of pre-Jurassic gneiss, schist, quartzite, phyllite, marble, and greenstone. The post-Jurassic sedimentary rocks consist chiefly of shale, arkose, graywacke, and conglomerate. Post-Jurassic volcanic rocks are mainly andesite, basalt, and rhyolite flows with associated pyroclastic rocks. The volcanic cones of Mount Baker and Glacier Peak are composed of andesite flows and pyroclastic rocks of Pleistocene age; however, ash eruptions from Mount Baker occurred as recently as 1843, and currently (1975) a vent near the top of the mountain is emitting steam and gases. The last major eruption from Glacier Peak was 12,000 years ago.

The granitic rocks, which make up part of the core of the Cascade Mountains, were intruded into the older rocks of the Cascades during Cretaceous and early Tertiary times. Most Cretaceous granitic rocks are from 100 to 120 million years old, whereas the granitic Tertiary intrusive rocks are as young as 14 to 20 million years. The largest granitic masses, which are of batholithic size, are composed mainly of quartz diorite and granodiorite. The smaller granitic masses consist of stocks and plugs of Tertiary age, which vary in composition from granite to quartz diorite. The borders of most granitic intrusive rocks are gradational into the enclosing rocks; however, the borders of some granitic masses contain intrusive breccias.

The rocks of the Cascade Mountains have been tightly folded along north-northwesterly-trending axes. This folding developed early, as is shown by foliation and folding in the older metamorphic rocks, which make up part of the core of the Cascades. The Tertiary rocks of the region have also been folded and faulted, though not to the extent of the older rocks. The northern part of the Cascade Mountains has been uplifted more than the southern part so that the overall structure of the Cascades resembles a south-plunging anticline. The uparching of the Cascades occurred

over a time period of about 6 million years that began in Pliocene time and continued into Pleistocene. Because of the greater uplifting, and subsequent erosion in the north Cascades, many mineral deposits have been exposed. In the south Cascades, where uplifting and erosion has not been as great, great thicknesses of Tertiary volcanic rocks predominate.

Most silver deposits of the Northern Cascades of western Washington are fissure veins or mineralized joints and shear zones that occur in or close to bodies of granitic rocks (see fig. 5). Common host rocks for the deposits include schist, argillite, quartzite, phyllite, granodiorite, diorite, granite, andesite, and porphyry. The veins range from a fraction of an inch to as much as 15 feet in thickness, with the average thickness being around 3 feet. Pinching and swelling of veins is widespread. Common gangue minerals of silver-bearing veins include quartz and calcite that are accompanied by gouge and wallrock fragments. Common ore minerals include pyrite, pyrrhotite, arsenopyrite, chalcopyrite, galena, and sphalerite. Among the less common minerals are tetrahedrite, chalcocite, bornite, molybdenite, stibnite, argentite, pyrargyrite, native silver, and free gold. The bulk of the silver is contained in argentiferous galena and argentic tetrahedrite. Only rarely are silver sulfides and native silver visible in the silver ores. However, ruby silver was reported to be a major mineral at the "45" mine in Snohomish County. Although select samples from some silver deposits contained as much as 600 ounces per ton in silver, the average silver content of the silver veins is only around 6 ounces per ton. Several mines have shipped small amounts of ore that contained 20 to 40 ounces per ton in silver. At the "45" mine the average silver content of ore shipped was 93 ounces per ton, while 300,000 tons of ore mined at Monte Cristo averaged 6 ounces per ton in silver. In western Washington the ground-water level almost coincides with

the surface. In most deposits oxidation of the primary sulfides rarely extends deeper than 10 feet, and secondary enrichment of the silver deposits does not exist.

An exception to the vein-type silver deposit is the silver-bearing breccia at the Great Excelsior mine in Whatcom County. At this property a rather large body of pyritized and silicified breccia in andesite, argillite, and slate contains 3.4 ounces per ton in silver and 0.09 ounce in gold.

### SNOHOMISH COUNTY

Snohomish County leads in the production of silver for western Washington counties; however, almost all the metal was a byproduct of gold and copper mining operations. From 1890 until 1907, gold mines in the county produced the bulk of the silver. After 1907, most silver came from copper-mining operations.

TABLE 23.—Peak production years for silver in Snohomish County<sup>1/</sup>

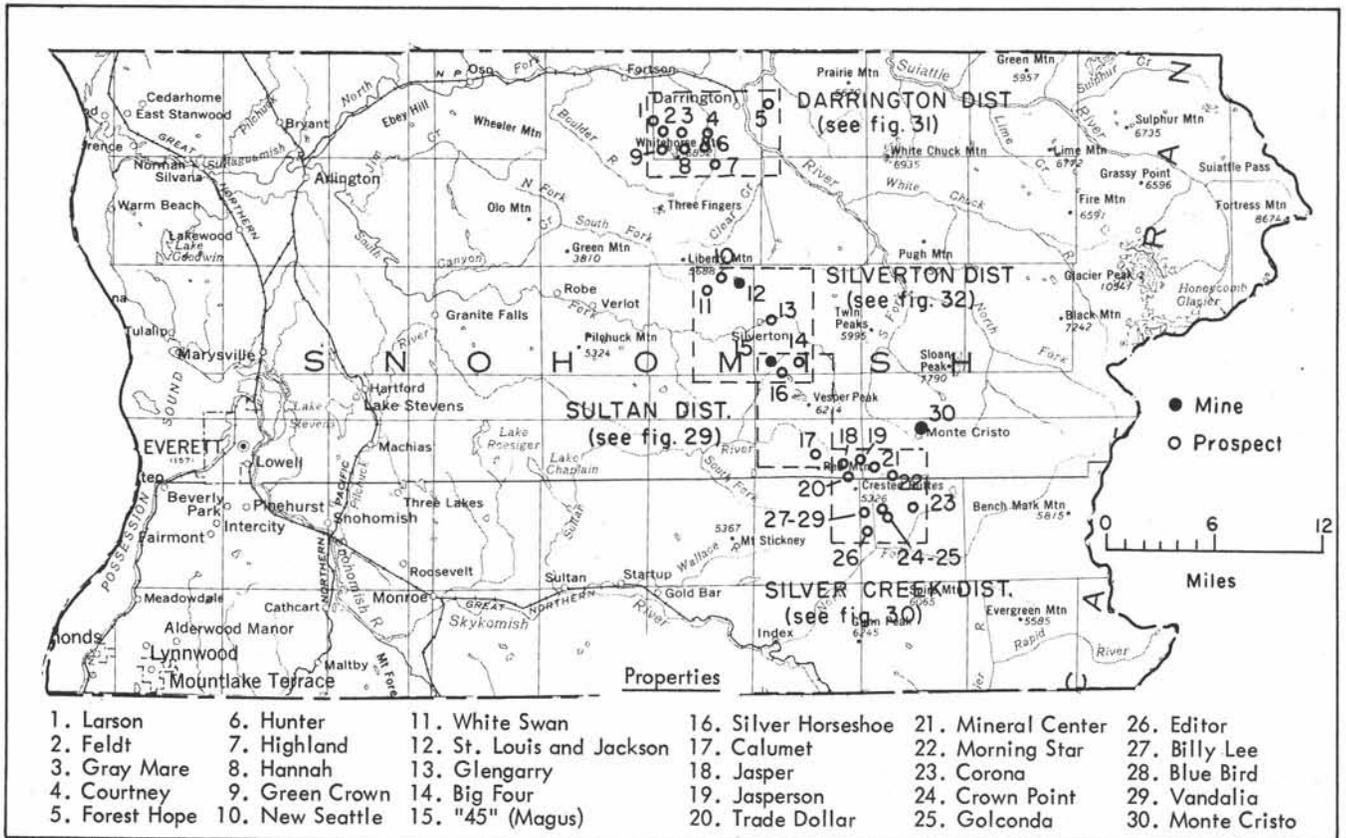
Years	Mines	Total production (ounces)
1890-1907	Monte Cristo Sunset "45"	1,796,200
1916-1920	Sunset	34,000
1923-1930	Sunset	110,000
1939-1943	Iowa Florence Rae Sunset Kromona	60,000

<sup>1/</sup> Production prior to 1903 cannot be substantiated. The figures shown are believed to be realistic and are based upon the most reliable data available.

The production of silver in Snohomish County came to an end in 1969, when the Kromona copper mine in the Sultan district ceased operations. Peak years for the production of silver in Snohomish County are shown in table 23.

Although silver-bearing veins occur in all mining districts of Snohomish County, no district is classed as a silver district, because the value of gold or copper produced in the past has exceeded that of silver. Only one mine in the county can be classed as a silver mine, this being the "45" mine in the Sultan Basin district. From 1896 to 1901, the mine produced 3,185 tons of ore that averaged 93 ounces per ton in silver and 0.74 ounce in gold. The gross value of the ore was around \$100,000.

The richest silver-bearing veins in the county are found in the Sultan Basin, Silver Creek, Silverton, and Darrington districts; however, the deposits appear to be small. The silver occurs mainly in argentiferous galena that for the most part is sparsely disseminated in quartz veins and shear zones. In deposits that have been mined, galena, as well as other ore minerals, occurred in lenses and stringers that were erratically distributed in quartz veins and shear zones. Common sulfides, other than galena, include pyrite, pyrrhotite, chalcopyrite, sphalerite, and arsenopyrite. The less common ore minerals of the veins are bornite, tetrahedrite, scheelite, pyrargyrite, native silver, and molybdenite. Common host rocks for the silver deposits are argillite, slate, and phyllite of possible Triassic-Jurassic age, as well as granodiorite and quartz diorite of mid-Tertiary age. Although select samples from some deposits contain up to 200 ounces per ton in silver, the average silver content of most deposits is less than 5 ounces per ton. The average silver content of ore from the Monte Cristo district was 6 ounces per ton; the gold content of the ore was 0.6 ounce per ton. At the Sunset mine, where the ore averaged around 2.45 percent copper, the average



Base from U.S.G.S. State of Washington  
1:500,000, 1962

FIGURE 28.—Silver deposits of Snohomish County.

silver content was only 0.59 ounce per ton, and the gold content was 0.0057 ounce.

Major Mines

"45" (Magus) Mine

This property, which is at the headwaters of Williamson Creek in the Sultan district, is the only major silver mine in western Washington. As early as 1896, ore containing up to 135 ounces per ton in silver was shipped to the Everett smelter, and by 1901, the mine produced 3,185 tons of ore valued at \$99,255. Ore was shipped that contained 48.4 to 171.4 ounces

per ton in silver, and averaged 93 ounces. Based on partial smelter returns the "45" mine produced around 300,000 ounces of silver, and 2,356 ounces of gold. In the early 1900's, a 12,000-foot-long, single-rope aerial tramway extended from the mine to Silverton.

The main mine workings comprise a lower No. 3 adit (2,400 feet long), an intermediate No. 2 adit (650 feet long), and an upper No. 1 adit (300 feet long). Stopes extend from the upper adit to 120 feet beneath the No. 2 adit, for a vertical distance of 320 feet. As far as is known, the entire production from the mine came from these stopes.

The "45" vein is a quartz calcite fissure vein that occurs in a northwest-trending, steeply dipping shear zone in argillite, quartzite, and schist. The

vein is from 6 inches to 6 feet in width, and appears to be at least 3,000 feet long. It carries pyrite, arsenopyrite, pyrrhotite, scheelite, chalcopyrite, galena, and tetrahedrite. According to early reports ruby silver (pyrargyrite or proustite) was present in the upper workings of the mine, where high-grade ore shoots varying from a few inches to 5 feet in thickness were mined. Assays of veins on the Magus and Hard to Beat claims show 6 to 18 percent arsenic, 4 percent zinc, 4.6 to 6.5 percent lead, 8 to 10.4 ounces of silver, and 0.28 to 0.6 ounce of gold. The bulk of the high-grade silver ore in the mine appears to have been removed; however, ore containing 8 to 10 ounces per ton in silver is still present. The possibility also exists that underdeveloped veins that parallel the "45" vein may contain high-grade ore shoots.

