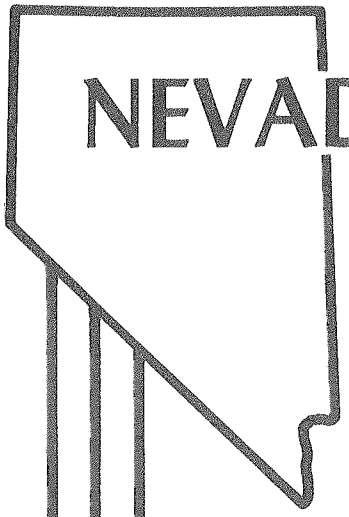


NEVADA BUREAU OF MINES

VERNON E. SCHEID, DIRECTOR

REPORT 2

AN INVENTORY OF MOLYBDENUM OCCURRENCES IN NEVADA

BY JOHN H. SCHILLING

MACKAY SCHOOL OF MINES

UNIVERSITY OF NEVADA

1962

NEVADA BUREAU OF MINES REPORT 2

NEVADA BUREAU OF MINES

Vernon E. Scheid, Director

REPORT 2.

AN INVENTORY OF MOLYBDENUM OCCURRENCES IN NEVADA

by

John H. Schilling

Mackay School of Mines
University of Nevada
Reno, Nevada
1962

STATE OF NEVADA

Grant Sawyer, Governor

UNIVERSITY OF NEVADA

Charles J. Armstrong, President

MACKAY SCHOOL OF MINES

Vernon E. Scheid, Dean

NEVADA BUREAU OF MINES

NEVADA MINING ANALYTICAL LABORATORY

Vernon E. Scheid, Director

Stanley E. Jerome, Associate Director

For sale by Nevada Bureau of Mines, University of Nevada, Reno, Nevada. Price 75 cents.
If purchased by mail add 15 cents to cover postage and handling costs.

CONTENTS

ILLUSTRATIONS

AN INVENTORY OF MOLYBDENUM OCCURRENCES IN NEVADA

By John H. Schilling

ABSTRACT

Molybdenum minerals are widely distributed in Nevada, being reported in every county except Ormsby. Molybdenite, the principal ore mineral, occurs in veins and disseminations in 1) copper deposits of the porphyry and other types; 2) contact metasomatic tungsten deposits; 3) complex lead-zinc deposits; 4) deposits with only minor tungsten, copper, lead, and zinc; and 5) pegmatites. Powellite most commonly occurs in contact metasomatic deposits. Wulfenite occurs in oxidized lead-zinc ores. Ferrimolybdite and ilsemannite are found as oxidation products in all types of molybdenite deposits. Granitic igneous rocks commonly are associated with the molybdenum occurrences.

Large amounts of molybdenite concentrates have been produced as a by-product of porphyry copper mining in the Robinson (Ely) mining district. Some wulfenite concentrates were produced from the Shenandoah lead-zinc mine in the Goodsprings mining district. Two small shipments have been reported from other localities in the State.

The location, production, development, and geology of each of the 121 known molybdenum occurrences in the State are given in tabular form.

INTRODUCTION

PURPOSE AND SCOPE

This report briefly describes each occurrence of molybdenum minerals in Nevada. It provides a summary of our present knowledge based on all available information, both published and unpublished; in most cases this information has not been verified by field examinations. Many of the descriptions of the individual occurrences are extremely sketchy, and some undoubtedly are inaccurate, however many previously undescribed occurrences (including many recent discoveries) are included. General information about uses, beneficiation, etc. has not been given; for this background information see: U. S. Bureau of Mines Information Circular 7784, Molybdenum - a materials survey.

The author and the Bureau will appreciate receiving information about other molybdenum occurrences in the State, as well as additional data or corrections for the occurrences described here. Any information on molybdenum occurrences acquired after the publication of this report will be placed on file at the Nevada Bureau of Mines where it will be available for examination.

ACKNOWLEDGMENTS

So many persons and companies have supplied information to make this report possible that no attempt has been made to credit each with his individual contributions. The help and support of each is gratefully acknowledged.

OCCURRENCE

One hundred and twenty-one occurrences of molybdenum minerals have been reported in Nevada, distributed in every county except Ormsby. Molybdenite is the principal molybdenum ore mineral; wulfenite, powellite, and ferrimolybdite have been of minor economic importance. All these molybdenum minerals plus ilsemannite occur in the State.

Molybdenite occurs as disseminations and in veins in five kinds of deposits: 1) with tungsten (scheelite) in contact metasomatic deposits; 2) with copper minerals in deposits containing only minor lead and zinc, including the copper porphyry type; 3) with lead and zinc minerals in complex base metal deposits; 4) in deposits containing only minor tungsten, lead, zinc, or copper; and 5) in pegmatites. Powellite most commonly is present in the contact metasomatic deposits, in many cases replacing molybdenite. Wulfenite occurs in the oxidized portions of the complex base metal deposits. Ferrimolybdite and ilsemannite are found in all five types of deposits as oxidation products of molybdenite. Granitic (granite to diorite) intrusive rocks are known to be associated with nearly all of the molybdenum occurrences.

PRODUCTION

The porphyry copper mines in the Robinson (Ely) mining district have produced appreciable amounts of molybdenite concentrates as a by-product of copper mining. Some wulfenite concentrates were produced from the Shenandoah lead-zinc mine in the Goodsprings mining district, and some molybdenum concentrates have been shipped from the Osgood Mountains by Getchell Mine, Inc. A small lot of high-grade concentrates reportedly were shipped from Lovelock during 1915, but the source of this molybdenum has not been determined. There has been no other known molybdenum production in Nevada.

MARKETING

At present, molybdenum is marketable mainly as molybdenite concentrates; the crude ore, in nearly all cases, cannot be sold without being concentrated. Some buyers require that the concentrate contain as much as 90 percent molybdenum disulfide (molybdenite) and less than 0.5 percent copper, while others will accept lower grade material. The concentrates bring roughly $1.25 per pound of contained molybdenum.

Each occurrence of molybdenum minerals in Nevada is described below. Names, locations, molybdenum production, development (workings), geology, references, and base maps are given if known.

In the geologic descriptions, the names of molybdenum-containing minerals are printed in capital letters (i.e. MOLYBDENITE). Occurrences are numbered and may be located on Plate 1 (foldout inside rear cover).*

If the occurrence name is not in capital letters, that particular occurrence has been grouped with other occurrences under a geographical heading. In several such cases, information about the specific area is summarized under the geographical heading, the individual occurrence descriptions following.

References listed are those that actually mention the occurrence of molybdenum; others describing the general geology are not listed. Unpublished sources of information have not been credited. If no specific pages are listed for a given reference, the description of the occurrence is covered under a number of headings. Quotation marks indicate exact quotations from the reference. Each description includes a reference to the largest scale topographic map that covers the area of the occurrence. The maps include both the standard U. S. Geological Survey quadrangle maps, and topographic maps of the so-called AMS series. The latter have been compiled by the Army Map Service, printed by the U. S. Geological Survey, and are listed in indexes as U. S. 1:250,000 scale topographic maps.

CHURCHILL COUNTY

1. SCOTT PROSPECT

Other names:	Scott's camp; Tungsten Mt. mine.
Location:	Sec. 21, T. 21 N., R. 38 E.
Molybdenum production:	None.
Geology:	MOLYBDENITE occurs with gold-bearing mineralization along a shale-granite contact.
Reference:	Schrader, 1947, p. 330.
Base map:	U. S. 1:250,000 scale topographic map, Millett sheet.

2. NEVADA WONDER MINE

Other name:	Wonder mine.
Location:	Secs. 4(?) and 9(?), T. 18 N., R. 35 E.
Molybdenum production:	None.
Development:	More than 66,000 feet of workings made in mining silver and gold.

* Plate 1 is a greatly reduced copy of Nevada Bureau of Mines Preliminary Map 8, "Molybdenum occurrences in Nevada."

Nevada Wonder Mine (Cont.)

Geology: WULFENITE occurs in an oxidized part of the Wonder vein, one of four parallel, northwest-trending, steep-dipping veins extending for more than a mile along shear zones in Tertiary rhyolite. MOLYBDENITE reportedly also is present in the veins. The unoxidized portions of the veins contain abundant quartz, lesser adularia, gouge, and rhyolite fragments, some fluorite, pyrite, chalcopyrite. The oxidized zone extends uniformly to a depth of 1,300 feet. Secondary silver minerals are present, but copper, lead, and zinc minerals are rare.
Reference: Schrader, 1947, p. 46-59.
Base map: U. S. 1:250,000 scale topographic map, Reno sheet.

3. CHALK MOUNTAIN MINING DISTRICT

Location: T. 17 N., R. 34 E.
Molybdenum production: None.
Development: Several lead-silver mines and prospects.
Geology: Veins and bodies of lead-zinc mineralization occur along fault zones in Triassic(?) limestone, near a granodiorite porphyry stock that intrudes the limestone. The deposits are mostly oxidized and consist of limestone fragments, quartz, calcite, garnet, epidote, cerussite, anglesite, WULFENITE, galena, cerargyrite, plumbojarosite, copper carbonates, and vanadinite. The unoxidized portions of the deposits contain galena, pyrite, MOLYBDENITE, and chalcopyrite. POWELLITE is present with scheelite in tactitized limestone in contact with the granodiorite.
Reference: Schrader, 1947.
Base map: U. S. 1:250,000 scale topographic map, Reno sheet.

CLARK COUNTY

GOODSPRINGS MINING DISTRICT

Other names: Yellow Pine district; Potosi district.
Location: Tps. 23, 24, and 25 S., Rs. 57 and 58 E.
Geology: Lead-zinc, zinc, lead, copper, gold-silver, MOLYBDENUM, vanadium, nickel-cobalt, and gold-platinum-palladium deposits occur in the district. Tabular, orange to wax-brown crystals of WULFENITE line drusy cavities

Goodsprings Mining District (Cont.)

in many of the lead-zinc deposits. The lead-zinc mineralization occurs as bodies replacing Mississippian limestone and dolomite where brecciated fault zones and fractures cut these rocks. The bodies consist mainly of quartz, galena, cerussite, hydrozincite, calamine, some anglesite, smithsonite, and sphalerite, and locally some chalcopyrite, chrysocolla, malachite, and azurite. Oxidation extends below the deepest workings.

References: Albritton, 1954.
Hewett, 1931.

Base map: U. S. Geol. Survey Goodsprings special topographic quadrangle.

4. Shenandoah Mine

Location: Sec. 35, T. 24 S., R. 57 E.

Molybdenum production: In 1936(?) concentrates containing approximately 20 tons of molybdenum were produced from 5,000 tons of wulfenite ore. Ore was screened, and the wulfenite in the fines concentrated by tabling, followed by flotation.

Development: Several adits and lateral workings totaling 2,500 feet, mainly made while mining lead-zinc. The molybdenum ore was mined from an area 130 feet long, 160 feet thick, and 10 to 30 feet wide.

Geology: WULFENITE occurs with cerussite, galena, smithsonite, and hydrozincite in lenses in brecciated zones cutting limestone.