## SULTAN DISTRICT

Principal Silver DepositsCalumet

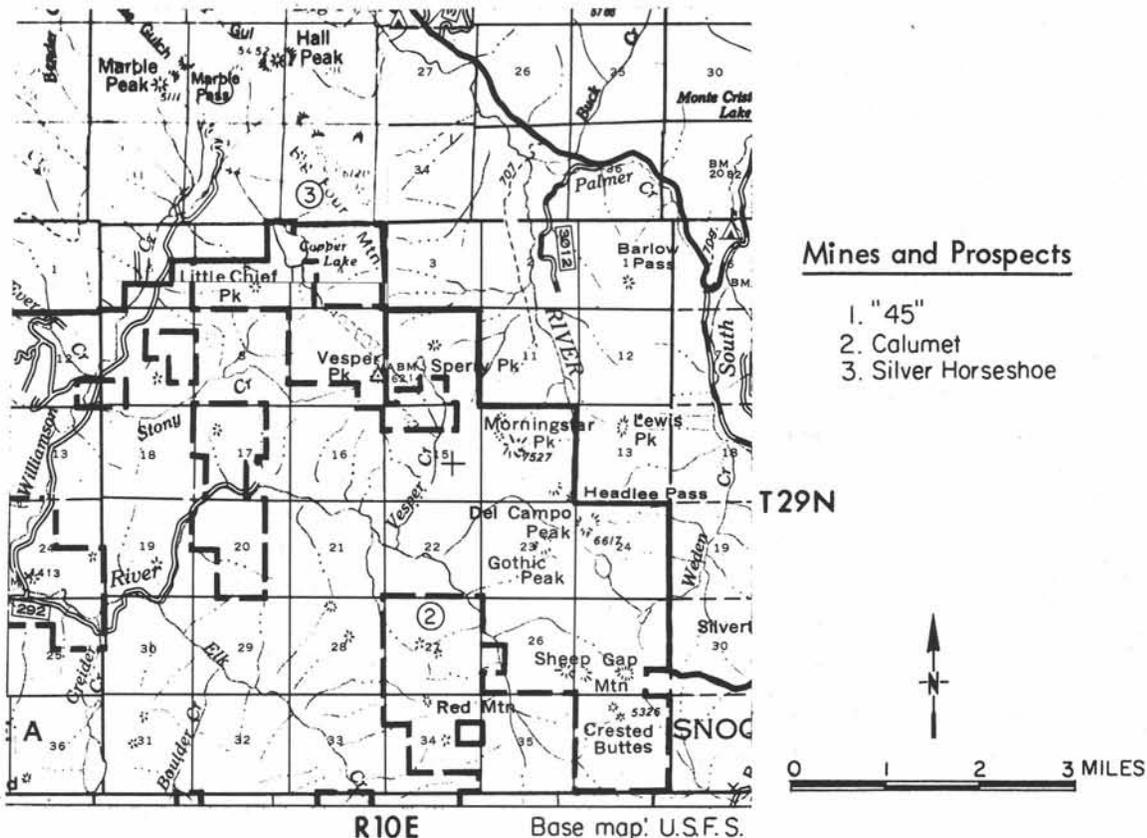
Location: Near center of N $\frac{1}{2}$  sec. 27, T. 29 N., R. 10 E.

Development: 250-foot adit.

Geology:  $\frac{1}{2}$ - to 2-foot thick quartz vein in metamorphic rocks. Vein assays trace to 1.03 oz. gold, 0.56 to 5.33 ozs. silver, 0.48 to 6.5 percent copper, and 0.10 to 4.85 percent zinc.

Ore minerals: Galena, chalcopyrite, sphalerite, pyrite, and pyrrhotite.

Production: None.

Mines and Prospects

1. "45"
2. Calumet
3. Silver Horseshoe

FIGURE 29.—Index map of the Sultan district.

Reference: Huntting, 1956, p. 157.

### "45" (Magus)

Location: S $\frac{1}{2}$  sec. 29, T. 30 N., R. 10 E.

Development: Over 4,000 feet of underground workings, and several large stopes. 300-, 700-, and 2,400-foot adits have developed the deposit over a vertical distance of 350 feet.

Geology: Metallized shear zones in schist, argillite, and quartzite. Main shear zone averages 24 inches in width, and appears to be at least 3,000 feet long. High grade ore contained up to 171 ounces per ton in silver. Average ore contained 93 ounces per ton in silver, and 0.74 ounce of gold.

Ore minerals: Galena, pyrargyrite, sphalerite, chalcopryite, scheelite, tetrahedrite, arsenopyrite, pyrite, and pyrrhotite.

Production: 1896 to 1902, 3,185 tons of ore shipped to smelters contained 300,000 ounces of silver and 2,356 ounces of gold.

References: Carithers and Guard, 1945, p. 39-46; Gage, 1941, p. 166-167; Landes and others, 1902, p. 66-67; Patty, 1921, p. 296-297.

### Silver Horseshoe

Location: SW $\frac{1}{4}$  sec. 33, T. 30 N., R. 10 E.

Development: Several open cuts.

Geology: 2-foot-wide metallized shear zone in quartz diorite. Parts of the shear zone contain 0.04 to 0.42 oz. gold, 4.8 to 160.8 ozs. silver, and 3.6 to 11.3 percent lead.

Ore minerals: Sparse galena, sphalerite, chalcopryite, scheelite, molybdenite, pyrite, pyrrhotite, and arsenopyrite.

Production: None.

Reference: Huntting, 1956, p. 322.

## SILVER CREEK DISTRICT

### Principal Silver Deposits

#### Billy Lee

Location: NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 7, T. 28 N., R. 11 E.

Development: 25- and 112-foot adits.

Geology: 18-foot-thick vein with 2-foot-thick band of sulfides. Said to assay high in silver, gold, and lead.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 233.

#### Blue Bird

Location: Center S $\frac{1}{2}$  sec. 7, T. 28 N., R. 11 E.

Development: Crosscut adit.

Geology: 27-foot-thick vein with 2-foot-thick band of sulfides that assays up to 50 ozs. silver per ton and 48 percent lead.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 156.

#### Corona

Location: Sec. 10, T. 28 N., R. 11 E.

Development: 65-foot adit.

## Mines and Prospects

1. Billy Lee
2. Blue Bird
3. Corona
4. Crown Point
5. Editor
6. Golconda
7. Jasper
8. Jasperson
9. Morning Star
10. Mineral Center
11. Trade Dollar
12. Vandalia

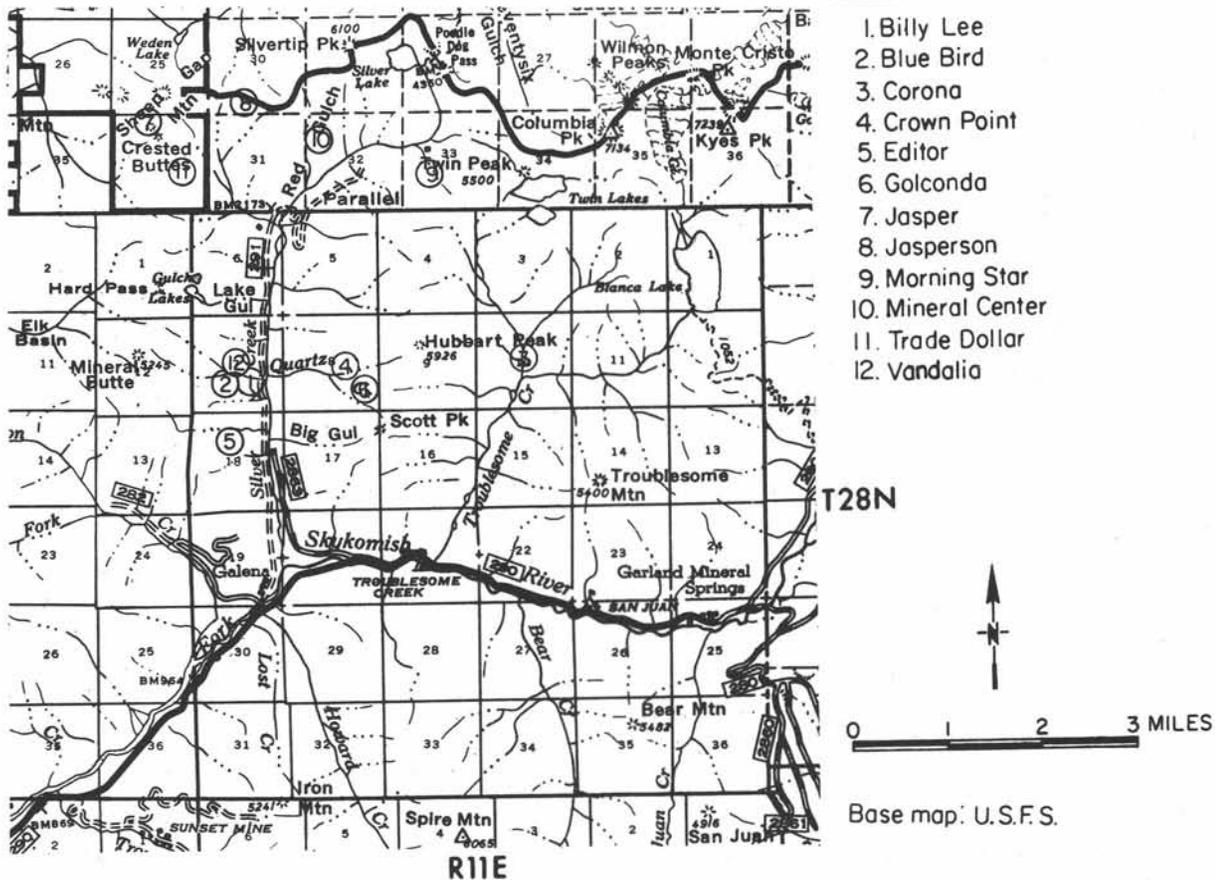


FIGURE 30.—Index map of the Silver Creek district.

Geology: 6-foot-thick vein with a 3-foot-thick band of ore that assays up to 70 ozs. silver and 1 oz. gold.

Ore minerals: Unknown.

Production: None.

Reference: Huntting, 1956, p. 318.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 233.

Crown Point

Location: Sec. 8, T. 28 N., R. 11 E.

Development: 30-foot adit.

Geology: Several veins ranging from 4 to 20 feet in thickness. Assays of 107 ozs. silver and 40 percent lead reported.

Location: Sec. 18, T. 28 N., R. 11 E.

Development: Unknown.

Geology: 2-foot-thick vein carrying up to 30 ozs. silver per ton.

Ore minerals: Galena.

Production: None.

Reference: Huntting, 1956, p. 318.

Editor

Golconda

Location: SE $\frac{1}{4}$  sec. 8, T. 28 N., R. 11 E.

Development: 40-foot adit.

Geology: 4- to 20-foot-wide metallized shear zone with 2-foot band of ore that assays 42 percent lead and high in silver and gold.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 234.

Jasper

Location: NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 36, T. 29 N.,  
R. 11 E.

Development: 27-foot adit.

Geology: 7-foot vein with a 1-foot band of ore. Select dump sample assayed 138 ozs. silver and 44 percent lead.

Ore minerals: Galena.

Production: None.

Reference: Huntting, 1956, p. 234.

Jasperperson

Location: SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 31, T. 29 N.,  
R. 11 E.

Development: 3,000 feet of workings in several adits.

Geology: Narrow metallized fracture zones in granodiorite. Ore shoots are 3 to 8 inches wide and sporadic. Eight samples assayed trace to 19.20 ozs. silver, 0.02 to 0.44 oz. gold, trace to 4.5 percent copper and 0.8 to 15.1 percent lead.

Ore minerals: Galena, sphalerite, stibnite, vanadinite, cinnabar, chalcopyrite, arsenopyrite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 160.

Mineral Center

Location: W $\frac{1}{2}$  sec. 26, T. 29 N., R. 11 E.

Development: Total of 3,500 feet of underground workings in 3 adits.

Geology: Metallized shear zones up to 40-foot wide in metasediments. Samples from one shear zone assayed 7.38 ozs. silver and 0.10 oz. gold.

Ore minerals: Abundant pyrite and minor chalcopyrite.

Production: None.

Reference: Huntting, 1956, p. 162.

Morning Star

Location: SW $\frac{1}{4}$  sec. 33, T. 29 N., R. 11 E.

Development: Several short adits.

Geology: Several metallized shear zones with one ore shoot 6 feet wide that assays up to 41 ozs. silver and 40 percent lead.

Ore minerals: Galena, pyrite, and chalcopyrite.

Production: None.

Reference: Huntting, 1956, p. 235.

Trade Dollar

Location: SE $\frac{1}{4}$  sec. 36, T. 29 N., R. 10 E.

Development: 50-foot drift.

Geology: 4-foot vein, select samples of which assay 63 percent lead and 37 ozs. silver.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 236.

Vandalia

Location: SW $\frac{1}{4}$  sec. 7, T. 28 N., R. 11 E.

Development: 220-foot adit and a 75-foot shaft with 2 levels.

Geology: 20-foot-wide shear zone with  $\frac{1}{2}$  to 3 feet of ore. Select samples assayed up to 300 ozs. silver, 2 ozs. gold, and 40 percent lead.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 236.

DARRINGTON DISTRICT

Principal Silver Deposits

Courtney

Location: SW $\frac{1}{4}$  sec. 27, T. 32 N., R. 9 E.

Development: 10-foot adit.

Geology: 3-foot vein containing up to 15 ozs. silver, 4 percent lead, and 0.5 oz. gold.

Ore minerals: Unknown.

Mines and Prospects

1. Courtney
2. Feldt
3. Forest Hope
4. Gray Mare
5. Green Crown
6. Hannah
7. Highland
8. Hunter
9. Larson

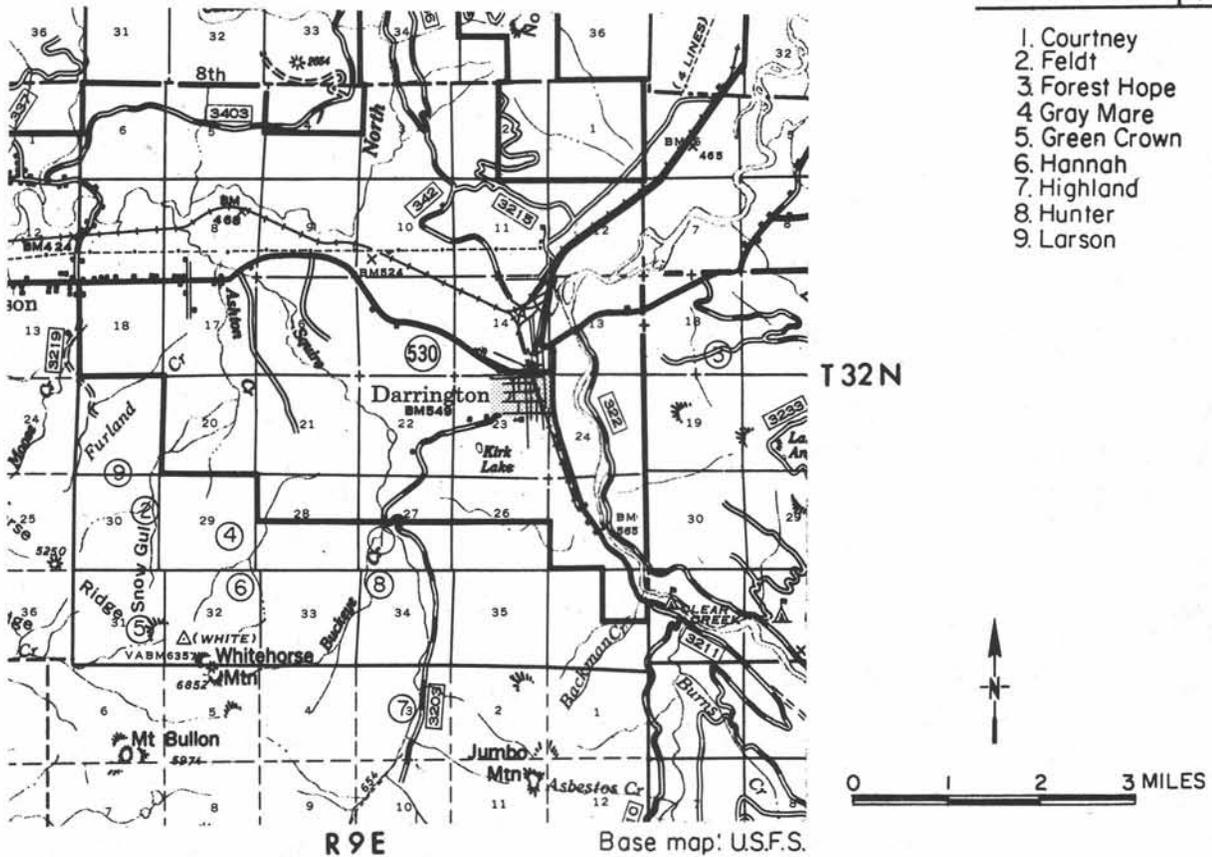


FIGURE 31.—Index map of the Darrington district.

Production: None.

Reference: Huntting, 1956, p. 82.

### Feldt

Location: SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 30, T. 32 N.,  
R. 9 E.

Development: 2 open cuts.

Geology: Metallized breccia along fault zone  
in altered volcanic rocks. Ore min-  
erals occur in a 7-inch zone in the  
breccia.

Ore minerals: Stibnite, berthierite, chalcop-  
pyrite, galena, sphalerite, tetrahed-  
rite, cobaltite, pyrite, and arsenopy-  
rite.

Production: None.

Reference: Huntting, 1956, p. 318.

### Forest Hope

Location: SE $\frac{1}{4}$  sec. 18, T. 32 N., R. 10 E.

Development: Unknown.

Geology: 8-foot vein, which assays up to  
18 ozs. silver, 1.5 ozs. gold, and  
18 percent copper.

Ore minerals: Cinnabar and native mercury.

Production: None.

Reference: Huntting, 1956, p. 83.

### Gray Mare

Location: SE $\frac{1}{4}$  sec. 29, T. 32 N., R. 9 E.

Development: 50-foot adit.

Geology: Metallized breccia zone in cherty  
limestone and calcareous shale.

Select breccia samples assayed 15.8  
to 245 ozs. silver, 20 to 70 percent  
lead, 1 to 3 percent zinc, 0.3 to

9.8 percent antimony, 0.01 oz. gold,  
and 0.34 percent arsenic.

Ore minerals: Galena, sphalerite, and silver  
sulfides.

Production: None.

Reference: Huntting, 1956, p. 319.

### Green Crown

Location: SE $\frac{1}{4}$  sec. 31, T. 32 N., R. 9 E.

Development: Unknown.

Geology: 100-foot-wide shear zone contain-  
ing metallized quartz veins up to 10  
inches thick. Parts of some veins  
assay up to 32 ozs. silver, 5 ozs.  
gold, and 26 to 42 percent copper.

Ore mineral: Chalcopyrite.

Production: None.

Reference: Huntting, 1956, p. 84.

### Hannah

Location: NE $\frac{1}{4}$  sec. 32, T. 32 N., R. 9 E.

Development: Unknown.

Geology: 3-foot-thick vein in granodiorite.  
Select samples of vein assay up to 41  
ozs. silver, 1 oz. gold, and 30 per-  
cent copper.

Ore minerals: Unknown.

Production: None.

Reference: Huntting, 1956, p. 85.

### Highland

Location: Sec. 3, T. 31 N., R. 9 E.

Development: Unknown.

Geology: 18 inches of ore that assays 15 to  
40 ozs. silver and 1.8 percent copper.

Ore minerals: Unknown.

Production: None

Reference: Huntting, 1956, p. 85.

Hunter

Location: NW $\frac{1}{4}$  sec. 34, T. 32 N., R. 9 E.

Development: 50-foot adit.

Geology: 3-foot vein with a 9-inch band of ore that assays 8 to 40 ozs. silver, 1 oz. gold, 10 percent copper, and 4 percent lead.

Ore minerals: Galena, chalcopyrite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 85.

Larson

Location: Secs. 19 and 30, T. 32 N., R. 9 E.

Development: Unknown.

Geology: Veins in granite and limestone assay up to 25 ozs. silver, 0.1 oz. gold, 60 percent lead, and 3 percent zinc.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 235.

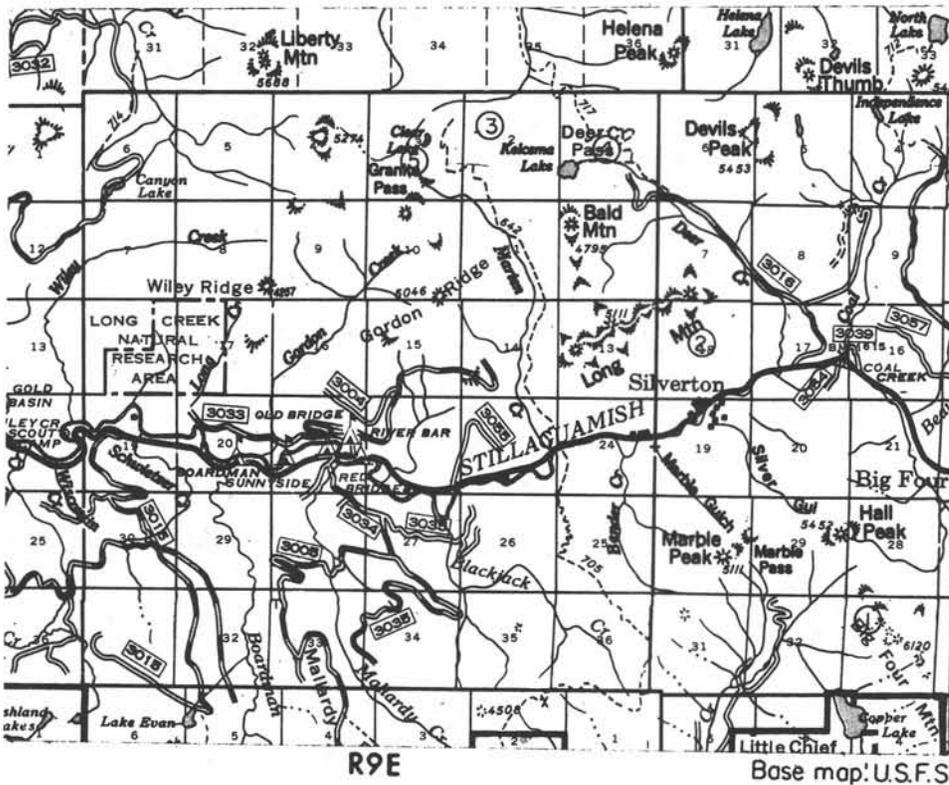
SILVERTON DISTRICT

Principal Silver Deposits

Big Four

Location: NW $\frac{1}{4}$  sec. 33, T. 30 N., R. 10 E.

Development: 100-foot adit.



Mines and Prospects

1. Big Four
2. Glengarry
3. New Seattle
4. St. Louis and Jackson
5. White Swan

R9E

Base map: U.S.F.S.

FIGURE 32.—Index map of the Silverton district.

Geology: 30-inch metallized zone at contact between granite and syenite. Assays of up to 20 ozs. silver per ton reported.

Ore minerals: Galena and arsenopyrite.

Production: None.

Reference: Huntting, 1956, p. 233.

### Glengarry

Location: Sec. 18, T. 30 N., R. 10 E.

Development: Unknown.

Geology: 45 inches of "ore," with assays of up to 150 ozs. per ton in silver.

Ore mineral: Tetrahedrite.

Production: None.

Reference: Huntting, 1956, p. 319.

### New Seattle

Location: NW $\frac{1}{4}$  sec. 2, T. 20 N. R. 9 E.

Development: Short adit.

Geology: 5-foot vein, parts of which assay 350 ozs. per ton in silver.

Ore mineral: Tetrahedrite.

Production: None.

Reference: Huntting, 1956, p. 321.

### St. Louis and Jackson

Location: Near center sec. 1, T. 30 N., R. 9 E.

Development: 600-foot drift with a 200-foot crosscut. Also a 150-foot adit.

Geology: 1- to 6-foot-thick quartz vein in granodiorite. Parts of vein assay up to 30 percent copper, 1 oz. gold, 25 ozs. silver, and 1.2 percent tungsten.

Ore minerals: Chalcopyrite, scheelite, tet-

rahedrite, and pyrite.

Production: Minor in the early 1900's.