Base map: U. S. Geol. Survey Shenandoah Peak 15' topographic quadrangle.

5. Smithsonite Mine

Location: Secs. 25 and 26, T. 24 S., R. 57 E.

Molybdenum production: None.

Development: A 55-foot shaft, 210 feet of drifts, and 2 stopes from which some lead, zinc, and copper have been mined.

Geology: WULFENITE has been observed.

Base map: U. S. Geol. Survey Shenandoah Peak 15' topographic quadrangle.

6. Mobile Mine

Location: Secs. 35 and 36, T. 24 S., R. 57 E.

Molybdenum production: None.

Mobile Mine (Cont.)

Geology: Considerable WULFENITE occurs in two places in dolomite breccia as flat, waxen-yellow crystals, many of which are entirely covered by fine crystals of calamine.

Base map: U. S. Geol. Survey Shenandoah Peak 15' topographic quadrangle.

7. Whale Mine

Location: Sec. 1, T. 25 S., R. 57 E.
Molybdenum production: None.
Development: A number of shallow shafts, short adits, and short drifts made while mining and exploring for zinc and lead.
Geology: In the eastern group of workings, small veins containing cuprodescloizite, and locally a little galena, calamine, and WULFENITE, are sporadically distributed in limestone.
Base map: U. S. Geol. Survey Shenandoah Peak 15' topographic quadrangle.

8. Pilgrim Mine

Location: Sec. 8, T. 24 S., R. 58 E.
Molybdenum production: None.
Development: An inclined shaft with several stopes and three levels totaling several hundred feet made while mining lead-zinc ore.
Geology: Cerussite, galena, hydrozincite, calamine, and pyromorphite occur sporadically along folds in the bedding planes of limestone. WULFENITE is associated with the lead-zinc mineralization.
Base map: U. S. Geol. Survey Goodsprings 15' topographic quadrangle.

9. Ruth Mine

Location: NE 1/4 sec. 29, T. 24 S., R. 58 E.
Molybdenum production: None.
Development: An adit with several hundred feet of workings, a large stope, and 2 shafts connecting with the adit level, made while mining lead.
Geology: Small tabular crystals of WULFENITE are found on open fractures in dolomitized limestone in the drifts off the adit, near a large ore shoot consisting of pods of galena up to 2 feet thick in a breccia zone which parallels the bedding in the limestone.
Base map: U. S. Geol. Survey Goodsprings 15' topographic quadrangle.

10. Hermosa Claim

Location:	Near NW cor. sec. 4, T. 25 S., R. 58 E.
Molybdenum production:	None.
Geology:	Cerussite, WULFENITE, galena, and pyromorphite occur in a breccia zone in limestone parallel to the bedding.
Base map:	U. S. Geol. Survey Goodsprings 15' topographic quadrangle.

11. Hoosier Mine

Location:	West-central part of sec. 4, T. 25 S., R. 58 E.
Molybdenum production:	None.
Development:	Three adits and several stopes made while mining lead and zinc.
Geology:	WULFENITE has been observed with galena, cerussite, and hydrozincite along a breccia zone in dolomitized limestone.
Base map:	U. S. Geol. Survey Goodsprings 15' topographic quadrangle.

12. Milford Mine

Location:	Sec. 5, T. 26 S., R. 58 E.
Molybdenum production:	None.
Development:	A 380-foot inclined shaft with four levels and five stopes, and several adits, made while mining lead-zinc ore.
Geology:	Five lead-zinc ore bodies in breccia zones cutting limestone and dolomite. WULFENITE is locally abundant.
Base map:	U. S. Geol. Survey Clark Mtn. 15' topographic quadrangle.

13. CUMBERLAND PROSPECT

Other names:	Oro Fino prospect; Crescent.
Location:	Sec. 22(?) or 27(?), T. 28 S., R. 61 E.
Molybdenum production:	None.
Development:	A 137-foot inclined shaft with 350 feet of workings made while exploring for gold.
Geology:	"Formation is gneiss and granite. The ore values are chiefly in gold associated with silver, lead, and copper. Specimens of ore found on the dump showed vanadinite and WULFENITE."
Reference:	Vanderburg, 1937, p. 19.
Base map:	U. S. Geol. Survey Crescent Peak 15' topographic quadrangle.

SEARCHLIGHT MINING DISTRICT

Location: Secs. 22, 27, and 34,T. 28 S., R. 63 E. and secs. 2 and 3, T. 29 S., R. 63 E.

Geology: A number of gold veins carrying silver, lead, and copper values occur mainly in early Tertiary(?) andesite flows, breccias, and intrusives. The veins form an echelon pattern around the western margins of the quartz monzonite stock that intrudes the andesite rocks. Most of the veins strike to the west and dip to the south. The largest are up to 50 feet wide and have been mined for over 1,000 feet along their strike and to a maximum depth of 900 feet. The veins consist mainly of quartz, wall-rock fragments, cerussite, and hemimorphite; and some chrysocolla, chalcocite, cuprite, hematite, malachite, brochantite, linarite, leadhillite, WULFENITE, vanadinite, and mottramite. Although the veins are almost completely oxidized, some galena, sphalerite, and chalcopyrite are present locally.

Reference: Callaghan, 1939.

Base map: U. S. Geol. Survey Searchlight 15' topographic quadrangle.

14. Duplex Mine

Other name: IXL mine.

Location: SE cor. sec. 34, T. 28 S., R. 63 E.

Molybdenum production: None.

Development: Extensive workings extending over 1,600 feet laterally and to a depth of over 700 feet, made while mining gold ore containing lead, silver, and copper values.

Geology: WULFENITE occurs sparingly as tabular orange-yellow crystals in four veins cutting hornfels (altered andesite pyroclastics) and andesite porphyry dikes.

15. Quartette Mine

Other name: Golden Treasure mine.

Location: Secs. 2 and 3, T. 29 S., R. 63 E.

Molybdenum production: None.

Development: Over 5 miles of workings on 13 levels extending 2,100 feet laterally and to a depth of 870 feet; made while mining silver, copper, gold, and lead.

Quartette Mine (Cont.)

Geology: "WULFENITE . . . in characteristic square, tabular orange-colored crystals, is very common throughout the mine and does not necessarily indicate ore. It is apparently one of the later products of oxidation and occurs in little vugs and open fissures, implanted on the other minerals." The wulfenite occurs along one of the typical veins of the district. The vein is 3,300 feet long at the surface and has a general N. 20° W. strike and 50°-60° S. dip. It cuts andesite porphyry dikes and volcanic rocks now altered to hornfels, and Precambrian gneiss.

Reference: Ransome, 1907, p. 71.

115. CHARLESTON RANGE

Location: In the Spring Mountains (Charleston Range).

Molybdenum production: None.

Geology: MOLYBDENITE reportedly occurs with pyrite in quartz.

116. BUDGET GROUP

Location: " . . . about 1 1/2 miles south of Crescent"; Sec. 29, T. 28 S., R. 61 E.

Molybdenum production: None.

Geology: Several shallow shafts and adits, totaling about 600 feet, made while prospecting for gold and silver. Gold, WULFENITE, and vanadinite(?) occur in a quartz vein up to 2 feet wide, striking N. 25° E. and dipping 35°-50° in gneiss.

Reference: Vanderburg, 1937a, p. 21.

Base map: U. S. Geol. Survey Crescent Peak 15' topographic quadrangle.

DOUGLAS COUNTY

16. RISUE CANYON

Other names: Topaz Lake; may be same as Sweetwater (no. 75).

Location: Sec. 33(?), T. 9 N., R. 23 E.

Molybdenum production: None.

Geology: MOLYBDENITE and POWELLITE occur with scheelite in a contact metasomatic deposit.

Base map: U. S. Geol. Survey Desert Creek Peak 15' topographic quadrangle.

CONTACT MINING DISTRICT

Location: Most of the mines and prospects, including all reported occurrences of molybdenum, are in T. 45 N., Rs. 14 and 15 E.

Geology: A granodiorite stock intrudes Carboniferous limestone, quartzite, and shale. Alaskite dikes cut the granodiorite and sedimentary rocks. Tertiary volcanic and sedimentary rocks locally cover the other rocks. Quartz, chalcopyrite, bornite, MOLYBDENITE, and specularite occur as bodies in contact metasomatized limestone around the granodiorite stock, as fissure veins and disseminations in or associated with the alaskite dikes, and as fissure veins, locally enlarged by replacement, in the granodiorite or limestone. Oxidation extends to depths of 150 to 250 feet; chrysocolla, malachite, azurite, chalcocite, cuprite, native copper, limonite, and manganese oxides have been formed.

References: Schrader, 1912, p. 99-157.
Schrader, 1935.

Base maps: U. S. 1:250,000 scale topographic map, Wells sheet.
U. S. Geol. Survey Contact 15' topographic quadrangle.

17. Alice Mine

Location: SW 1/4 sec. 14(?), T. 45 N., R. 63 E.
Molybdenum production: None.
Development: 80-foot shaft made while mining copper-silver ore.
Geology: Leaf-like veinlets of MOLYBDENITE forming a "mesh," are intergrown with malachite, azurite, and a little chalcopyrite, bornite, chalcocite, and covellite. These minerals occur in vertical bands and irregular stringers up to a foot wide in an 8-foot-wide body of contact metasomatized limestone about 300 feet north of the granodiorite stock.
Base map: U. S. Geol. Survey Contact 15' topographic quadrangle.

18. Helen B. Smith Tunnel

Other names: Helen B. tunnel; Gray Copper Corp. tunnel.
Location: North-central part of sec. 22(?), T. 45 N., R. 63 E.
Molybdenum production: None.
Development: A 2,205-foot adit with 520 feet of drifts and raises.
Geology: A little MOLYBDENITE occurs with specks of chalcocite, and some chalcopyrite, bornite, and covellite, in granodiorite. However, most of the copper mineralization exposed in the adit is in contact-metasomatized limestone which apparently contains no molybdenite.
Base map: U. S. Geol. Survey Contact 15' topographic quadrangle.

19. Mammoth Mine

Location: South-central part of sec. 15(?), T. 45 N., R. 63 E.
Molybdenum production: None.
Development: 580-, 520-, and 460-foot adits, and a number of smaller workings made while mining copper-silver-gold ore.
Geology: Some MOLYBDENITE is associated with bornite, chalcopyrite, copper carbonates, and chrysocolla in contact metasomatized limestone.
Base map: U. S. Geol. Survey Contact 15' topographic quadrangle.

20. Bonanza Mine

Other name: Dolly B. prospect.
Location: Sec. 21, T. 45 N., R. 63 E.
Molybdenum production: None.
Development: Workings totaling about 1,000 feet, including 45- and 60-foot shafts and several adits made while mining copper ore.
Geology: In an inclined winze in the upper west workings, small amounts of MOLYBDENITE occur with secondary copper minerals and some copper sulfides in contact-metasomatized limestone along the contact of the granodiorite stock. An alaskite dike cuts the mineralized rock.
Base map: U. S. Geol. Survey Contact 15' topographic quadrangle.