Reference: Huntting, 1956, p. 90.

### White Swan

Location: Sec. 3, T. 30 N., R. 9 E.

Development: 50-foot adit.

Geology: Unknown, but vein reported to carry up to 200 ozs. per ton in silver.

Ore minerals: Unknown.

Production: None.

Reference: Huntting, 1956, p. 323.

## MONTE CRISTO DISTRICT

### Principal Silver Deposit

#### Monte Cristo (Mystery, Pride)

Location: Sec. 22, T. 29 N., R. 11 E.

Development: 3 main adits contain around 12,000 feet of underground workings. Also several short adits.

Geology: Shear zones in schist and tonalite contain lenses of sulfide ore from 100 to 300 feet in diameter, and 1 to 15 feet thick. Gangue consists of quartz, calcite, and sheared wall rock. Ore averaged 5 ounces per ton in silver, and 0.40 ounce of gold. Near-surface ores contained up to 12 ounces of silver, 0.95 ounce gold, 4 percent copper, and 5 percent lead.

Ore minerals: Arsenopyrite, pyrite, chalcopyrite, galena, sphalerite, jamesonite, and realgar.

Production: 1890-1908, 300,000 tons of ore containing around 1,500,000 ounces of silver, and 120,000 ounces of gold.

References: Huntting, 1956, p. 162; Spurr, 1901, p. 803-804, p. 818-821; Landes and others, 1902, p. 71-72.

### WHATCOM COUNTY

From 1900 to 1957, Whatcom County produced around 80,000 ounces of silver, most of which came from lode gold mines in the Mount Baker and Slate Creek mining districts. The county's major silver producers were the Great Excelsior, which produced around 65,000 ounces of silver from 1902 to 1915, and the Azurite gold mine, which produced 2,111 ounces of silver from 1936 to 1938. The remaining silver was chiefly a byproduct of gold mining operations at the Lone Jack, Red Mountain, New Light, and Mammoth mines. Only the Illinois mine in the Slate Creek district is classed as a silver mine because silver is

the most valuable metal at this property. At other silver-bearing deposits in the county the value of gold, copper, lead, or zinc exceeds the value of silver.

With the exception of the Great Excelsior, silver-bearing deposits in the Mount Baker and Slate Creek districts are the quartz fissure type most of which are sparsely metallized. In general, galena-bearing veins carry the most silver, and up to several hundred ounces per ton in silver has been obtained from select samples. However, the average silver content of most veins is only around 5 to 10 ounces per ton. In a few veins galena, sphalerite, and chalcopyrite occur in small isolated ore shoots that contain up to several hundred tons of ore. At the Great Excelsior, silver occurs in pyritized and silicified breccia. The breccia averages around 3 ounces per ton in silver and 0.09 ounces per ton in gold. Although silver is present in the gold veins of the county, the average silver content of the veins is only from 0.02 to 0.15 ounce per ton. A high of 2.75 ounces per ton in silver was reported in high-

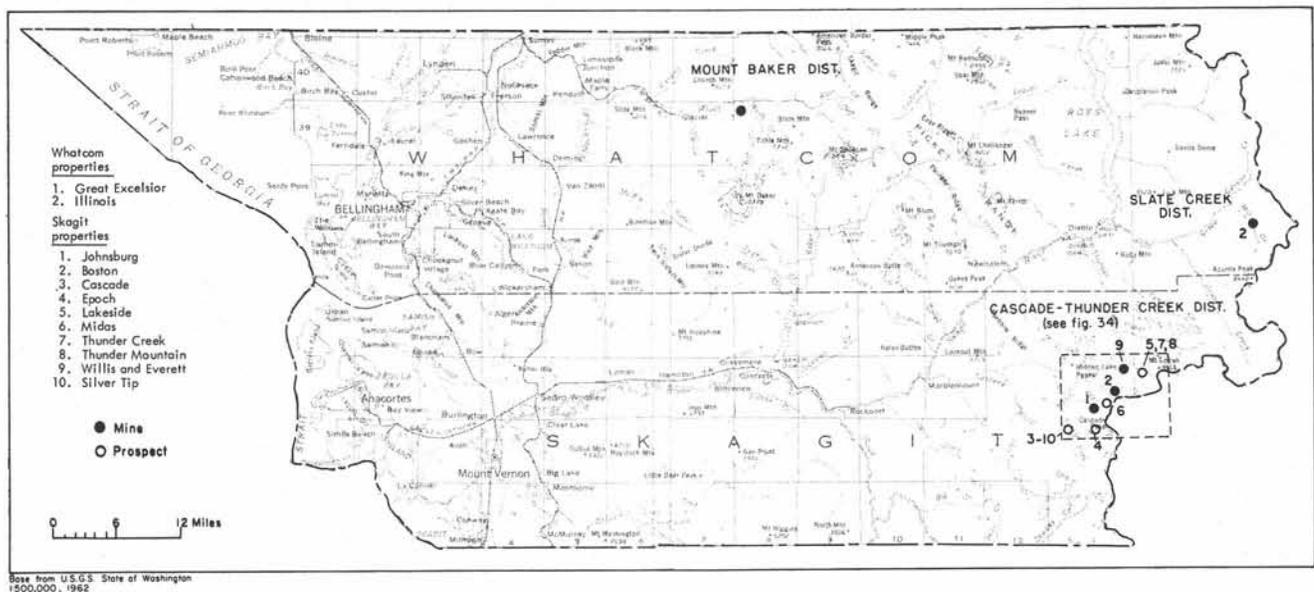


FIGURE 33.—Silver deposits of Whatcom and Skagit Counties.

grade gold ore from the Mammoth mine in the Slate Creek district.

## MOUNT BAKER DISTRICT

### Principal Silver Deposit

#### Great Excelsior

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 6, T. 39 N.,  
R. 8 E.

Development: 280-, 350-, and 450-foot adit with almost 1,000 feet of drifts, crosscuts, winzes, and raises. One stope 180 feet long, 60 feet wide, and up to 80 feet high.

Geology: Pyritized and silicified breccia in andesite, argillite, and slate. Breccia averages 0.09 oz. per ton in gold and 3.4 ozs. per ton in silver.

Ore minerals: Mainly pyrite with sparse chalcopyrite, galena, sphalerite, and arsenopyrite; minor very fine-grained tetrahedrite.

Production: 1903-1905, 1917; total production around \$69,000 in gold and silver.

References: Moen, 1969, p. 86-87, Landes and others, 1902, p. 43-44.

## SLATE CREEK DISTRICT

### Principal Silver Deposit

#### Illinois

Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 35, T. 38 N., R. 17 E.

Development: 2 adits one of which is 400 feet long.

Geology: 3- to 6-foot-thick quartz vein in slate and porphyry. Select samples of vein assayed 18 to 600 ozs. silver, and trace to 0.30 oz. gold.

Ore minerals: Galena, sphalerite, pyrrargyrite, tetrahedrite, free gold, and pyrite.

Production: Minor production in 1904.

Reference: Moen, 1969, p. 109-110.

## SKAGIT COUNTY

The production of silver in Skagit County has been insignificant; from 1900 to 1955, several small-scale mining operations in the Cascade and Thunder Creek districts of eastern Skagit County (fig. 33) produced 2,613 ounces of silver. The bulk of the silver produced in the late 1890's and early 1900's came from the Boston and Willis and Everett mines, near the headwaters of Thunder Creek. Silver produced in 1953 and 1955 came from the Johnsbury mine near the headwaters of the Cascade River.

Although assays of up to several hundred ounces per ton in silver have been obtained from several metal deposits in Skagit County, the average silver content of the deposits is less than 10 ounces per ton. The silver occurs in shear zones in granodiorite, quartz diorite, and schist. The metallized parts of the shear zones average less than 1 foot in thickness and contain disseminated sulfides or lenses of massive sulfides in a gangue of quartz and calcite. Some lenses of massive argentiferous galena are 4 to 30 inches thick; however, the lenses are seldom greater than 50 feet in stope or pitch length. Common sulfides of the veins include pyrite, arsenopyrite, sphalerite, and chalcopyrite. The less common ore

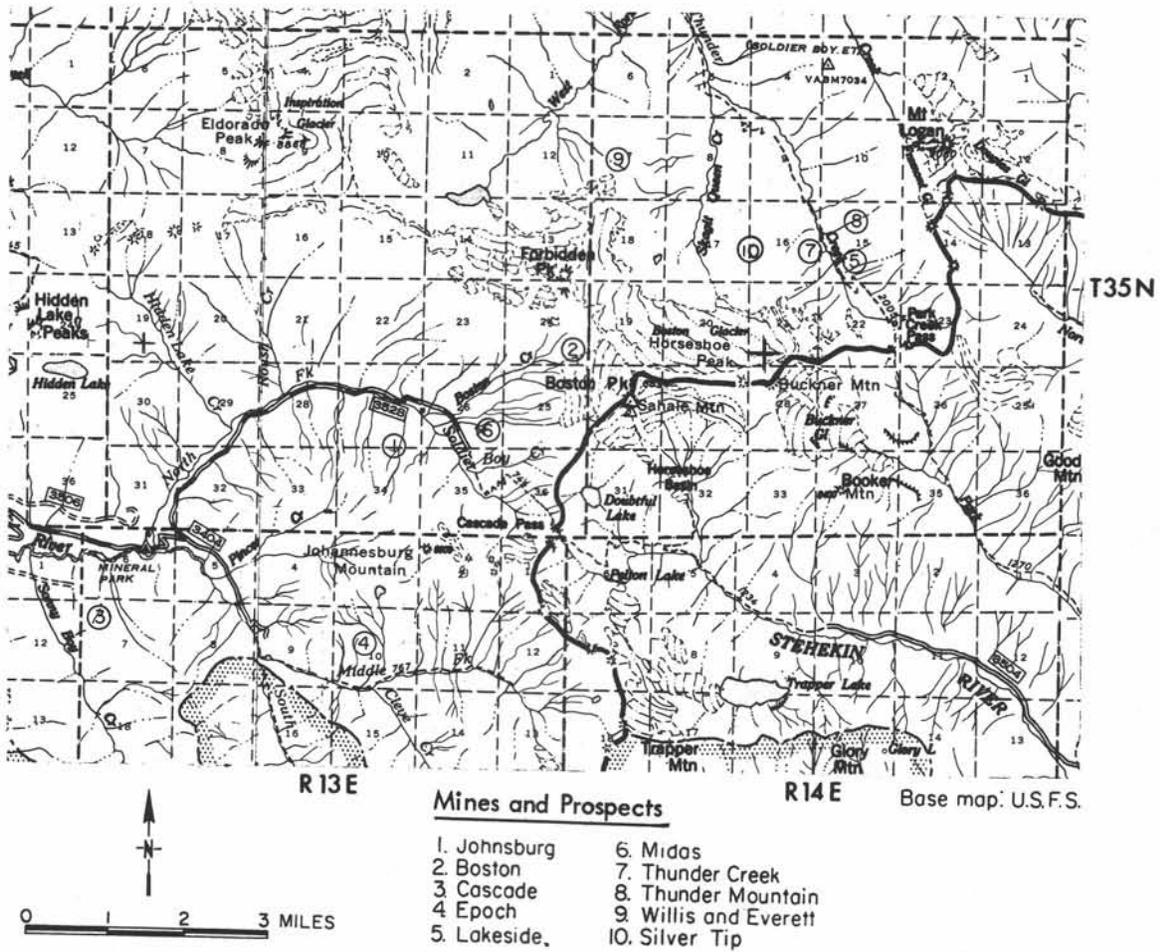


FIGURE 34.—Index map of the Cascade and Thunder Creek districts.

minerals are cerussite, anglesite, and native gold. The silver-bearing minerals are argentiferous galena and fine-grained argentite.

The small size of the ore shoots, and their erratic distribution in the veins, appear to be main factors that discouraged mining operations in the past. Because most deposits fall within the boundaries of the North Cascades National Park, which was established in October 1968, it is unlikely that the deposits will ever be mined.

CASCADE AND THUNDER CREEK DISTRICTS

Principal Silver Deposits

Boston

Location: Sec. 24, T. 35 N., R. 13 E.

Development: 35- and 60-foot adits.

Geology: 6- to 9-foot-thick quartz vein in diorite. 8-inch band, which assayed

8.4 ozs. silver, 0.16 oz. gold, 0.2 percent copper, 22.1 percent lead, and 13 percent zinc.

Ore minerals: Galena, sphalerite, chalcantite, chalcopyrite, pyrite, and arsenopyrite.

Production: 2 tons in the 1890's.

Reference: Huntting, 1956, p. 231.

### Cascade

Location: NW $\frac{1}{4}$  sec. 7, T. 34 N., R. 13 E.

Development: 100-foot adit.

Geology: 5-foot vein with a 10-inch band of sulfides that assays 48 to 51 ozs. silver and 32 to 37 percent lead.

Ore minerals: Galena and pyrite.

Production: None.

Reference: Huntting, 1956, p. 231.

### Epoch

Location: Near center E $\frac{1}{2}$  sec. 10, T. 34 N., R. 13 E.

Development: Adit.

Geology: 3-foot vein of solid galena reported. Vein assays 39 to 102 ozs. silver and 38 to 45 percent lead.

Ore minerals: Galena.

Production: None.

Reference: Huntting, 1956, p. 231.

### Johnsburg

Location: Secs. 27 and 34, T. 35 N., R. 13 E.

Development: 50- and 200-foot adits.

Geology: Metallized shear zone in schist.

Ore minerals occur in lenses 4 to 30

inches thick and up to 50 feet long. Some ore assayed 57 percent lead and 40 ozs. per ton in silver.

Ore minerals: Galena, cerussite, anglesite, chalcopyrite, sphalerite, and pyrite.

Production: 1953 and 1955, total production 19 tons.

References: Huntting, 1956, p. 231.

### Lakeside

Location: SE $\frac{1}{4}$  sec. 15, T. 35 N., R. 14 E.

Development: Unknown.

Geology: Quartz veins in granite and metamorphic rocks. Some veins contain 23 to 66 percent galena, 16.32 percent sphalerite, 28.14 percent pyrite, and 2.58 percent chalcopyrite. Select samples contained 51.96 ozs. silver and 0.18 oz. gold.

Ore minerals: Galena, sphalerite, chalcopyrite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 232.

### Midas

Location: W $\frac{1}{2}$  sec. 25 and E $\frac{1}{2}$  sec. 26, T. 35 N., R. 13 E.

Development: 2 adits with over 1,500 feet of drifts and crosscuts.

Geology: Narrow sulfide-bearing quartz veins in sheared diorite gneiss. Sulfides occur in lenses 7 to 24 inches in thickness and assay up to 20 ozs. silver, 0.14 oz. gold, 2.2 percent lead, and 1.96 percent zinc.

Ore minerals: Chalcopyrite, galena, sphal-

erite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 315, Geology and Earth Resources files.

### Silver Tip

Location: Secs. 16 and 17, T. 35 N., R. 14 E.

Development: 40-foot shaft, several short adits, and open cuts.

Geology: 3- to 4-foot thick vein containing 1 to 2 feet of ore that assays 19.9 ozs. silver, 20.5 percent lead, and 6.6 percent zinc.

Ore minerals: Galena, sphalerite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 232.

### Thunder Creek (Dorothy)

Location: W $\frac{1}{2}$  Sec. 15, T. 35 N., R. 14 E.

Development: 425- and 760-foot adits.

Geology: 6-inch to 6-foot-thick metallized shear zone in altered diorite. Samples from shear zone assayed 4.25 to 7 ozs. silver, 5 to 10 percent lead, 4 to 4.7 percent zinc, and 0.34 percent copper.

Ore minerals: Galena, chalcopyrite, sphalerite, and pyrite.

Production: None.

Reference: Huntting, 1956, p. 232.

### Thunder Mountain

Location: Secs. 15, 22, and 29, T. 35 N., R. 14 E.

Development: Several short adits.

Geology: 1- to 6-foot-thick metallized shear zones in gneiss and diorite. Samples from shear zones assayed 6.82 to 29.34 ozs. silver, 0.30 to 4 percent copper, 0.4 to 18.7 percent lead, and 0.4 to 14 percent zinc. Select high-grade samples of galena assayed 151 ozs. silver and 55.5 percent lead.

Ore minerals: Galena, sphalerite, chalcopyrite, pyrite, and pyrrhotite.

Production: Small test shipment.

Reference: Geology and Earth Resources files.

### Willis and Everett

Location: Sec. 7, T. 35 N., R. 14 E.

Development: Unknown.

Geology: 3 veins, 4 to 12 feet thick in granite and porphyry. Select high-grade ore assayed 500 ozs. per ton in silver.

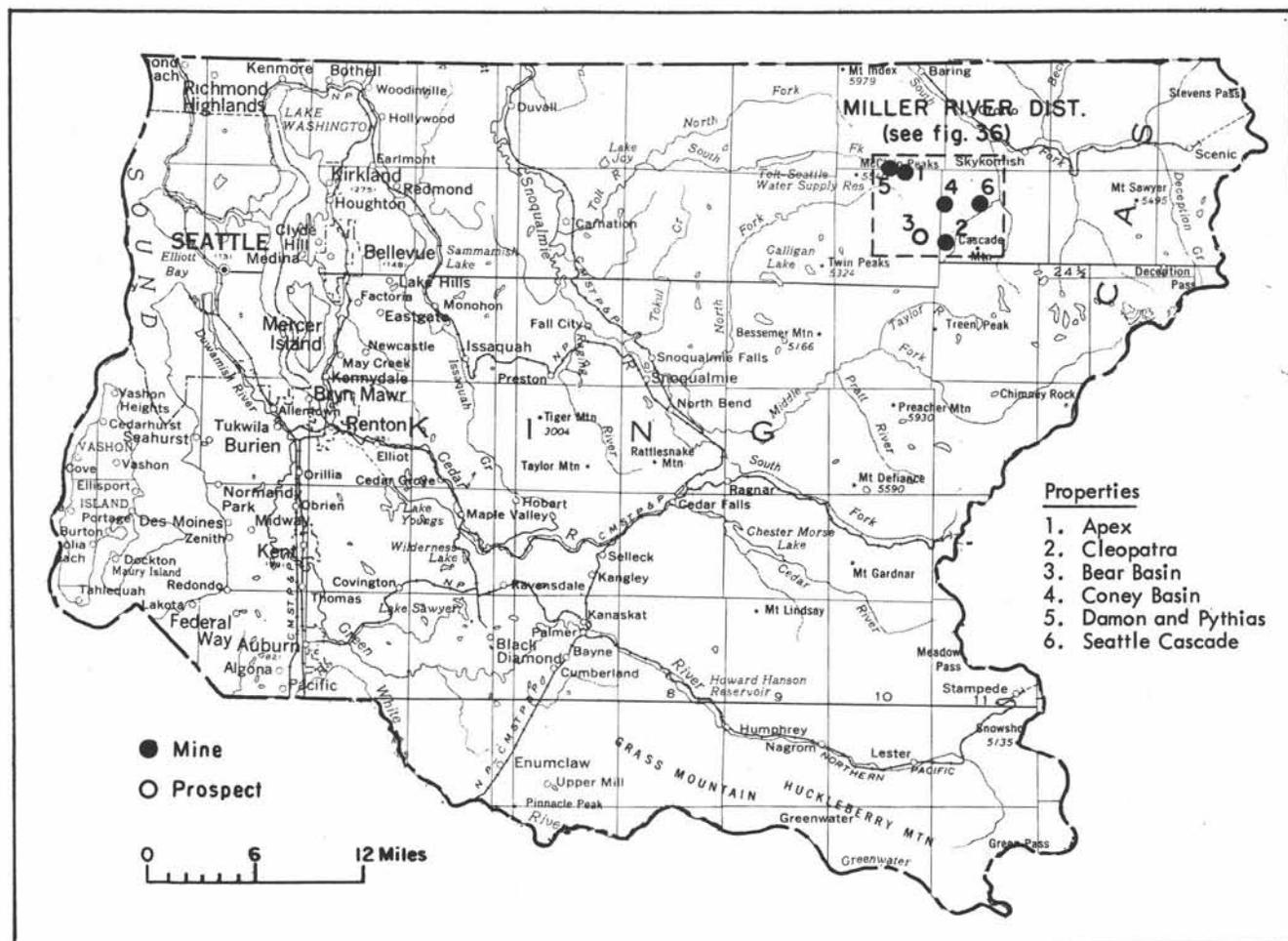
Ore minerals: Unknown.

Production: Minor production in the 1890's.

Reference: Huntting, 1956, p. 316.

## KING COUNTY

Silver produced in King County from 1903 to 1960 totaled 31,102 ounces valued at 25,120. Most silver came from the Apex and Cleopatra mines in the Miller River district of northeastern King County. Silver was produced in the county as early as 1897, but production figures are not available for years prior



Base from U.S.G.S. State of Washington  
1:500,000, 1962

FIGURE 35.—Silver deposits of King County.

to 1904. The most productive silver mine was the Cleopatra, which produced around \$250,000 in silver and gold. The bulk of the production came from near-surface silver ore that contained up to 250 ounces per ton in silver. Although the Apex is classed as a gold mine, the average silver content of ore mined was 9.15 ounces per ton. Total production of gold and silver from the Apex was around \$300,000. Small shipments of copper, lead, zinc, antimony, gold, and silver ores were made from other mines in the county, but production from these mines was minor.

Mines and prospects that contain significant amounts of silver occur chiefly in the Miller River district. The ore minerals occur mainly in steeply dipping, northwest- to west-trending shear zones in granodiorite of the Snoqualmie batholith (middle Tertiary). Some shear zones contain metallized quartz-calcite veins, whereas other shear zones consist mainly of sheared and altered country rock with scattered grains of ore minerals. The common sulfides of the quartz-calcite veins and shear zones are pyrite, arsenopyrite, galena, sphalerite, and chalcopyrite; some deposits

contain as much as 5 percent arsenic. The less common ore minerals are stibnite, molybdenite, tetrahedrite, jamesonite, stephanite, and stannite. Deposits that have high silver contents are also high in lead or gold.

Several deposits contain up to 100 ounces per ton in silver, but the ore shoots are generally less than 2 feet in thickness and are small. The ore minerals occur as narrow streaks in the veins and shear zones, or as scattered lenses and pods. In the Apex and Cleopatra mines, several ore shoots averaged 20 ounces per ton in silver and were as much as 200 feet long and up to 2½ feet thick.

MILLER RIVER DISTRICT

Principal Silver Deposits

Apex

Location: SW¼ sec. 34, T. 26 N., R. 10 E.

Development: 1,675-, 475-, 150-, and 100-foot adits over a vertical distance of 460 feet. Extensively stoped between the 1,675- and 475- foot adits.