21. Copper Shield Group

Other name: Effie Fay group.
Location: Sec. 19, T. 45 N., R. 64 E. and/or sec. 24, T. 45 N., R. 63 E.
Molybdenum production: None.
Development: Adits and shafts.
Geology: In the southern part of the group some MOLYBDENITE is associated with quartz, secondary copper minerals, bornite, chalcopyrite, and specularite as banded mineralization in an alaskite dike.
Base map: U. S. Geol. Survey Contact 15' topographic quadrangle.

22. Florence No. 16 Claim

Location: Sec. 26(?), T. 45 N., R. 63 E.
Molybdenum production: None.
Development: 20-foot shaft.
Geology: Considerable MOLYBDENITE is present in an alaskite dike in the more hematitic portion of a vein containing

ELKO COUNTY (Cont.)

Florence No. 16 Claim (Cont.)

copper carbonates, oxides, sulfides and silicate in glassy quartz and hematite.

Base map: U. S. Geol. Survey Contact 15' topographic quadrangle.

23. Ivy Wilson Mine

Other name: McArdle mine.

Location: 5 miles southwest of Contact; sec. 34(?), T. 45 N., R. 63 E.

Molybdenum production: None.

Development: A number of shallow shafts and adits.

Geology: Chalcopyrite and some associated MOLYBDENITE and bornite are disseminated irregularly through a 400-by 6,000-foot area in contact-metasomatized limestone. This zone is 1,200 feet west of the granodiorite stock and parallel to both the limestone bedding and the wall of the stock. MOLYBDENITE also is disseminated in a 1- to 3-foot garnetized quartzite(?) bed; the adjacent beds contain disseminated chalcopyrite and bornite.

Base map: U. S. 1:250,000 scale topographic map, Wells sheet.

24. ROBINETTE PROSPECT

Location: Sec. 4, T. 46 N., R. 61 E.

Molybdenum production: None.

Geology: Small specks of MOLYBDENITE, psuedomorphs of POWELLITE after flakes of molybdenite, and grains of scheelite are sparsely disseminated throughout a lens of tactitized limestone which occurs along a N. 45°-55° E.-trending contact with a granodiorite stock. Appreciable amounts of MOLYBDENITE are found near the south end of the tactite body in veins up to 2 inches thick, trending at right angles to the contact. The veins also contain quartz and some garnet, pyrite, and chalcopyrite.

Reference: Granger, 1957, p. 59.

Base map: U. S. Geol. Survey Elk Mountain 15' topographic quadrangle.

25. TENNESSEE MOUNTAIN

Location: Sec. 8(?), T. 45 N., R. 56 E.

Molybdenum production: None.

Development: Pits, trenching, and drilling done while exploring for or mining tungsten.

Geology: Pyrite, MOLYBDENITE, and minor chalcopyrite occur with finely disseminated scheelite in tactite which has

Tennessee Mountain (Cont.)

replaced limestone along the contact of a granite stock with the Paleozoic Tennessee Mountain formation.

Base map: U. S. Geol. Survey Rowland 15' topographic quadrangle.

26. HUBER HILL

Location: Head of Schlag Draw, 2 miles east of Mountain City.
Molybdenum production: None.
Development: Adit, bulldozing, and drilling.
Geology: MOLYBDENITE occurs with pyrite in quartz veins, and as disseminations in quartz monzonite.
Base map: U. S. Geol. Survey Mountain City 15' topographic quadrangle.

27. GOLDEN ENSIGN MINE

Location: At the Golden Ensign mine which is 1 1/2 miles southeast of Mountain City.
Molybdenum production: None.
Geology: MOLYBDENITE with some gold and silver.
Base map: U. S. Geol. Survey Rowland 15' topographic quadrangle.

28. OWYHEE

Location: Sec. 16, T. 45 N., R. 51 E.
Molybdenum production: None.
Development: Trenches, three churn-drill holes.
Geology: MOLYBDENITE occurs in quartz veins cutting slate. At places the slate is unconformably overlain by Tertiary basalt flows.
Base map: U. S. 1:250,000 scale topographic map, McDermitt sheet.

29. TECOMA

Other name: Jackson mine(?).
Location: Sec. 7(?), T. 41 N., R. 70 E.
Molybdenum production: None.
Geology: Speciments of WULFENITE on calcite from "Tecoma" are in the American Museum of Natural History and the California Bureau of Mines.
Reference: Horton, 1916, p. 89.
Base map: U. S. 1:250,000 scale topographic map, Wells sheet.

30. LUCIN MINING DISTRICT

Other name:	Pilot Range.
Location:	T. 39 N.(?), R. 70 E.
Molybdenum production:	None.
Geology:	WULFENITE occurs in both the Nevada and Utah parts of the district.
Reference:	Gianella, 1941, p. 70.
Base map:	U. S. 1:250,000 scale topographic map, Wells sheet.

31. FOX CREEK RANCH

Location:	Near Dinner Station, an abandoned stage post, T. 37 N., R. 54 E.
Molybdenum production:	None.
Geology:	MOLYBDENITE with pyrite in silicified rock.
Base map:	U. S. 1:250,000 scale topographic map, Wells sheet.

32. SPRUCE MOUNTAIN MINING DISTRICT

Location:	T. 31 N., Rs. 63 and 64 E.
Molybdenum production:	None.
Geology:	Lead-silver and copper ores occur as replacement deposits in limestone and as fissure veins. A 500-foot-wide dike of granite porphyry extends east-northeast across the district. The lead-silver deposits contain limonite, cerussite, anglesite, WULFENITE, and galena.
Reference:	Schrader, 1931, p. 11.
Base map:	U. S. Geol. Survey Spruce Mountain 15' topographic quadrangle.

33. DOLLY VARDEN MINING DISTRICT

Location:	Tps. 28 and 29 S., Rs. 65 and 66 E.
Molybdenum production:	None.
Geology:	WULFENITE occurs with cerussite, anglesite, and residual kernels of galena in replacement deposits associated with north-trending fractures in limestone. These lead-silver deposits are found only in the extreme southeastern part of the district. A quartz monzonite stock crops out in the northern part of the district; copper-bearing quartz veins cut the stock and contact metasomatic copper deposits occur in the limestone and shale surrounding the stock, but no molybdenum-bearing minerals have been reported.
Reference:	Schrader and others, 1917, p. 200.
Base map:	U. S. 1:250,000 scale topographic map, Elko sheet.

117. BATHOLITH MINE

Location: Secs. 13 and 24, T. 45 N., R. 57 E.
Molybdenum production: None.
Development: Workings made while mining tungsten.
Geology: MOLYBDENITE and POWELLITE occur with scheelite in a contact metasomatic deposit.
Base map: U. S. 1:250,000 scale topographic map, Wells sheet.

ESMERALDA COUNTY

34. CARRIE MINE

Location: Sec. 26(?), T. 4 N., R. 38 E.
Molybdenum production: None.
Development: 230-foot inclined shaft with about a thousand feet of workings on three levels and considerable stoping on the upper levels, made while mining silver-lead ore.
Geology: Quartz veins occur in a shear zone 3 to 10 feet wide in limestone near a quartz monzonite stock. The veins contain some pyrite, galena, tetrahedrite, and a little chalcopyrite, covellite, and copper carbonates. On the 210-foot level, MOLYBDENITE occurs in a vein with galena, sphalerite, stibnite, and scheelite.
Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

35. TONOPAH DIVIDE MINE

Location: Sec. 27, T. 2 N., R. 42 E.
Molybdenum production: None.
Development: 580-foot shaft with workings on 5 levels, made while mining silver.
Geology: In the Divide mining district, silver-bearing veins, trending north and dipping vertically, follow shear zones in Fraction rhyolite breccia. Intrusive bodies of Oddie rhyolite crop out in the district. The primary vein material consists of wall-rock fragments and minor quartz and pyrite; supergene enrichment has resulted in the downward concentration of silver as argentite, which subsequently has been almost completely converted to cerargyrite. A considerable amount of bright yellow FERRIMOLYBDITE(?) occurs as aggregates of minute needles on the 165-foot level of the Tonopah Divide mine at the point where the discovery crosscut intersects the main vein. The ferrimolybdite disappears with depth, and at the corresponding position on the next lower level there is abundant POWELLITE.

Tonopah Divide Mine (Cont.)

References: Knopf, 1921, p. 166.
Pough, 1937, pp. 57-64.
Base map: U. S. Geol. Survey Tonopah 7 1/2' topographic quadrangle.

36. LONE MOUNTAIN

Location: ". . . on Lone Mountain, in Esmeralda County, about 14 miles from Tonopah . . ."
Molybdenum production: None.
Geology: Reportedly MOLYBDENITE occurs here.
Reference: Eng. & Min. Jour., vol. 76 (1903), p. 667.
Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

37. BLACK HORSE MINE

Other name: Alice mine.
Location: Sec. 25, T. 2 N., R. 34 E.
Molybdenum production: None.
Geology: MOLYBDENITE and POWELLITE occur in tactite (garnetized limestone) several hundred feet from a body of granite. Scheelite-quartz veins cut the tactite.
Base map: U. S. 1:250,000 scale topographic map, Walker Lake sheet.

GOLDFIELD MINING DISTRICT

38. Columbia

Location: "At Columbia", deposit is probably in sec. 35 or 36, T. 2 S., R. 42 E.
Molybdenum production: None.
Geology: Specimens of MOLYBDENITE "with POWELLITE, scheelite and kaolin."
Reference: Horton, 1916, p. 87.
Base map: U. S. Geol. Survey Goldfield special topographic map.

39. Grandma(?) Shaft

Location: SW 1/4 sec. 36, T. 2 S., R. 42 E.
Molybdenum production: None.
Geology: Flakes of MOLYBDENITE occur as isolated flakes and rosettes disseminated sparsely through pre-Tertiary alaskite(?) in the east face of the dump. Thin quartz veinlets in the alaskite contain grains of pyrite. The alaskite makes up only a very small fraction of the total dump.
Base map: Plate 1, U. S. Geol. Survey Prof. Paper 66.

40. REDEMPTION MINE

Location: "1 1/2 miles south of Hornsilver"; T. 7 S., R. 42 E.
Molybdenum production: None.
Geology: WULFENITE occurs in mine.
Reference: Sanford and Stone, 1914, p. 123.

41. BULLFROG-GEORGE PROSPECT

Other name: Slate Ridge.
Location: T. 7 S., R. 41 E.
Molybdenum production: None.
Development: Small pits and cuts.
Geology: MOLYBDENITE occurs sporadically as small tablets and irregular masses in and between the quartz "individuals" of a 4- to 6-foot-wide quartz vein, striking N. 70° W. and dipping vertically, in granite. Pyrite, chalcopyrite, fluorite, galena, and chalcocite(?) also are found in the vein. Bright-yellow needles and tufted aggregates of MOLYBDITE are present where the molybdenite is oxidized.
Reference: Ball, 1907, pp. 192, 194, 195.
Base map: U. S. 1:250,000 scale topographic map, Goldfield sheet.