Geology: Quartz vein 2 to 6 feet thick in granodiorite. High-grade ore occurs

Mines and Prospects

1. Apex
2. Cleopatra
3. Bear Basin
4. Coney Basin
5. Damon and Pythias
6. Seattle-Cascade

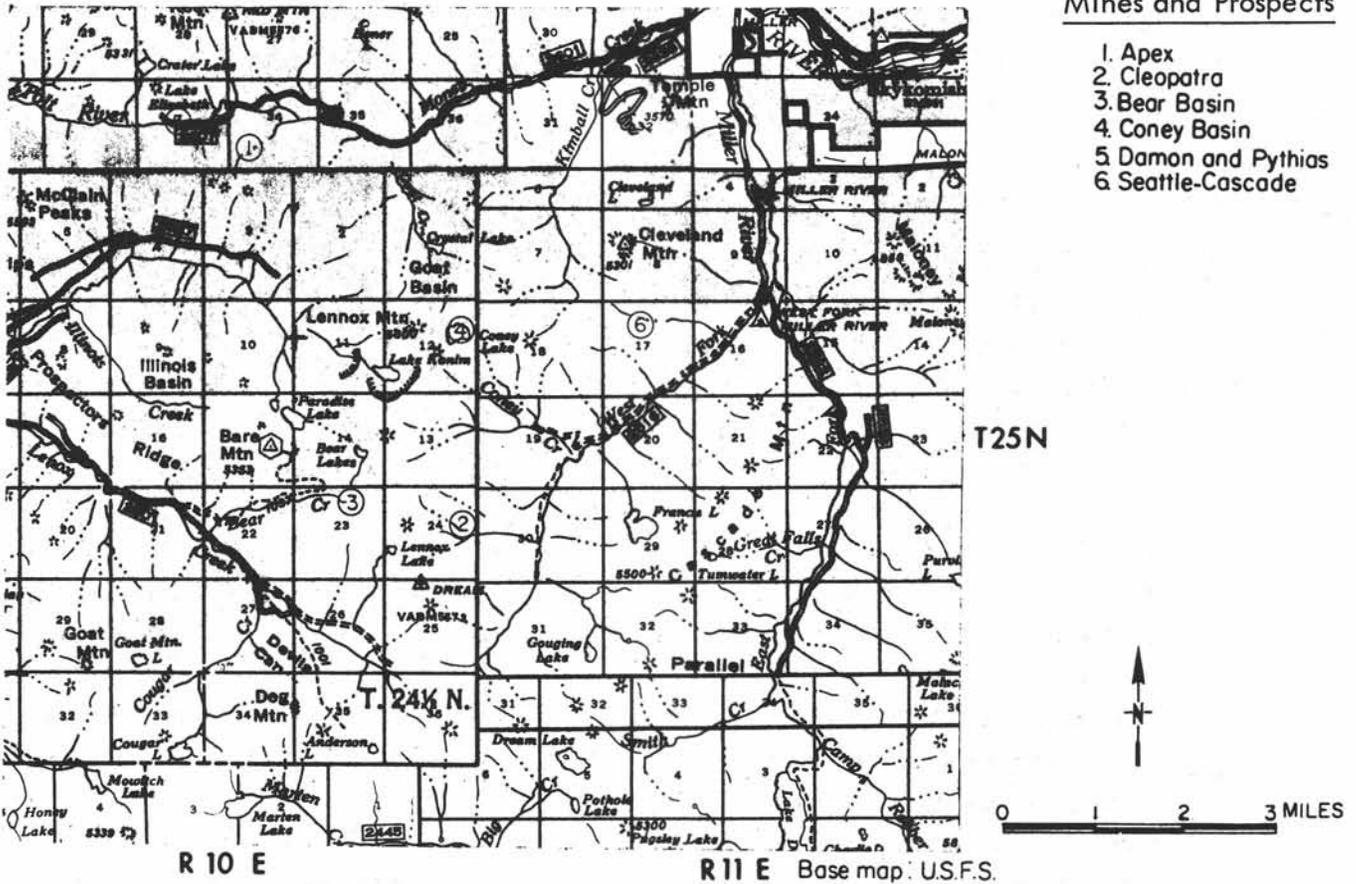


FIGURE 36.—Index map of the Miller River district.

as narrow streaks in the vein, and assays up to 3.15 ounces per ton in gold and 63 ounces per ton in silver. Some ore contained 21 to 26 percent arsenic, 10 to 20 ounces in silver,  $1\frac{1}{2}$  to  $2\frac{1}{2}$  ounces in gold, and  $4\frac{1}{2}$  to 6 percent lead. Average silver content of 91 samples of vein in adits is 6.295 ounces per ton; average gold content of samples is 1.125 ounces per ton. Silver is contained in argentiferous galena.

Ore minerals: Chalcopyrite, galena, sphalerite, arsenopyrite, and pyrite.

Production: \$80,000 prior to 1901; 1905-1943, \$220,000.

References: Livingston, 1971, p. 145-147; Patty, 1921, p. 301-305.

### Bear Basin

Location: NE $\frac{1}{4}$  sec. 23, T. 25 N., R. 10 E.

Development: 8 adits containing a total of 2,165 feet of drifts and crosscuts.

Geology: Metallized shear zones up to 4 feet thick in granodiorite. Select samples of shear zones showed 10 to 90 ozs. per ton of silver. A 10-inch channel sample assayed 0.06 oz. gold, 6.0 ozs. silver, and 1.71 percent copper. A 17-inch channel sample assayed 0.06 oz. gold, 16.90 ozs. silver, and 13 percent zinc.

Ore minerals: Minor pyrite, arsenopyrite, freibergite, jamesonite, stibnite, stannite, andorite, sphalerite, galena, and molybdenite.

Production: None.

Reference: Livingston, 1971, p. 127-130.

### Cleopatra

Location: NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 24, T. 25 N., R. 10 E.

Development: 1,260- and 160-foot adits connected by raise.

Geology: 5-foot thick metallized shear zone in granodiorite. Ore minerals are spotty. One ore shoot  $2\frac{1}{2}$  feet thick and 100 feet long averaged 20 ounces per ton in silver. Average silver content of 93 samples from vein in adits is 13.35 ounces per ton.

Ore minerals: Argentiferous galena, chalcopyrite, tetrahedrite, sphalerite, jamesonite, pyrite, and arsenopyrite.

Production: \$250,000 from 1897 through 1941.

References: Livingston, 1971, p. 139-140; Purdy, 1951, p. 79-83.

### Coney Basin

Location: N $\frac{1}{2}$  sec. 13, T. 25 N., R. 10 E. and S $\frac{1}{2}$  sec. 19, T. 25 N., R. 11 E.

Development: 2 adits with around 3,000 feet of drifts and crosscuts. Upper adit 2,000 feet long.

Geology: Metallized quartz veinlets in granodiorite, and a 4-foot wide metallized silicified zone also in granodiorite. Average of 22 samples showed 11.97 ozs. silver, and 0.38 oz. gold; ore mined in 1941 assayed 0.86 oz. gold, 19.71 ozs. silver, 0.82 percent copper, 6.0 percent lead, 6 percent zinc, 1.52 percent arsenic, and 0.26 percent antimony.

Ore minerals: Galena, chalcopyrite, sphal-

erite, tetrahedrite, and pyrite.

Production: 40 tons in 1895, and minor production between 1934 and 1941.

Reference: Livingston, 1971, p. 140-141.

#### Damon and Pythias

Location: Center sec. 33, T. 26 N.,  
R. 10 E.

Development: Several adits. Main adit is a 1,425-foot crosscut with 1,350 feet of drifts on two veins.

Geology: Two quartz veins up to 3 feet thick in granodiorite. Ore averages 0.245 oz. gold, 2.2 ozs. silver, and 7.86 percent arsenic. Ore shipped prior to 1940 averaged 0.87 oz. gold, 9 ozs. silver, and 4 percent lead.

Ore minerals: Chalcopyrite, galena, pyrite, and arsenopyrite.

Production: 23 tons prior to 1940.

Reference: Livingston, 1971, p. 147-148.

#### Seattle-Cascade

Location: Center N $\frac{1}{2}$  sec. 17, T. 25 N.,  
R. 11 E.

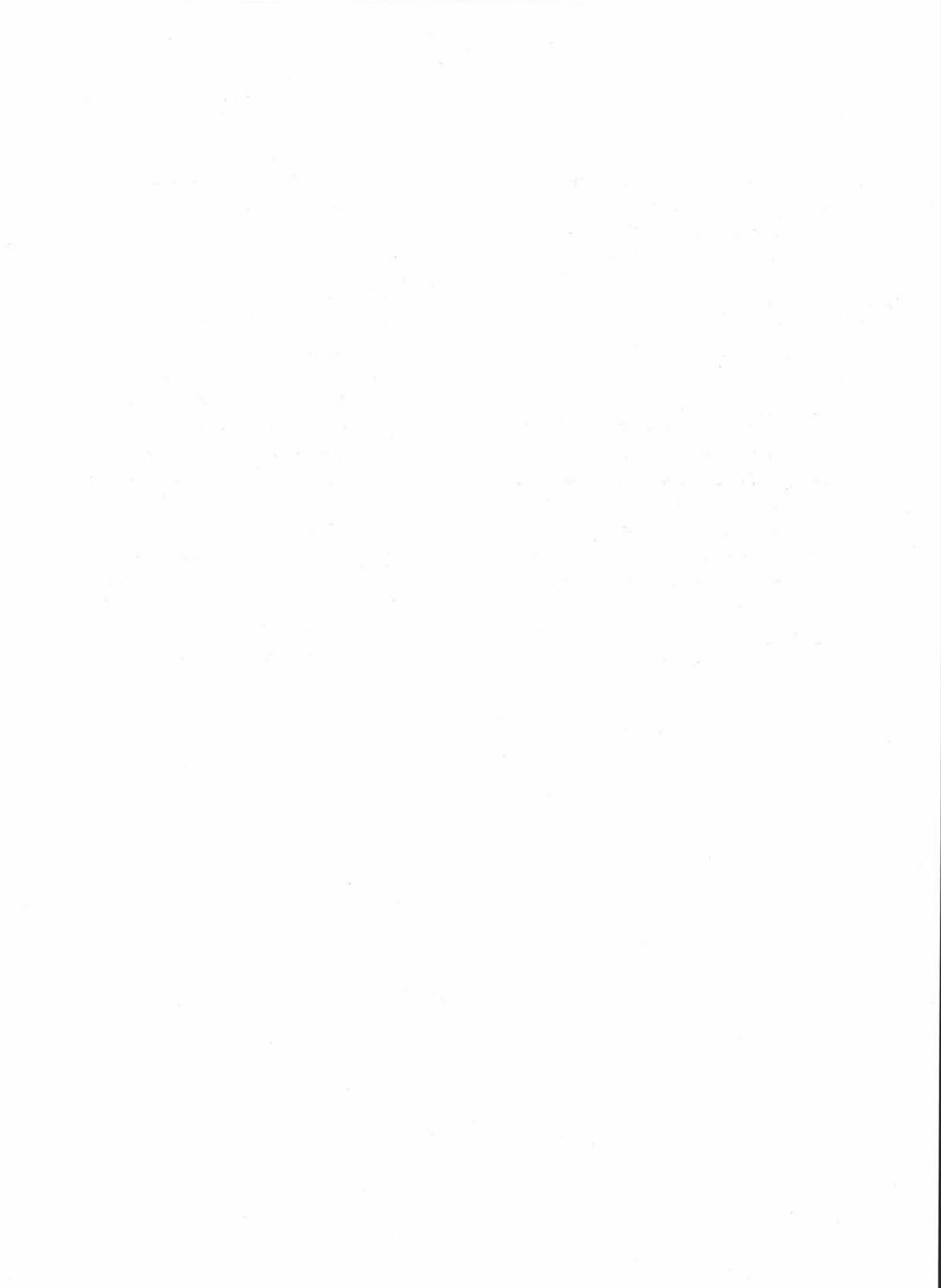
Development: 400-foot adit, and an 800-foot adit with a 250-foot raise.

Geology: 1 $\frac{1}{2}$ -foot wide metallized shear zone in granodiorite. Shear zone contains sulfide bands up to 8 inches thick, which assay up to 30 ozs. silver per ton.

Ore minerals: Galena, sphalerite, chalcopyrite, pyrite, and arsenopyrite.

Production: Minor production prior to 1900, and in 1940.

Reference: Huntting, 1956, p. 297.



## APPENDIX A

PRINCIPAL SILVER DEPOSITS OF EASTERN WASHINGTON  
BY COUNTY AND DISTRICT

## CHELAN COUNTY

See Figure 22<sup>1/</sup>Meadow Creek District

1. Iowa prospect
2. Orphan Boy prospect
3. Hunter prospect
4. Little Jap prospect
5. Sunday Morning mine

Stehekin District (Horseshoe Basin area)

6. Isoletta prospect
7. Doubtful prospect
8. Franklin prospect
9. Quien Sabe prospect
10. Homestake and Star prospect
11. Horseshoe Basin prospect

## FERRY COUNTY

See Figure 13

Covada District

1. Gwin mine
2. Dan Patch prospect
3. Algonkian prospect

<sup>1/</sup> Numbers on mines and prospects correspond to numbers on figures in text.

4. Longstreet mine
5. Silver Leaf mine
6. Shoo Fly mine
7. Silver Crown No. 2 mine
8. Ivanhoe prospect
9. Butterfly prospect
10. King Solomon prospect
11. Plymouth Rock prospect
12. Advance prospect
13. Keystone prospect
14. Royal Ann prospect
15. Good Ore prospect
16. Stray Dog mine
17. Oom Paul prospect
18. Montana mine
19. Romulus prospect
20. New York prospect
21. Meteor mine
22. Reserve prospect
23. Chief Barnaby prospect
24. Big Lake prospect
25. U.S. prospect

Keller District

26. McJunkin prospect
27. Congress prospect
28. Burlington and Delaware prospect
29. Shamrock mine
30. Anderson prospect
31. Summit prospect
32. Addison mine

33. Golden Chord mine
34. Jumper prospect
35. Rover Bonanza prospect
36. Meadow Creek prospect
37. Great Northern prospect

Curlew District

38. Anchor prospect
39. Panama prospect

KITTITAS COUNTY

See Figure 25

Cle Elum District

1. American Eagle prospect
2. Boss prospect
3. Aurora mine
4. Camp Creek mine
5. Cle Elum prospect

Gold Creek District

6. Silver King and Silver Queen prospect
7. Esther and Louisa mine
8. Transit prospect
9. Giant prospect

OKANOGAN COUNTY

See Figure 16

Loomis District

1. Mountain Sheep mine
2. Ruby mine
3. Number One prospect
4. Summit prospect
5. Eagle prospect
6. Kaaba-Texas mine

7. Chopaka prospect
8. Eureka prospect
9. Rich Bar prospect
10. Horn Silver mine
11. Bullfrog mine
12. Bellevue mine
13. Kimberly mine
14. Rainbow mine
15. Ivanhoe mine

Conconully District

16. Leuena mine
17. Mohawk prospect
18. Mammoth mine
19. Monitor mine
20. John Arthur prospect
21. Tough Nut mine
22. Lone Star mine
23. Key mine
24. Esther prospect
25. Salmon River prospect
26. Homestake mine
27. Lady of the Lake prospect
28. Leonora prospect
29. Nevada mine
30. Plant-Callahan mine
31. First Thought mine
32. Last Chance mine
33. Sonny Boy mine
34. Fourth of July mine
35. Keystone prospect
36. Arlington mine
37. Woo Loo Moo Loo prospect
38. Chloride prospect
39. Wind Fall prospect
40. Buck Mountain mine
41. Sherman mine
42. Silver Bell prospect

43. Silver Bluff mine
44. Black Huzzar prospect
45. Eureka prospect
46. Gold Eagle prospect
47. Gold Cup prospect
48. Lulu prospect
49. Evening Star prospect
50. Minnehaha prospect
51. Okanogan Belle prospect
52. Hardscrabble prospect
53. Central mine
54. Carl Fredrick prospect
55. Wheeler mine
56. Peacock mine
57. Shelby prospect

Sheridan District

58. Sheridan mine
59. Zalla M. mine
60. American Flag mine
61. Silver Bell mine

Park City District

62. Eureka prospect
63. Summit mine
64. Mountain Boy mine
65. Ramore prospect
66. Hanaford prospect

Nespelem District

67. Great Divide prospect
68. Anna prospect
69. Evening prospect
70. Andy O'Neil mine
71. Anchor prospect
72. Apache mine

73. Lilman mine
74. Little Chief mine
75. Panama mine

PEND OREILLE COUNTY

See Figure 7

Metaline District

1. Hanley mine
2. Oriole mine
3. Poorman mine
4. LaSota prospect
5. Rocky Creek mine

Newport District

6. Skippy and Queen Bess prospect
7. Eagle (Ries) mine

STEVENS COUNTY

See Figure 8

Orient District

1. Comstock prospect
2. Iron Mask prospect
3. Montana and Washington prospect
4. Easter Sunday mine
5. McKinley prospect

Northport District

6. Bullion mine
7. Great Republic prospect
8. Coyote mine
9. Sunset prospect
10. Sterret mine
11. Silver Crown mine
12. Melrose mine

13. Jackson mine
14. Red Top mine
15. Hazel mine
16. Roosevelt mine
17. United Treasure mine
18. Keough mine
19. Myeerah mine
20. Frisco Standard mine
21. Morning prospect
22. Burrus mine
23. Galena Farm prospect

Bossburg District

24. Al Ki prospect
25. Silver Trail mine
26. Young America mine
27. Bonanza mine
28. Gold Bar prospect
29. Chloride Queen mine
30. Avondale-Dome prospect

Kettle Falls District

31. Gold Ledge mine
32. Vanasse prospect
33. Gold Reef mine
34. Ark mine
35. Aguila mine

Colville District

36. Longshot mine
37. Middleport mine
38. Old Dominion mine
39. Ore Cache mine

Summit District

40. Daisy Tempest mine
41. Silver Summit mine

Chewelah District

42. Krug (Hanford) mine
43. Jay Dee mine
44. High Grade mine
45. United Copper mine
46. Copper King mine
47. Amazon mine
48. Chinto mine
49. Eagle (Blue Star) mine
50. Jay Gould mine
51. U.S. Copper Gold mine
52. Mullen prospect
53. Nevada mine
54. Edna mine
55. Double Eagle mine
56. Wells Fargo mine

Deer Trail District

57. Orchid mine
58. Cleveland mine
59. Deer Trail mine
60. Brooks mine
61. Saturday Night-Sunday Morning mine
62. Queen-Seal mine
63. Aichan Bee mine
64. Silver Star prospect
65. Orazada mine
66. Indian Trail mine

PRINCIPAL SILVER DEPOSITS OF WESTERN WASHINGTON  
BY COUNTY AND DISTRICT

KING COUNTY  
See Figure 35<sup>1/</sup>

Miller River District

1. Apex mine
2. Cleopatra mine
3. Bear Basin prospect
4. Coney Basin mine
5. Damon and Pythias mine
6. Seattle Cascade mine

SKAGIT COUNTY  
See Figure 33

Cascade-Thunder Creek District

1. Johnsbury mine
2. Boston mine
3. Cascade prospect
4. Epoch prospect
5. Lakeside prospect
6. Midas prospect
7. Thunder Creek prospect
8. Thunder Mountain prospect
9. Willis and Everett mine
10. Silver Tip prospect

SNOHOMISH COUNTY  
See Figure 28

Darrington District

1. Larson prospect

<sup>1/</sup> Numbers on mines and prospects correspond to numbers on figures in text.

2. Feldt prospect
3. Gray Mare prospect
4. Courtney prospect
5. Forest Hope prospect
6. Hunter prospect
7. Highland prospect
8. Hannah prospect
9. Green Crown prospect

Silverton District

10. New Seattle prospect
11. White Swan prospect
12. St. Louis and Jackson mine
13. Glengarry prospect
14. Big Four prospect

Sultan District

15. "45" (Magus) mine
16. Silver Horseshoe prospect
17. Calumet prospect

Silver Creek District

18. Jasper prospect
19. Jasperson prospect
20. Trade Dollar prospect
21. Mineral Center prospect
22. Morning Star prospect
23. Corona prospect
24. Crown Point prospect
25. Golconda prospect

- 26. Editor prospect
- 27. Billy Lee prospect
- 28. Blue Bird prospect
- 29. Vandalia prospect

Monte Cristo District

- 30. Monte Cristo (Mystery, Pride) prospect

WHATCOM COUNTY

See Figure 33

Mount Baker District

- 1. Great Excelsior mine

Slate Creek District

- 2. Illinois prospect

## APPENDIX B

PROPERTY INDEX

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Addison	Ferry	Keller	99	100
Advance	Ferry	Covada	93	94
Aichan Bee	Stevens	Deer Trail	70	72
Algonkian	Ferry	Covada	93	94
Al Ki	Stevens	Bossburg	75	76
Amazon	Stevens	Chewelah	63	66
American Eagle	Kittitas	Cle Elum	141	141
American Flag	Okanogan	Sheridan	125	126
Anna	Okanogan	Nespelem	128	130
Anchor	Okanogan	Nespelem	128	130
Anchor	Ferry	Curlew	92	103
Anderson	Ferry	Keller	99	97
Andy O'Neil	Okanogan	Nespelem	128	130
Apache	Okanogan	Nespelem	128	130
Apex	King	Miller River	165	165
Aguila (Eagle-Newport)	Stevens	Kettle Falls	62	89
Ark (Silver Queen)	Stevens	Kettle Falls	62	89
Arlington	Okanogan	Conconully	106	110
Aurora	Kittitas	Cle Elum	141	141
Avondale-Dome	Stevens	Bossburg	75	76
Bear Basin	King	Miller River	163	166
Bellevue	Okanogan	Loomis	120	121
Big Four	Snohomish	Silverton	157	157
Big Lake	Ferry	Covada	92	94
Billy Lee	Snohomish	Silver Creek	153	152
Black Huzzar	Okanogan	Conconully	105	110
Blue Bird	Snohomish	Silver Creek	153	152
Buck Mountain	Okanogan	Conconully	106	110
Bonanza	Stevens	Bossburg	75	77
Boss	Kittitas	Cle Elum	141	142
Boston	Skagit	Cascade-Thunder Creek	161	161

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Brooks	Stevens	Deer Trail	70	72
Bullfrog	Okanogan	Loomis	120	122
Bullion	Stevens	Northport	62	85
Burlington and Delaware	Ferry	Keller	92	100
Burrus	Stevens	Northport	62	85
Butterfly	Ferry	Covada	93	94
Calumet	Snohomish	Sultan	151	151
Camp Creek	Kittitas	Cle Elum	141	142
Carl Frederick (Bernhardt)	Okanogan	Conconully	105	111
Cascade	Skagit	Cascade-Thunder Creek	161	162
Central	Okanogan	Conconully	105	111
Chief Barnaby	Ferry	Covada	92	95
Chinto	Stevens	Chewelah	63	66
Chloride	Okanogan	Conconully	106	111
Chloride Queen	Stevens	Bossburg	75	77
Chopaka	Okanogan	Loomis	120	122
Cle Elum	Kittitas	Cle Elum	141	142
Cleopatra	King	Miller River	165	166
Cleveland	Stevens	Deer Trail	62	72
Comstock	Stevens	Orient	62	91
Coney Basin	King	Miller River	165	166
Congress	Ferry	Keller	92	101
Copper King	Stevens	Chewelah	63	66
Corona	Snohomish	Silver Creek	153	152
Courtney	Snohomish	Darrington	155	155
Coyote	Stevens	Northport	115	85
Crown Point	Snohomish	Silver Creek	153	153
Daisy Tempest	Stevens	Summit	62	79
Damon and Pythias	King	Miller River	165	167
Dan Patch	Ferry	Covada	93	95
Deer Trail	Stevens	Deer Trail	70	73
Double Eagle	Stevens	Chewelah	62	66
Doubtful	Chelan	Stehekin	138	139

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Eagle	Okanogan	Loomis	120	122
Eagle (Blue Star)	Stevens	Chewelah	63	67
Easter Sunday	Stevens	Orient	62	91
Editor	Snohomish	Silver Creek	153	153
Edna	Stevens	Chewelah	62	67
Epoch	Skagit	Cascade-Thunder Creek	161	162
Esther	Okanogan	Conconully	106	111
Esther and Louisa	Kittitas	Gold Creek	142	142
Eureka	Okanogan	Conconully	105	111
Eureka	Okanogan	Park City	133	132
Eureka	Okanogan	Loomis	120	122
Evening	Okanogan	Nespelem	128	131
Evening Star	Okanogan	Conconully	106	111
Feldt	Snohomish	Darrington	155	156
First Thought	Okanogan	Conconully	106	112
Forest Hope	Snohomish	Darrington	155	156
Fourth of July	Okanogan	Conconully	106	112
"45" (Magus)	Snohomish	Sultan	151	152
Franklin	Chelan	Stehekin	138	139
Frisco Standard	Stevens	Northport	115	85
Galena Farm	Stevens	Northport	62	86
Giant	Kittitas	Gold Creek	142	143
Glengarry	Snohomish	Silverton	157	158
Golconda	Snohomish	Silver Creek	153	154
Gold Bar	Stevens	Bossburg	75	77
Gold Cup	Okanogan	Conconully	105	112
Gold Eagle	Okanogan	Conconully	105	112
Gold Ledge	Stevens	Kettle Falls	62	90
Gold Reef (Benevue)	Stevens	Kettle Falls	62	90
Golden Chord	Ferry	Keller	99	101
Good Ore	Ferry	Covada	93	95
Gray Mare	Snohomish	Darrington	155	156