42. CUCOMUNGO DEPOSIT

Other names: Alum Gulch deposit; Tule Canyon deposit; Poison Spring deposit; Sorensen and Roper properties; Siskon property; Chessher property; Cucamunga deposit; Alum Creek deposit.
Location: Mainly in secs. 2 and 3, T. 7 S., R. 39 E.
Molybdenum production: None.
Development: Roper adit (approximately 900 feet long including several short laterals), drill holes, and extensive roads made while exploring for molybdenum.
Geology: A northwest-trending zone of weakness, a thousand feet wide and several miles long, occurs in (Cottonwood) quartz monzonite along the contact with a wedge of metasediments which separate the quartz monzonite from a stock of older (Uncle Sam) quartz monzonite porphyry to the southwest. The rocks within the zone have been silicified, sericitized, and argillized. Flakes and rosettes of MOLYBDENITE are sparsely disseminated through the silicified and sericitized Cottonwood quartz monzonite and along the edges of quartz veinlets in the altered Cottonwood quartz monzonite. Pyrite also is present, but copper minerals are almost completely absent. Limonite, iron

Cucomungo Deposit (Cont.)

sulfate, jarosite, and other oxidation products are abundant at the surface but molybdenite and pyrite also are found. Yellow FERRIMOLYBDITE(?) is present but difficult to distinguish from the other yellow secondary minerals. Abundant dark blue ILSEMANNITE(?) is forming on the dump of the Roper adit, and occurs along a fault zone in the altered area. The water from Poison Springs and from the Roper adit contains appreciable amounts of MOLYBDENUM.

Base map: U. S. Geol. Survey Magruder Mtn. 15' topographic quadrangle.

43. MC BOYLE PROSPECT

Other name: Copper Canyon prospect.

Location: Sec. 16(?), T. 7 S., R. 39 E.; in Copper Canyon at California-Nevada line.

Molybdenum production: None.

Geology: One hundred feet above canyon bottom, MOLYBDENITE, pyrite, and minor quartz occur along fault on the contact between marble and the (Uncle Sam) quartz monzonite porphyry. In the canyon bottom, ILSEMANNITE(?) and FERRIMOLYBDITE(?) stain a 4-inch fault zone in the quartz monzonite.

Base map: U. S. Geol. Survey Magruder Mtn. 15' topographic quadrangle.

EUREKA COUNTY

44. MINERAL HILL MINING DISTRICT

Location: Sec. 10, T. 26 N., R. 52 E.

Molybdenum production: None.

Development: Open cuts, adits, and shallow stopes totaling 3,000 feet; made while mining silver and some gold, copper, lead, and zinc.

Geology: Quartz, wall-rock fragments, calcite, barite, argentite, tetrahedrite, galena, copper carbonates, sphalerite, pyromorphite, cerussite, polybasite, steffanite, pyrite, and MOLYBDENITE are contained in replacement bodies and as breccia-fillings in the more intensely shattered

Mineral Hill Mining District (Cont.)

part of a breccia zone in Paleozoic limestone. The breccia zone trends north, and is a quarter of a mile long and several hundred feet wide. Three highly altered dikes, striking east, cut the limestone in the vicinity of the ore deposits.

Reference: Eissler, 1898, p. 154-167.

Base map: U. S. Geol. Survey Mineral Hill 15' topographic quadrangle.

45. EUREKA MINING DISTRICT

Location: Tps. 18 and 19 N., Rs. 53 and 54 E.

Molybdenum production: None.

Development: Numerous mines and prospects with extensive workings made while mining lead-silver ore.

Geology: WULFENITE is relatively abundant and widespread in the oxidized ore of the district. Many excellent specimens have been found. MOLYBDENITE also is present in the ore, but only in a few spots, and in small amounts. The mineral deposits of the district are replacement chimneys, irregular bodies, veins, cavern linings, and bedded deposits associated with fissures, mainly in Cambrian limestone. Galena, pyrite, arsenopyrite, and sphalerite are common below the zone of oxidation. Galena, cerussite, anglesite, and mimetite occur in the oxidized zone which extends to a depth of 1,200 feet. MOLYBDENUM is present in appreciable amounts in the slag and other waste products resulting from the smelting of the Eureka ores.

References: Blake, 1878, p. 559.
Gianella, 1941, p. 52.

Base map: U. S. Geol. Survey Eureka Mining District topographic quadrangle.

46. ANTELOPE MINE

Other names: Fish Creek Wells mine; Eather mine.

Location: Secs. 17 and 18, T. 17 N., R. 52 E.

Molybdenum production: None.

Development: A 350-foot adit, 240-foot raise, and other workings totaling about 1,000 feet; apparently made in the 1800's while exploring the lead-silver-zinc veins. After 1928, some stripping and trenching were done while developing the MOLYBDENUM deposit.

Antelope Mine (Cont.)

Geology: Pyrrhotite, sphalerite, and MOLYBDENITE occur in contact metasomatized limestone along the edge of a granite porphyry body. Fissure veins that cut the limestone contain pyrite, galena, sphalerite, and the oxidation products of these minerals.
Reference: Petar, 1932, p. 21.
Base map: U. S. Geol. Survey Bellevue Peak 15' topographic quadrangle.

118. GIBELLINI MINE

Other name: Black Iron mine.
Location: South-central part of sec. 35, T. 16 N., R. 52 E.
Molybdenum production: None.
Development: Open cuts, a 176-foot adit, a 305-foot inclined shaft, and over 1,200 feet of drifts and crosscuts made while mining manganese.
Geology: Several pipe-shaped bodies of psilomelane and pyrolusite occur in Paleozoic limestone. The ore contains appreciable zinc and nickel, and a little cobalt, copper, vanadium, and MOLYBDENUM.
Reference: Binyon, 1948.
Base map: U. S. Geol. Survey Cockalorum Wash 15' topographic quadrangle.

HUMBOLDT COUNTY

47. SNOW CREEK

Other names: Desert View; Leonard Creek.
Location: Sec. 35(?), T. 43 N., R. 28 E.
Molybdenum production: None.
Geology: Flakes of MOLYBDENITE associated with pyrite, chalcopyrite, secondary copper minerals, and scheelite(?) occur in a quartz vein in a tactite zone adjacent to granodiorite.
Base map: U. S. 1:250,000 scale topographic map, Vya sheet.

48. BARTLETT CREEK

Other name: Possibly same as Snow Creek (No. 47).
Location: On Bartlett Creek; probably in T. 41 N., R. 27 E.
Molybdenum production: None.
Geology: MOLYBDENITE in epidote-rich skarn.
Base map: U. S. 1:250,000 scale topographic map, Vya sheet.

49. AMOS

Location: "Near Amos"; probably SE 1/4 sec. 33, T. 41 N., R. 37 E.
Molybdenum production: None.
Geology: "Fine flakes [of MOLYBDENITE] with quartz, sericite, and pyrite."
Reference: Horton, 1916, p. 87.
Base map: U. S. Geol. Survey Awakening Peak 15' topographic quadrangle.

OSGOOD MOUNTAINS

50. Getchell Mine

Location: Mainly sec. 33, T. 39 N., R. 42 E.
Molybdenum production: In 1958, 19,058 pounds of flotation(?) concentrates containing 45.4% molybdenum were sold by Getchell Mine, Inc. It is not known whether this production came from the Getchell mine or from other mines in the Osgood Mountains.
Development: Extensive underground workings and pits made while mining gold and tungsten.
Geology: MOLYBDENITE, chalcopyrite, and pyrite are associated with scheelite in tactite zones in limestone along the northeast side of the granodiorite stock in the north-central part of the Osgood Mountains. MOLYBDENITE and minor ILSEMANNITE are associated with orpiment, realgar, marcasite, and stibnite in granodiorite dikes and sills that have penetrated siliceous gold ore occurring in the sheared shale in and along the hanging wall of the north-northwest-trending Getchell fault.
References: Hardy, 1941, p. 147.
Joralemon, 1951, p. 273.
Base map: U. S. Geol. Survey Osgood Mountains 15' topographic quadrangle.

51. Chase Prospect

Location: NW 1/4 sec. 4, T. 38 N., R. 42 E.
Molybdenum production: None.
Development: Pit made while developing a tungsten deposit.
Geology: Scheelite and POWELLITE occur in sheared argillite in the north-trending Getchell fault along the east side of the granodiorite stock in the north-central part of the Osgood Mountains.
Reference: Hobbs and Clabaugh, 1946, p. 19.
Base map: U. S. Geol. Survey Osgood Mountains 15' topographic quadrangle.

52. Riley Mine

Other names:	Reilly mine; Dernan property.
Location:	North part of sec. 9, T. 38 N., R. 42 E.
Molybdenum production:	None.
Development:	Open cuts made while mining tungsten.
Geology:	Scheelite, and local concentrations of pyrite, chalcopyrite, sphalerite, bismuthinite, and MOLYBDENITE, occur in contact metasomatized limestone along the east side of the granodiorite stock in the north-central part of the Osgood Mountains.
Reference:	Hobbs, 1948, p. 74.
Base map:	U. S. Geol. Survey Osgood Mountains 15' topographic quadrangle.

53. Granite Creek Mine

Location:	Southern part of secs. 29 and 30, T. 38 N., R. 42 E.
Molybdenum production:	None.
Development:	Adits, glory holes, pits, and trenches made while mining tungsten.
Geology:	Scheelite, and sporadic pyrite, chalcopyrite, and MOLYBDENITE, occur in irregular and discontinuous bodies of tactite in contact metasomatized limestone along the south side of the granodiorite stock in the north-central part of the Osgood Mountains.
Reference:	Hobbs, 1948, p. 83.
Base map:	U. S. Geol. Survey Osgood Mountains 15' topographic quadrangle.

54. BLOODY RUN MINE

Location:	Sec. 11, T. 38 N., R. 37 E.
Molybdenum production:	None.
Geology:	Scheelite and MOLYBDENITE occur in a 1,000-foot-long quartz vein, trending north, in a stock of granodiorite.
Reference:	Kerr, 1946, p. 171.
Base map:	U. S. 1:250,000 scale topographic map, McDermitt sheet.

55. WINNEMUCCA

Other name:	Winnemucca Mountain.
Location:	T. 36 N., R. 37 E.
Molybdenum production:	None.

Winnemucca (Cont.)

Geology:	MOLYBDENITE occurs "with quartz, chalcopyrite, and gypsum."
Reference:	Horton, 1916, p. 87.
Base map:	U. S. Geol. Survey Rose Creek 15' topographic quadrangle.

56. SONOMA MOUNTAIN MINING DISTRICT

Other name:	Sonoma Range.
Location:	Probably sec. 1,2, or 12, T. 35 N., R. 38 E., or sec. 6 or 7, T. 35 N., R.39 E.
Molybdenum production:	None.
Geology:	POWELLITE occurs "in contact metamorphic deposits with scheelite."
Reference:	Gianella, 1941, p. 80.
Base map:	U. S. Geol. Survey Winnemucca 15' topographic quadrangle.

57. GOLCONDA MINING DISTRICT

Location:	Sec. 8(?), T. 35 N., R. 40 E.
Molybdenum production:	None.
Geology:	A specimen of MOLYBDENITE from the Golconda district is in the Mackay School of Mines museum.
Base map:	U. S. 1:250,000 scale topographic map, Winnemucca sheet.

58. MOLLY PROSPECT

Other names:	Nevada Climax Mineral claims; Gold Run mining district.
Location:	T. 34 N., R. 40 E.
Molybdenum production:	None.
Development:	A 30-foot inclined shaft, made while exploring for MOLYBDENUM, tungsten, and copper.
Geology:	Thin quartz veins containing MOLYBDENITE, chalcopyrite, pyrite, and minor scheelite occur in widely spaced, parallel fractures, dipping 20° NW. in granite near a contact with basalt.
Base map:	U. S. 1:250,000 scale topographic map, Winnemucca sheet.

59. COPPER CANYON MINE

Location:	Sec. 27, T. 31 N., R. 44 E.
Molybdenum production:	None.
Development:	Two shafts and workings on 4 levels, made while mining copper-gold and lead-zinc-silver ores.
Geology:	MOLYBDENITE occurs with quartz, chalcopyrite, and pyrite, some calcite, arsenopyrite, and pyrrhotite, and a little galena, sphalerite, and scheelite in veins and disseminated deposits in the lower conglomerate member of the Pennsylvanian Battle formation. A specimen of WULFENITE from the Battle Mountain mining district is in the Mackay School of Mines museum; it may be from the lead-zinc-silver bodies in this mine.
Reference:	Roberts, 1951.
Base map:	U. S. Geol. Survey Antler Peak 15' topographic quadrangle.

60. LEWIS MINING DISTRICT

Location:	"Near Lewis"; probably SW 1/4 T. 30 N., R. 45 E.
Molybdenum production:	None.
Geology:	A specimen of MOLYBDENITE from the Lewis district is in the California Bureau of Mines museum.
Reference:	Horton, 1916, p. 87.
Base map:	U. S. Geol. Survey Mt. Lewis 15' topographic quadrangle.

61. INDIAN CREEK

Other name:	Gray Eagle mine(?).
Location:	Sec. 13(?), T. 29 N., R. 46 E.
Molybdenum production:	None.
Geology:	MOLYBDENITE, POWELLITE, scheelite, and quartz in hornfels.
Base map:	U. S. Geol. Survey Mt. Lewis 15' topographic quadrangle.

62. VIOLET SHAFT

Other names:	Tenabo; Violet claim.
Location:	"About 1 mile southwest of Tenabo"; Sec. 16(?), T. 28 N., R. 47 E.
Molybdenum production:	None.
Development:	Adit and 208-foot shaft.

Violet Shaft (Cont.)

Geology:	"In the jointing of the country rocks [siliceous shale and quartzite] there are some small seams of MOLYBDENITE. Granite crops out nearby."
Reference:	Emmons, 1910, p. 118.
Base map:	U. S. Geol. Survey Crescent Valley 15' topographic quadrangle.

63. CORTEZ MINING DISTRICT

Location:	Tps. 26 and 27 N., Rs. 47 and 48 E.
Molybdenum production:	None.
Geology:	MOLYBDENITE and other molybdenum minerals occur in the district.
Base map:	U. S. Geol. Survey Cortez 15' topographic quadrangle.

64. REESE RIVER MINING DISTRICT

Other name:	Austin mining district.
Location:	The molybdenum occurrences are in the True Blue tunnel and other workings in New York Canyon, in sec. 33(?), T. 20 N., R. 44 E.
Molybdenum production:	None.
Development:	Numerous mines and prospects made while mining and exploring for silver.
Geology:	Small quantities of MOLYBDENITE occur with quartz and pyrite, and some chalcopyrite, arsenopyrite, galena, sphalerite, tetrahedrite, and proustite in veins cutting Cambrian(?) quartzite adjacent to a stock of quartz monzonite.
Reference:	Ross, 1953, p. 56, 126, pl. 1.
Base map:	Plate 1, U. S. Geol. Survey Bull. 997.

65. BIRCH CREEK MINING DISTRICT

Location:	The molybdenum occurrences probably are in secs. 25, 26, 35, and 36, T. 18 N., R. 44 E.
Molybdenum production:	None.
Geology:	Flakes of MOLYBDENITE up to three fourths of an inch across are scattered through quartz veins up to 18 inches wide in granodiorite. Sericite(?) and chalcopyrite are associated with the molybdenite in the veins.
Reference:	Hill, 1916, p. 126.
Base map:	U. S. Geol. Survey Roberts Mountains 15' topographic quadrangle.

119. LINKA MINE

Location: (Unsurveyed) T. 17 N., R. 45 1/2 E.
Molybdenum production: None.
Development: Open pits, glory holes, stopes and other underground workings made while mining tungsten.
Geology: Some POWELLITE, MOLYBDENITE, chalcopyrite, and pyrite occur with scheelite in a contact metasomatic deposit in limestone along a contact with a quartz monzonite intrusive body.
Base map: U. S. 1:250,000 scale topographic map, Millett sheet.

LINCOLN COUNTY

66. PATTERSON MINING DISTRICT

Other name: Swartz Canyon.
Location: "On the summit of the [Schell Creek] range at Swartz Canyon" which is 3 miles north of Patterson Pass in T. 9 N., R. 65 E.
Molybdenum production: None.
Development: A 300-foot adit.
Geology: A few scales of MOLYBDENITE occur in a "rather strong" joint striking east and dipping steeply north in quartzite.
Reference: Hill, 1916, p. 124.
Base map: U. S. 1:250,000 scale topographic map, Lund sheet.

67. TEM PIUTE MINING DISTRICT

Location: The tungsten deposits are in secs. 25 and 26, T. 3 S., R. 56 E.; secs. 30 and 31, T. 3 S., R. 57 E.; and sec. 1, T. 4 S., R. 56 E.
Molybdenum production: None.
Geology: Scheelite occurs in tactite (contact metasomatized limestone) along the western side of two granite stocks. Some of the richest tungsten ore is in small masses of calcite-fluorite-sphalerite in marble remnants adjoining tactite. POWELLITE is present in the tungsten deposits, and the yellow-fluorenscence of part of the scheelite suggests that it contains some MOLYBDENUM. MOLYBDENITE, partially replaced by POWELLITE, is found sparingly in a quartz lens in tactite about 2,000 feet south of the Lincoln mine.
Reference: Wyant and Lemmon, 1951.
Base map: U. S. 1:250,000 scale topographic map, Caliente sheet.

68. OLD SOLDIER MINE

Other name:	Churchill Butte.
Location:	Sec.(?), T. 17 N., R. 24 E.
Molybdenum production:	None.
Development:	A 400-foot adit and considerable drifting, made while mining gold and silver.
Geology:	Reportedly WULFENITE occurs in several veins with tungsten and galena(?).
Base map:	U. S. Geol. Survey Churchill Butte 15' topographic quadrangle.

69. SILVER CITY MINING DISTRICT

Location:	"Near Devils Gate"; Sec. 8, T. 16 N., R. 21 E.
Molybdenum production:	None.
Geology:	"MOLYBDENITE occurs in a small vein . . ."
Reference:	Gianella, 1936, p. 92.
Base map:	U. S. Geol. Survey Virginia City 15' topographic quadrangle.

70. BENWAY MINING DISTRICT

Location:	Sec. 12, T. 14 N., R. 28 E.
Molybdenum production:	None.
Development:	Very limited workings.
Geology:	At least 10 veins, striking N. 75° E. and dipping steeply south, cut a quartz monzonite stock and limestone. The veins are up to 20 feet wide and up to a mile long, and are associated with the limestone-quartz monzonite contact. They consist mostly of wall-rock fragments, quartz, and gouge, and some argentite, chalcopyrite, pyrite, cerargyrite, malachite, "limonite", and MOLYBDENITE.
Reference:	Schrader, 1947, p. 294.
Base map:	U. S. 1:250,000 scale topographic map, Reno sheet.

71. YERINGTON MINING DISTRICT

Location:	"In Yerington district."
Molybdenum production:	None.
Geology:	MOLYBDENITE "in pegmatite."
Reference:	Sanford and Stone, 1914, p. 120.

72. MC COY PROSPECT

Other name: Fly Boy prospect.
Location: NW 1/4 sec. 15, T. 11 N., R. 26 E.
Molybdenum production: None.
Development: Bulldozer cuts.
Geology: Flakes of MOLYBDENITE and blebs of chalcopyrite are disseminated sparsely in granite. Several persistent fractures and small sheared areas contain stains of secondary copper minerals and a small amount of secondary uranium minerals.
Base map: U. S. Geol. Survey Yerington 15' topographic quadrangle.

73. W & P. MINE

Other name: Last Chance mine.
Location: SW 1/4 sec. 34, T. 10 N., R. 26 E.
Molybdenum production: None.
Development: Some molybdenum ore reportedly has been mined but not shipped.
Geology: Veinlets of MOLYBDENITE, quartz, and secondary copper minerals occur in a shear zone in "granite."
Base map: U. S. Geol. Survey Pine Grove Hills 15' topographic quadrangle.

74. DESERT CREEK PEAK

Other name: May be same as Sweetwater (No. 75).
Location: Sec. 27(?) or 28(?), T. 9 N., R. 24 E.
Molybdenum production: None.
Development: Pits and trenches.
Geology: MOLYBDENITE occurs in Tertiary volcanic rocks.
Base map: U. S. Geol. Survey Desert Creek Peak 15' topographic quadrangle.

75. SWEETWATER

Other names: May be same as Desert Creek Peak (No. 74) or Risue Canyon (No. 16), or may be distinct occurrence.
Location: "At Sweetwater, Nevada."
Molybdenum production: None.
Development: Little.
Geology: ". . . a MOLYBDENITE deposit outcrops on the surface for 3,000 feet along a vertical dike of decomposed granite. MOLYBDENITE and FERRIMOLYBDITE are disseminated in flakes, seams, and pockets".

Sweetwater (Cont.)

Reference: Michell, 1945, p. 112.
Base map: U. S. Geol. Survey Desert Creek Peak 15' topographic quadrangle.

MINERAL COUNTY

76. BROKEN HILL MINE

Location: Sec. 26(?), T. 14 N., R. 35 E.
Molybdenum production: None.
Geology: At least six silver-lead veins, striking west to N. 30° W., cut andesite tuff and breccia. Cerargyrite, cerussite, anglesite, proustite, pyrargyrite, "limonite," and jarosite are present in the oxidized portions of the veins. Argentiferous galena, some pyrite, chalcopyrite, and sphalerite, and rare MOLYBDENITE occur in increasing amounts with increasing depth. Andesite and basalt dikes have intruded the volcanic rocks. A granodiorite porphyry stock crops out 2 miles southeast of the mine.
Reference: Schrader, 1947, p. 131.
Base map: U. S. 1:250,000 scale topographic map, Reno sheet.

77. RAWHIDE MINING DISTRICT

Location: T. 13 N., R. 32 E.
Molybdenum production: None.
Development: Numerous mines and prospects made while mining and exploring for gold and silver.
Geology: MOLYBDENITE occurs in the district.
Reference: Schrader, 1947, p. 163.
Base map: U. S. 1:250,000 scale topographic map, Reno sheet.