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Great Divide	Okanogan	Nespelem	128	131
Great Excelsior	Whatcom	Mount Baker	159	160
Great Northern	Ferry	Keller	99	101
Great Republic	Stevens	Northport	115	86
Green Crown	Snohomish	Darrington	155	156
Gwin	Ferry	Covada	93	95
Hanford	Okanogan	Park City	133	133
Hanley	Pend Oreille	Metaline	58	59
Hannah	Snohomish	Darrington	155	156
Hardscrabble	Okanogan	Conconully	106	112
Hazel	Stevens	Northport	115	86
High Grade	Stevens	Chewelah	63	67
Highland	Snohomish	Darrington	155	156
Homestake	Okanogan	Conconully	106	113
Homestake and Star	Chelan	Stehekin	138	139
Horn Silver	Okanogan	Loomis	120	122
Horseshoe Basin	Chelan	Stehekin	138	139
Hunter	Chelan	Meadow Creek	136	137
Hunter	Snohomish	Darrington	155	157
Illinois	Whatcom	Slate Creek	159	160
Indian Trail	Stevens	Deer Trail	62	73
Iowa	Chelan	Meadow Creek	136	137
Iron Mask	Stevens	Orient	62	91
Isoletta	Chelan	Stehekin	138	139
Ivanhoe	Ferry	Covada	93	95
Ivanhoe	Okanogan	Loomis	120	123
Jackson	Stevens	Northport	115	86
Jasper	Snohomish	Silver Creek	153	154
Jasperson	Snohomish	Silver Creek	153	154
Jay Dee	Stevens	Chewelah	63	67
Jay Gould	Stevens	Chewelah	63	67
John Arthur	Okanogan	Conconully	106	113

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Johnsburg	Skagit	Cascade-Thunder Creek	161	162
Jumper	Ferry	Keller	99	101
Kaaba-Texas	Okanogan	Loomis	120	123
Keough	Stevens	Northport	115	86
Key	Okanogan	Conconully	106	113
Keystone	Okanogan	Conconully	106	113
Keystone	Ferry	Covada	93	96
Kimberly	Okanogan	Loomis	120	123
King Solomon	Ferry	Covada	93	96
Krug (Hartford)	Stevens	Chewelah	62	68
Lady of the Lake	Okanogan	Conconully	106	113
Lakeside	Skagit	Cascade-Thunder Creek	161	162
Larson	Snohomish	Darrington	155	157
La Sota	Pend Oreille	Metaline	58	60
Last Chance	Okanogan	Conconully	106	114
Leonora	Okanogan	Conconully	106	114
Leuena	Okanogan	Conconully	106	114
Lilman	Okanogan	Nespelem	128	131
Little Chief	Okanogan	Nespelem	128	131
Little Jap	Chelan	Meadow Creek	136	137
Lone Star	Okanogan	Conconully	106	114
Longshot	Stevens	Colville	62	81
Longstreet	Ferry	Covada	93	96
Lulu	Okanogan	Conconully	105	114
Mammoth	Okanogan	Conconully	106	114
McJunkin	Ferry	Keller	92	101
McKinley	Stevens	Orient	62	91
Meadow Creek	Ferry	Keller	99	102
Melrose (Paragon)	Stevens	Northport	115	87
Meteor	Ferry	Covada	93	96
Midas	Skagit	Cascade-Thunder Creek	161	162
Middleport	Stevens	Colville	62	82

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Mineral Center	Snohomish	Silver Creek	153	154
Minnehaha	Okanogan	Conconully	106	115
Mohawk	Okanogan	Conconully	106	115
Monitor	Okanogan	Conconully	106	115
Montana	Ferry	Covada	93	96
Montana and Washington	Stevens	Orient	62	91
Monte Cristo	Snohomish	Monte Cristo	150	158
Morning	Stevens	Northport	62	87
Morning Star	Snohomish	Silver Creek	153	154
Mountain Boy	Okanogan	Park City	133	133
Mountain Sheep	Okanogan	Loomis	120	123
Mullen	Stevens	Chewelah	63	68
Myeerah	Stevens	Northport	115	87
Nevada	Stevens	Chewelah	62	68
Nevada	Okanogan	Conconully	106	115
New Seattle	Snohomish	Silverton	157	158
New York	Ferry	Covada	93	97
Number 1	Okanogan	Loomis	120	124
Okanogan Belle	Okanogan	Conconully	106	116
Old Dominion	Stevens	Colville	62	82
Oom Paul	Ferry	Covada	93	97
Orazada	Stevens	Deer Trail	70	73
Orchid	Stevens	Deer Trail	70	73
Ore Cache	Stevens	Colville	62	82
Oriole	Pend Oreille	Metaline	58	60
Orphan Boy	Chelan	Meadow Creek	136	137
Panama	Ferry	Curlew	92	103
Panama	Okanogan	Nespelem	128	132
Peacock	Okanogan	Conconully	106	116
Plant-Callahan	Okanogan	Conconully	106	116
Plymouth Rock	Ferry	Covada	93	97
Poorman	Pend Oreille	Metaline	58	60

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Quien Sabe	Chelan	Stehekin	138	140
Queen-Seal	Stevens	Deer Trail	70	74
Rainbow	Okanogan	Loomis	120	124
Ramore	Okanogan	Park City	133	134
Red Top	Stevens	Northport	115	87
Reserve	Ferry	Covada	93	97
Rich Bar	Okanogan	Loomis	120	124
Ries (Eagle)	Pend Oreille	Newport	58	60
Rocky Creek	Pend Oreille	Metaline	58	60
Romulus	Ferry	Covada	93	98
Roosevelt	Stevens	Northport	115	88
Rover Bonanza	Ferry	Keller	99	102
Royal Ann	Ferry	Covada	93	98
Ruby	Okanogan	Loomis	120	124
St. Louis and Jackson	Snohomish	Silverton	157	158
Salmon River	Okanogan	Conconully	106	116
Saturday Night-Sunday Morning	Stevens	Deer Trail	70	74
Seattle-Cascade	King	Miller River	165	167
Shamrock (Iron Creek)	Ferry	Keller	99	102
Shelby	Okanogan	Conconully	106	116
Sherman	Okanogan	Conconully	105	116
Sheridan	Okanogan	Sheridan	125	126
Shoo Fly	Ferry	Covada	93	98
Silver Bell	Okanogan	Sheridan	125	126
Silver Belle	Okanogan	Conconully	105	117
Silver Bluff	Okanogan	Conconully	105	117
Silver Crown	Stevens	Northport	115	88
Silver Crown No. 2	Ferry	Covada	93	97
Silver Horseshoe	Snohomish	Sultan	151	152
Silver King and Silver Queen	Kittitas	Gold Creek	142	143
Silver Leaf	Ferry	Covada	93	97
Silver Star	Stevens	Deer Trail	70	74
Silver Summit	Stevens	Summit	62	79

<u>Property</u>	<u>County</u>	<u>District</u>	<u>Index map page</u>	<u>Property description page</u>
Silver Tip	Skagit	Cascade-Thunder Creek	161	163
Silver Trail	Stevens	Bossburg	75	77
Skippy and Queen Bess	Pend Oreille	Newport	58	61
Sterrett	Stevens	Northport	115	88
Sonny Boy	Stevens	Conconully	106	117
Stray Dog	Ferry	Covada	93	98
Summit	Ferry	Keller	99	102
Summit	Okanogan	Park City	133	134
Summit	Okanogan	Loomis	120	124
Sunday Morning	Chelan	Meadow Creek	136	138
Sunrise	Okanogan	Conconully	...	117
Sunset	Stevens	Northport	115	88
Thunder Creek (Dorothy)	Skagit	Cascade-Thunder Creek	161	163
Thunder Mountain	Skagit	Cascade-Thunder Creek	161	163
Tough Nut	Okanogan	Conconully	106	117
Trade Dollar	Snohomish	Silver Creek	153	154
Transit	Kittitas	Gold Creek	142	143
United Copper	Stevens	Chewelah	63	68
United Treasure	Stevens	Northport	15	88
U.S.	Ferry	Covada	92	99
U.S. Copper Gold	Stevens	Chewelah	62	68
Vanasse	Stevens	Kettle Falls	62	90
Vandalia	Snohomish	Silver Creek	153	155
Wells Fargo	Stevens	Chewelah	62	69
Wheeler (Mineral Hill)	Okanogan	Conconully	106	118
White Swan	Snohomish	Silverton	157	158
Willis and Everett	Skagit	Cascade-Thunder Creek	161	163
Windfall	Okanogan	Conconully	106	118
Woo Loo Moo Loo	Okanogan	Conconully	106	118
Young America	Stevens	Bossburg	75	78
Zalla M.	Okanogan	Sheridan	125	127

## APPENDIX C

SILVER PRODUCTION IN WASHINGTON

Year	Silver (troy ozs.)	Value (dollars)	Year	Silver (troy ozs.)	Value (dollars)
Prior to 1866 ...	120,500	161,108	1905 .....	125,376	75,727
1866.....	12,500	16,737	1906 .....	45,878	30,738
1867.....	5,000	6,650	1907 .....	55,359	36,357
1868.....	5,000	6,650	1908 .....	88,823	47,076
1869.....	3,750	4,969	1909 .....	79,488	41,334
1870.....	3,750	4,969	1910 .....	205,345	110,886
1871.....	4,000	5,300	1911 .....	243,781	129,204
1872.....	3,250	4,297	1912 .....	413,538	254,326
1873.....	2,355	3,054	1913 .....	331,239	200,068
1874.....	1,925	2,460	1914 .....	264,861	146,468
1875.....	1,000	1,240	1915 .....	255,837	129,709
1876.....	320	371	1916 .....	355,121	220,510
1877.....	41,667	50,000	1917 .....	282,320	232,632
1878.....	21,739	25,000	1918 .....	310,093	310,093
1879.....	17,857	20,000	1919 .....	259,384	250,510
1880.....	886	1,019	1920 .....	199,678	217,649
1881.....	1,450	1,639	1921 .....	142,450	142,450
1882.....	1,450	1,639	1922 .....	205,046	205,046
1883.....	387	430	1923 .....	227,187	186,293
1884.....	912	1,012	1924 .....	213,742	143,207
1885.....	52,208	55,863	1925 .....	166,425	115,499
1886.....	123,752	122,514	1926 .....	171,649	107,109
1887.....	94,516	92,626	1927 .....	155,850	88,367
1888.....	123,750	116,325	1928 .....	99,738	58,347
1889.....	81,984	77,035	1929 .....	47,182	25,148
1890.....	69,628	73,109	1930 .....	32,816	12,634
1891.....	165,883	164,224	1931 .....	22,410	6,499
1892.....	151,554	131,852	1932 .....	17,412	4,910
1893.....	134,961	105,270	1933 .....	18,520	6,482
1894.....	9,683	6,100	1934 .....	44,120	28,522
1895.....	109,060	70,889	1935.....	52,338	37,618
1896.....	233,407	158,717	1936.....	66,900	51,814
1897.....	242,780	145,668	1937.....	126,304	97,696
1898.....	329,549	194,434	1938.....	380,938	246,263
1899.....	289,661	173,796	1939.....	442,063	300,067
1900.....	302,570	187,593	1940.....	365,175	259,680
1901.....	377,381	222,466	1941.....	402,030	285,888
1902.....	721,450	376,308	1942.....	369,038	262,427
1903.....	305,401	201,789	1943.....	370,440	263,424
1904.....	157,598	89,831	1944.....	321,608	228,699

Year	Silver (troy ozs.)	Value (dollars)	Year	Silver (troy ozs.)	Value (dollars)
1945 .....	281,444	200,138	1955 .....	436,348	394,917
1946 .....	264,453	213,678	1956... <sup>1/</sup> ...	448,441	405,862
1947 .....	293,736	265,831	1957-1972 <sup>1/</sup> ....	<u>6,410,835</u>	<u>7,822,417</u>
1948 .....	375,831	340,146	Total	22,822,490	\$20,307,881
1949 .....	357,853	328,875			
1950 .....	363,656	329,127			
1951 .....	335,000	303,145			
1952 .....	316,000	285,675			
1953 .....	321,202	290,704			
1954 .....	313,715	283,928			

<sup>1/</sup> Individual years were not published by U.S. Bureau of Mines so individual company confidential information would not be disclosed.

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