78. COPPER MOUNTAIN MINE

Location: Sec. 2, T. 11, N., R. 31 E., and sec. 35, T. 12 N., R. 31 E.
Molybdenum production: None.
Development: 6,000 feet of workings developed through three shafts and several adits, made while mining copper-gold-silver ore.
Geology: Irregular masses and dikes of quartz monzonite porphyry intrude Jurassic-Triassic limestone. Chalcopyrite, cupriferous pyrite, chalcocite, and MOLYBDENITE are disseminated as grains and streaks in altered quartz mon-

Copper Mountain Mine (Cont.)

zonite porphyry, and occur as disseminations and large masses in contact-metasomatized (garnetized) limestone in contact with the quartz monzonite.

Reference: Schrader, 1947, p. 269, 273, 275, 280.
Base map: U. S. 1:250,000 scale topographic map, Walker Lake sheet.

79. RAND MINE

Other name: Nevada Rand mine.
Location: Sec. 29(?) or 30(?), T. 11 N., R. 32 E.
Molybdenum production: None.
Development: 5,000 feet of workings on six levels, made while mining gold and silver.
Geology: White or yellowish platy crystals of WULFENITE are disseminated in veins containing quartz, wall-rock fragments, cerargyrite, argentite, and a little tetrahedrite, pyrite, chalcopyrite, malachite, chrysocolla, tenorite, cerussite, pyrargyrite, and polybasite. The veins are in a faulted and brecciated zone, striking northwest, which cuts andesite. The zone is 20 to 200 feet wide, about 5 miles long, and extends through the Bovard mine (No. 80) to the southeast.
Reference: Schrader, 1947, p. 254-255.
Base map: U. S. 1:250,000 scale topographic map, Walker Lake sheet.

80. BOVARD MINE

Location: Sec. 33, T. 11 N., R. 32 E.
Molybdenum production: None.
Geology: Two parallel throughgoing veins, as well as several shorter veins and splits, occur in the same northwest-trending faulted and brecciated zone in which the Rand mine (No. 79) is located. The veins consist mainly of quartz, wall-rock fragments, and a little pyrite and chalcopyrite. "Locally the veins are sparingly streaked bluish with MOLYBDENITE stains . . . and the quartz . . . is freely parallel marked with streaks and stringers up to 1/10 inch wide of bluish-black ILSEMANNITE . . ."
Reference: Schrader, 1947, p. 238, 240.
Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

81. DOUGLAS PROSPECT

Location: South of Simon, T. 8 N., R. 37 E.
Molybdenum production: None.
Geology: MOLYBDENITE sprinkled through quartz.
Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

82. GARFIELD HILLS

Other name: Luning; Sulphide prospect(?).
Location: Sec. 10, T. 7 N., R. 33 E.
Molybdenum production: None.
Geology: MOLYBDENITE and POWELLITE with scheelite.
Base map: U. S. Geol. Survey Hawthorne 1° topographic quadrangle.

83. LUCKY BOY AREA

Other name: Hawthorne.
Location: "South of Alum Canyon," T. 6 or 7 N., R. 30 E.
Molybdenum production: None.
Geology: Several tungsten deposits occur along the eastern front of the Wassuk Range. Granodiorite intrudes limestone which has been contact metasomatized to tactite. Scheelite-bearing veinlets cut the tactite. "South of Alum Canyon there are, in or near the contact zone, bodies of sulphide ores with silver, gold, MOLYBDENITE, galena, pyrite, and chalcopyrite".
Reference: Hess, 1921, p. 280.
Base map: U. S. Geol. Survey Powell Mtn. 15' topographic quadrangle.

84. CORY CANYON

Location: Probably T. 7 N., R. 29 E.
Molybdenum production: None.
Development: Open cuts made while prospecting for molybdenum.
Geology: "MOLYBDENITE is present in granite."
Reference: Vanderburg, 1937b, p. 46.
Base map: U. S. Geol. Survey Aurora and Powell Mtn. 15' topographic quadrangles.

85. PILOT MOUNTAINS

Other names: Pilot Range [sic]; Graham Springs; Lindsey mine(?).
Location: Sec. 7(?), T. 6 N., R. 37 E.
Molybdenum production: None.

Pilot Mountain (Cont.)

Geology: Scheelite, and some argentiferous galena with associated WULFENITE, occur in quartz veins or pipes in tactite layers in limestone that has been intruded by granodiorite and granodiorite porphyry. Scheelite also is disseminated through the tactite (contact-metasomatized limestone).
Reference: Kerr, 1946, p. 175.
Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

86. PINE TREE PROSPECT

Other names: Mina; Mena [sic].
Location: Sec. 3(?), T. 6 N., R. 35 E.
Molybdenum production: None.
Geology: MOLYBDENITE and copper minerals are disseminated through sedimentary rocks.
Base map: U. S. Geol. Survey Hawthorne 1° topographic quadrangle.

87. SILVER DYKE MINES

Location: Sec. 10(?), T. 5 N., R. 34 E.
Molybdenum production: None.
Development: Several mines operated as a unit while mining tungsten.
Geology: The Silver Dyke vein system consists of several remarkably persistent parallel fracture fillings of quartz forming a continuous zone extending more than 6 miles east-west in both Triassic(?) andesite and a diorite body that has intruded the volcanic rock. Scheelite is concentrated in the portion of the vein system that is in contact with the diorite body. The scheelite fluoresces pale yellow, probably because of the presence of MOLYBDENUM, which averaged about one-half percent in the tungsten concentrates.
Reference: Kerr, 1936.
Base map: U. S. 1:250,000 scale topographic map, Walker Lake sheet.

88. REDLICH

Location: At (?) Redlich, a former town, in sec. 17(?), T. 4 N., R. 36 E.
Molybdenum production: None.
Geology: MOLYBDENITE occurs in quartz veins.
Reference: Sanford and Stone, 1914, p. 120.
Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

89. TEELS MARSH

Other name: Marietta.
Location: "In the hills west of Teels Marsh."
Molybdenum production: None.
Development: "Prospected as a potential tungsten ore . . ."
Geology: MOLYBDENUM-bearing scheelite occurs in tactite close to a body of granodiorite.
Reference: Ferguson and others, 1954.
Base map: U. S. 1:250,000 scale topographic map, Walker Lake sheet.

90. QUEENS

Location: "3 miles northeast of Queens"; sec. 11(?), T. 1 N., R. 32 E.
Molybdenum production: None.
Geology: Quartz, scheelite, fluorite, and MOLYBDENITE occur in tactite (contact metasomatized sedimentary rocks) near the contact with quartz diorite.
Reference: Kerr, 1946, p. 176.
Base map: U. S. Geol. Survey White Mountain 30' topographic quadrangle.

NYE COUNTY

91. DOWNEYVILLE MINE

Location: Sec. 11, T. 12 N., R. 36 E.
Molybdenum production: None.
Development: Numerous shallow shafts and "grass roots" stopes made while mining lead, and some silver and zinc.
Geology: The ore occurs in pipe-like areas of cross fracturing in Triassic limestone. Most of the ore is oxidized and consists of porous gossan containing cerussite and WULFENITE. Pyrrohotite, sphalerite, and galena are present in the deepest workings.
Reference: Kral, 1951, p. 108.
Base map: U. S. Geol. Survey Paradise Peak 15' topographic quadrangle.

92. BARCELONA MINE

Other name: Spanish Belt mine.
Location: Sec. 21(?), T. 10 N., R. 45 E.
Molybdenum production: None.

Barcelona Mine (Cont.)

Development:	A 2,000-foot adit and other workings, made while mining silver. Some trenching has been done while exploring an area of disseminated molybdenite.
Geology:	MOLYBDENITE is disseminated in hornfels near the stock of "alaskite" which extends from near Belmont (No. 95) northwestward into the Round Mountain mining district (No. 93).
Reference:	Kral, 1951, p. 24.
Base map:	U. S. 1:250,000 scale topographic map, Tonopah sheet.

93. ROUND MOUNTAIN MINING DISTRICT

Location:	Probably T. 10 N., R. 44 E.
Molybdenum production:	None.
Geology:	WULFENITE occurs in the district.
Reference:	Gianella, 1941, p. 52.
Base map:	U. S. 1:250,000 scale topographic map, Tonopah sheet.

94. SUPERIOR PROSPECT

Location:	In Wall Canyon, T. 10 N., R. 42 E.
Molybdenum production:	None.
Development:	Three shallow shafts and a 150-foot adit.
Geology:	Gouge, chalcocite, chalcopyrite, barite, and a little MOLYBDENITE occur in a vein which cuts limestone.
Base map:	U. S. 1:250,000 scale topographic map, Tonopah sheet.

95. BELMONT MINING DISTRICT

Location:	T. 9 N., R. 45 E.
Molybdenum production:	None.
Development:	A number of mines from which silver ore was produced
Geology:	Quartz veins containing pyrite, sphalerite, stetefeldite, silver chloride, and a little MOLYBDENITE and WULFENITE, occur in slate, limestone, and an "alaskite" granite stock. This stock extends north westward into Round Mountain mining district (No. 93).
References:	Horton, 1916, p. 89. Lincoln, 1923, p. 160.
Base map:	U. S. 1:250,000 scale topographic map, Tonopah sheet.

96. MANHATTAN MINING DISTRICT

Location:	T. 8 N., R. 44 E.
Molybdenum production:	None.

Manhattan Mining District (Cont.)

Geology: A specimen of MOLYBDENITE from the Manhattan mining district is in the Mackay School of Mines museum.

Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

97. HALL PROPERTY

Other name: San Antone.

Location: Sec. 5 T. 5 N., R. 42 E.

Molybdenum production: None.

Development: Over 4,400 feet of underground workings and extensive diamond drilling, done while exploring for molybdenum.

Geology: MOLYBDENITE, pyrite, and minor chalcopyrite occur in quartz veins and pods which form a tabular ore body 50 to 75 feet wide and 1,500 feet in length. The ore body is mostly in schist, with the remainder in the adjacent quartz monzonite body to the north. The ore body and many of the veins that form the ore body roughly parallel the quartz monzonite-schist contact and the foliation of the schist. FERRIMOLYBDITE and "limonite" are common in the zone of oxidation which extends to a depth of 95 to 150 feet. POWELLITE is erratically distributed in the vicinity of the ore body. ILSEMANNITE(?) was found at one spot near the workings. Numerous quartz veins and masses form a halo around the margins of the quartz monzonite and intruded rocks. Many of the veins and masses contain MOLYBDENITE. The rocks in the halo have been silicified, sericitized, and argillized.

References: Anderson and Cox, 1943.
Michell, 1945, p. 99-114.

Base map: U. S. 1:250,000 scale topographic map, Tonopah sheet.

98. TONOPAH MINING DISTRICT

Location: At Tonopah.

Molybdenum production: None.

Geology: WULFENITE occurs sparingly (as very thin, colorless to very pale-yellow, basal plates with diametral pyramids on the edges) in some of the veins in porous quartz masses associated with iodyrite, barite, and gypsum. Crystals of iodyrite commonly are perched on plates of wulfenite.

Reference: Burgess, 1911, p. 20.

Base map: U. S. Geol. Survey Tonopah 15' topographic quadrangle.

99. OAK SPRING MINING DISTRICT

Location: "2 miles outh of Oak Springs", T. 8 S., R. 53 E.
Molybdenum production: None.
Geology: MOLYBDENITE and scheelite, the molybdenite largely altered to POWELLITE, occur together in a vein. Scheelite also is present in other veins which cut both limestone and granite, and in garnitized limestone near the granite stock. The powellite is dull gray, and occurs in platy masses (up to several centimeters across, and commonly bent and twisted in different directions) that are psuedomorphic after molybdenite. The amount of unaltered molybdenite varies from a considerable quantity to none at all. An analysis of this powellite gave only a trace of WO_3.
Reference: Schaller, 1911, p. 81-83.

PERSHING COUNTY

100. ROSE CREEK MINE

Location: Sec. 6, T. 34 N., R. 37 E.
Molybdenum production: None.
Development: 400-foot adit with some workings, made while developing a tungsten deposit.
Geology: Scheelite occurs, with some pyrite and chalcopyrite, and a little sphalerite, arsenopyrite, and MOLYBDENITE, in small quartz veins and disseminations throughout a 4-foot-thick tactite layer (contact metasomatized calcareous argillite bed) and adjacent argillite. Bodies of granite and granodiorite crop out some distance to the east, southeast, and southwest. Two varieties of scheelite occur either separately or as irregular intergrowths in the same crystal: one variety fluoresces bluish-white and contains about 0.05 percent MOLYBDENUM: the other variety fluoresces light yellow and contains about 1.8 percent MOLYBDENUM.
Reference: Roberts, 1943.
Base map: U. S. Geol. Survey Rose Creek 15' topographic quadrangle.

MILL CITY

Other names: Tungsten; Nevada-Mass; includes Stank and Humboldt mines described below.
Location: Secs. 26, 27, 34, and 35, T. 34 N., R. 34 E.

Mill City (Cont.)

Development: Many thousands of feet of underground workings, as well as extensive open pits, made while mining tungsten.

Geology: Scheelite occurs in varying amounts in 1- to 8-foot tactitized limestone beds, widely spaced in hornfels, west and south of a stock of granodiorite. Some scheelite also is present in quartz veins which fill tension fractures in the tactite and surrounding hornfels. Pyrite and traces of pyrrhotite, chalcopyrite, stibnite, and bismuthinite(?) are disseminated through the tactite. MOLYBDENITE fills fractures which cut garnet, epidote, and scheelite in the tactite.

101. Stank Mine

Location: SE 1/4 sec. 27, T. 34 N., R. 34 E.
Molybdenum production: None.
Geology: "MOLYBDENITE is found in a small concentration a few feet long and about six inches in width occurring on the 300 level in the Stank mine just north of the shaft . . . [and] is widely distributed in small amounts on the lower levels . . ."
Reference: Kerr, 1934, p. 30.
Base map: U. S. Geol. Survey Eugene Mountains Area 15' topographic quadrangle.

102. Humboldt Mine

Location: East-central part of sec. 34, T. 34 N., R. 34 E.
Molybdenum production: None.
Geology: MOLYBDENITE "is widely distributed in small amounts in the lower levels of the Humboldt [mine] . . ."
Reference: Kerr, 1934, p. 30.
Base map: U. S. Geol. Survey Eugene Mountains Area 15' topographic quadrangle.

120. IRON FORGE(?) PROSPECT

Location: SW 1/4 sec. 2 T. 33 N., R. 34 E.
Molybdenum production: None.
Development: An adit and pits made while exploring for or mining tungsten.

Iron Forge(?) Prospect (Cont.)

Geology: MOLYBDENITE reportedly occurs with pyrite as small disseminated flakes in skarn, and in quartz veins cutting the skarn. Scheelite occurs elsewhere in the skarn. The contact metasomatized beds reportedly are the same beds as those containing scheelite at Mill City.

Base map: U. S. Geol. Survey Eugene Mountains Area 15' topographic quadrangle.

103. FIFTY-SIX MINE

Other name: 56 mine.
Location: Sec. 27, T. 33 N., R. 33 E.
Molybdenum production: None.
Development: Shallow workings from which some copper ore was mined. Molybdenite was later discovered during diamond drilling.
Geology: MOLYBDENITE occurs with copper.
Base map: U. S. 1:250,000 scale topographic map, Lovelock sheet.

104. EMPIRE MINING DISTRICT

Location: T. 31 N., R. 24 E.
Molybdenum production: None.
Geology: Flakes of MOLYBDENITE in quartz.
Base map: U. S. 1:250,000 scale topographic map, Lovelock sheet.

NIGHTINGALE MINING DISTRICT

Location: SE 1/4 T. 25 N., R. 24 E.
Molybdenum production: None.
Development: Two tungsten mines and several tungsten prospects.
Geology: A stock of granodiorite intrudes Triassic(?) shale and interbedded limestone. Scheelite is locally abundant enough to form small ore bodies in tactitized (contact metasomatized) limestone in contact with the stock. Some POWELLITE, and minor pyrite, pyrrhotite, MOLYBDENITE, chalcopyrite, and arsenopyrite, also occur in the tactite.
Reference: Gianella, 1941, p. 80.
Base map: Smith and Guild, 1942, p. 39.

105. Garfield Force Mine

Location: NW 1/4 sec. 31, T. 25 N., R. 25 E.
Molybdenum production: None.
Development: 40-foot adit and stopes, made while mining tungsten.
Geology: An unusual variety of tactite, composed mainly of dark green pyroxene, some garnet, and specks of scheelite and MOLYBDENITE, is present in the dump at a shallow shaft 1,000 feet northwest of the main adit.
Reference: Smith and Guild, 1942, p. 54.
Base map: U. S. 1:250,000 scale topographic map, Lovelock sheet.

121. MAJUBA HILL

Location: Probably T. 32 N., R. 31 E. or T. 33 N., R. 30 E.
Molybdenum production: None.
Geology: MOLYBDENITE occurs at Majuba Hill.
Base map: U. S. 1:250,000 scale topographic map, Lovelock sheet.

STOREY COUNTY

106. COMSTOCK LODE

Location: At Virginia City and Gold Hill.
Molybdenum production: None.
Geology: WULFENITE occurs in the oxidized zone of the Comstock Lode within a few hundred feet of the surface.
Reference: Lincoln, 1923, p. 227.

WASHOE COUNTY

107. GUANOMI MINE

Location: Near Nixon which is in sec. 25, T. 23 N., R. 23 E; in the Pyramid Lake Indian Reservation.
Molybdenum production: None.
Development: Molybdenum-copper ore mined but not shipped.
Geology: MOLYBDENITE with copper mineralization.
Base map: U. S. Geol. Survey Nixon 15' topographic quadrangle.

108. HILL-JOHNSON PROSPECT

Other name: Redrock.
Location: Sec. 27, T. 22 N., R. 19 E.
Molybdenum production: None.

Hill-Johnson Prospect (Cont.)

Development: A small shallow pit.
Geology: Dark to pale-blue molybdenum stains (ILSEMANNITE?) occur on quartz stringers forming a 1- to 2-foot-wide zone in schist. The zone trends north and dips gently west, and can be traced for several hundred feet.
Base map: U. S. Geol. Survey Reno 15' topographic quadrangle.

109. VERDI

Other name: Fleish.
Location: Below hydroelectric plant at Fleish; sec. 29, T. 19 N., R. 18 E.
Molybdenum production: None.
Development: None.
Geology: Films of MOLYBDENITE occur along fractures in "granite."
Base map: U. S. Geol. Survey Mt. Rose 15' topographic quadrangle.

110. STEAMBOAT SPRINGS

Location: In upper silica pit; center of sec. 32, T. 18 N., R. 20 E.
Molybdenum production: None.
Geology: Blue stains of ILSEMANNITE(?) coat walls of pit in basalt that has been altered to silica by hot spring activity.
Base map: U. S. Geol. Survey Mt. Rose 15' topographic quadrangle.

WHITE PINE COUNTY

111. MC MURRY PROSPECT

Location: NW 1/4 sec. 36(?), T. 24 N., R. 62 E.
Molybdenum production: None.
Development: Open cut.
Geology: "Small bluish-gray metallic scales" of MOLYBDENITE and specks of pyrite occur in narrow quartz stringers in a 15-foot-wide breccia zone, striking N. 35° E., in quartzite.
Reference: Hill, 1916, p. 41, 167.
Base map: U. S. 1:250,000 scale topographic map, Ely sheet.

112. ODDIE TUNNEL

Other names: Bald Mountain; Blue Bell group.
Location: NW 1/4 sec. 22(?), T. 24 N., R. 57 E.

Oddie Tunnel (Cont.)

Molybdenum production:	None.
Development:	120-foot adit.
Geology:	A little disseminated MOLYBDENITE and pyrite, small barren quartz veinlets, and some copper carbonate occur in a highly sericitized and calcitized quartz monzonite dike within a stock of granite porphyry.
Base map:	U. S. Geol. Survey Cold Creek Ranch 15' topographic quadrangle.

113. ROBINSON MINING DISTRICT

Other names:	Ely mining district; Ruth mining district.
Molybdenum production:	T. 16 N., R. 62 E.
Location:	Over 2 million dollars worth of molybdenite concentrates have been recovered from the copper ore.
Development:	Several large open pits and underground mines from which over 4 billion pounds of copper, nearly 2 million ounces of gold, and 7 million ounces of silver have been produced.
Geology:	Porphyry (disseminated) copper deposits occur along an east-west zone, mainly in hydrothermally altered monzonite porphyry intrusive bodies and to a lesser extent in adjacent sedimentary rocks. The monzonite intrusive bodies and the hydrothermal alteration also are concentrated along the same east-west zone. Both faults and fractures have helped to control the locations of the ore bodies. Pyrite and chalcopyrite occur as disseminated grains and veinlets and as blebs in quartz veinlets. Coatings and flakes of MOLYBDENITE occur erratically along fractures in the porphyry copper deposits. The ore bodies have been oxidized to a depth of from 100 to more than 400 feet, and the sulfide minerals removed by leaching. A zone of supergene enrichment generally occurs below the zone of oxidation; here chalcocite replaces both the pyrite and chalcopyrite as coatings on the sulfide grains.
References:	Bauer and others, 1960, p. 220-228. Spencer, 1917.
Base map:	U. S. Geol. Survey Reiptown and Ruth 7 1/2' topographic quadrangles.

114. WHITE PINE MINING DISTRICT

Other name:	Hamilton mining district.
Location:	The molybdenite occurrence is in the west-central part of sec. 21, T. 16 N., R. 57 E.
Molybdenum production:	None.
Geology:	MOLYBDENITE occurs in quartz veins in and near the Monte Cristo quartz monzonite stock; chalcopyrite and pyrite also occur in the same area as veins and disseminations. WULFENITE reportedly occurs in the lead deposits of the district.
Base maps:	U. S. Geol. Survey Green Springs 15' topographic quadrangle . Geologic map of the White Pine district: plate 1, Nevada Bureau Mines Bull. 57, 1960.

REFERENCES

Albritton, C. C., Jr., Richards, Arthur, Brokaw, A. L., and Reinemund, J. A., 1954, Geologic controls of lead and zinc deposits in Goodsprings (Yellow Pine) district, Nevada: U. S. Geol. Survey Bull. 1010.

Anderson, C. A., and Cox, M. W., 1943, Geology of the Hall molybdenum property, Nye County, Nevada: U. S. Geol. Survey open-file report.

Ball, S. H., 1907, A geologic reconnaissance in southwestern Nevada and eastern California: U. S. Geol. Survey Bull. 308.

Bauer, H. L., Jr., Cooper, J. J., and Breitrick, R. A., 1960, Porphyry copper deposits in the Robinson mining district, White Pine County, Nevada: Intermountain Assoc. of Petroleum Geologists, Guidebook to the Geology of East Central Nevada, p. 220-228.

Binyon, E. O., 1948, Gibellini manganese-zinc nickel deposits, Eureka County, Nev.: U. S. Bur. Mines Rept. Inv. 4162.

Blake, W. P., 1878, The ore-deposits of Eureka district, eastern Nevada: Am. Inst. Mining Engineers Trans. v. 6, p. 554-563.

Burgess, J. A., 1911, The halogen salts of silver and associated minerals at Tonopah, Nevada: Econ. Geology, v. 6, no. 1, p. 13-21.

Callaghan, Eugene, 1939, Geology of the Searchlight district, Clark County, Nevada: U. S. Geol. Survey Bull. 906, p. 135-188.

Eissler, M., 1898, Treatment of silver ores at Mineral Hill, Nevada, in the Metallurgy of Silver: New York, D. Van Nostrand Co., p. 154-167.

Emmons, W. H., 1910, A reconnaissance of some mining camps in Elko, Lander, and Eureka Counties, Nevada: U. S. Geol. Survey Bull. 408.

Eng. Mining Jour., v. 76 (1903), p. 667.

Ferguson, H. G., Muller, S. W., and Cathcart, S. H., 1954, Geology of the Mina quadrangle, Nevada: U. S. Geol. Survey Geol. Quad. Map GQ 45.

Gianella, V. P., 1936, Geology of the Silver City district and the southern portion of the Comstock Lode, Nevada: Nevada Univ. Bull., v. 30, no. 9, Nevada State Bur. Mines and Mackay Sch. Mines Bull. [29]

_____ 1941, Nevada's common minerals: Nevada Univ. Bull., v. 35, no. 6; Geology and Mining Ser. no. 36.

Granger, A. E., Bell, M. M., Simmons, G. C., and Lee, Florence, 1957, Geology and mineral resources of Elko County, Nevada: Nevada Bur. Mines Bull. 54.

Hardy, R. A., 1941, Geology of the Getchell mine: Am. Inst. Mining Metall. Petroleum Engineers Trans. v. 144, p. 147-150; Tech. Pub. 1240, Mining Technology, v. 4, no. 6.

Hess, F. L., and Larsen, E. S., 1921, Contact-metamorphic tungsten deposits of the United States: U. S. Geol. Survey Bull. 725-D.

Hewett, D. F., 1931, Geology and ore deposits of the Goodsprings quadrangle, Nevada: U. S. Geol. Survey Prof. Paper 162.

Hill, J. M., 1916, Notes on some mining districts in eastern Nevada: U. S. Geol. Survey Bull. 648.

Hobbs, S. W., 1948, Geology of the northern part of the Osgood Mountains: unpublished Ph.D. thesis, Yale University.

Hobbs, S. W., and Clabaugh, S. E., 1946, Tungsten deposits of the Osgood Range, Humboldt County, Nevada: Nevada Univ. Bull., v. 40, no. 5, Geology and Mining Ser. no. 44.

Horton, F. W., 1916, Molybdenum; its ores and their concentration: U. S. Bur. Mines Bull. 111.

Joralemon, Peter, 1951, The occurrence of gold at the Getchell mine, Nevada: Econ. Geology, v. 46, no. 3, p. 267-310.

Kerr, P. F., 1934, Geology of the tungsten deposits near Mill City, Nevada: Nevada Univ. Bull., v. 28, no. 2, Nevada Bur. Mines and Mackay Sch. Mines Bull. [21]

_____ 1936, The tungsten mineralization at Silver Dyke, Nevada: Nevada Univ. Bull., v. 30, no. 5, Nevada State Bur. Mines and Mackay Sch. Mines Bull. [28]

_____ 1946, Tungsten mineralization in the United States: Geol. Soc. American Mem. 15.

Knopf, Adolph, 1921, The Divide silver district, Nevada: U. S. Geol. Survey Bull. 715, p. 147-170.

Kral, V. E., 1951, Mineral resources of Nye County, Nevada: Nevada Univ. Bull., v. 45, no. 3; Geology and Mining Ser. no. 50.

Lincoln, F. C., 1923, Mining district and mineral resources of Nevada: Nevada Newsletter Publishing Co., Reno.

Michell, W. D., 1945, Oxidation in a molybdenite deposit, Nye County, Nevada: Econ. Geology, v. 40, no. 2, p. 99-114.

Petar, A. V., 1932, Molybdenum: U. S. Bur. Mines Economic Paper 15.

Pough, F. H., 1937, Crystallized powellite from Tonopah, Nevada: Am. Mineralogist, v. 22, no. 1, p. 57-64.

Ransome, F. L., 1907, Preliminary account of Goldfield, Bullfrog, and other mining districts in southern Nevada: U. S. Geol. Survey Bull. 303.

Roberts, R. J., 1943, The Rose Creek tungsten mine, Pershing County, Nevada: U. S. Geol. Survey Bull. 940, p. 1-14.

_____ 1951, Geology of the Antler Peak quadrangle, Nevada: U. S. Geol. Survey Geol. Quad. Map GQ 10.

Ross, C. P., 1953, The geology and ore deposits of the Reese River district, Lander County, Nevada: U. S. Geol. Survey Bull. 997.

Sanford, Samuel, and Stone, R. W., 1914, Useful minerals of the United States: U. S. Geol. Survey Bull. 585.

Schaller, W. T., 1911, Mineralogical note -- powellite from Nye County, Nevada: U. S. Geol. Survey Bull. 490, p. 81-83.

Schrader, F. C., 1912, A reconnaissance of the Jarbidge, Contact, and Elk Mountain mining districts, Elko County, Nevada: U. S. Geol. Survey Bull. 497.

_____ 1947, Carson Sink area, Nevada: U. S. Geol. Survey open-file report.

_____ 1931, Spruce Mountain district, Elko County and Cherry Creek (Egan Canyon) district, White Pine County [Nevada]: Nevada Univ. Bull., v. 25, no. 7, Nevada State Bur. Mines and Mackay Sch. Mines Bull. 14.

_____ 1935, The Contact mining district, Nevada: U. S. Geol. Survey Bull. 847, p. 1-41.

Schrader, F. C., Stone, R. W., and Sanford, Samuel, 1917, Useful minerals of the United States: U. S. Geol. Survey Bull. 624.

Smith, W. C., and Guild, P. W., 1942, Tungsten deposits of the Nightingale district, Pershing County, Nevada: U. S. Geol. Survey Bull. 936, p. 39-58.

Spencer, A. C., 1917, The geology and ore deposits of Ely, Nevada: U. S. Geol. Survey Prof. Paper 96.

Vanderburg, W. O., 1937a, Reconnaissance of mining districts in Clark County, Nev. U. S. Bur. Mines Inf. Circ. 6964.

_____ 1937b, Reconnaissance of mining districts in Mineral County, Nev. U. S. Bur. Mines Inf. Circ. 6941.

Wyant, D. G., and Lemmon, D. M., 1951, Tungsten deposits in the Tem Piute district, Lincoln County, Nevada: U. S. Geol. Survey open-file report.

MOLYBDENUM OCCURRENCES

CHURCHILL COUNTY

1 Scott Prospect
2 Nevada Wonder Mine
3 Chalk Mountain Mining District

CLARK COUNTY

4 Shenandoah Mine
5 Smithsonite Mine
6 Mobile Mine
7 Whale Mine
8 Pilgrim Mine
9 Ruth Mine
10 Hermosa Claim
11 Hoosier Mine
12 Milford Mine
13 Cumberland Prospect
14 Duplex Mine
15 Quartette Mine
115 Charleston Range
116 Budget Group

DOUGLAS COUNTY

16 Risue Canyon

ELKO COUNTY

17 Alice Mine
18 Helen B. Smith Tunnel
19 Mammoth Mine
20 Bonanza Mine
21 Copper Shield Group
22 Florence No. 16 Claim
23 Ivy Wilson Mine
24 Robinette Prospect
25 Tennessee Mountain
26 Huber Hill
27 Golden Ensign Mine
28 Owyhee
29 Tecoma
30 Lucin Mining District
31 Fox Creek Ranch
32 Spruce Mountain Mining District
33 Dolly Varden Mining District
117 Batholith Mine

ESMERALDA COUNTY

34 Carrie Mine
35 Tonopah Divide Mine
36 Lone Mountain
37 Black Horse Mine
38 Columbia
39 Grandma (?) Shaft
40 Redemption Mine
41 Bullfrog - George Prospect
42 Cucomungo Deposit
43 Mc Boyle Prospect

EUREKA COUNTY

44 Mineral Hill Mining District
45 Eureka Mining District
46 Antelope Mine
118 Gibellini Mine

HUMBOLDT COUNTY

47 Snow Creek
48 Bartlett Creek
49 Amos
50 Getchell Mine
51 Chase Prospect
52 Riley Mine
53 Granite Creek Mine
54 Bloody Run Mine
55 Winnemucca
56 Sonoma Mountain Mining District
57 Golconda Mining District
58 Molly Prospect

LANDER COUNTY

59 Copper Canyon Mine
60 Lewis Mining District
61 Indian Creek
62 Violet Shaft
63 Cortez Mining District
64 Reese River Mining District
65 Birch Creek Mining District
119 Linka Mine

LINCOLN COUNTY

66 Patterson Mining District
67 Tem Piute Mining District

LYON COUNTY

68 Old Soldier Mine
69 Silver City Mining District
70 Benway Mining District
71 Yerington Mining District
72 Mc Coy Prospect
73 W & P Mine
74 Desert Creek Peak
75 Sweetwater

MINERAL COUNTY

76 Broken Hill Mine
77 Rawhide Mining District
78 Copper Mountain Mine
79 Rand Mine
80 Bovard Mine
81 Douglas Prospect
82 Garfield Hills
83 Lucky Boy Area
84 Cory Canyon
85 Pilot Mountains
86 Pine Tree Prospect
87 Silver Dyke Mines
88 Redlich
89 Teels Marsh
90 Queens

NYE COUNTY

91 Downeyville Mine
92 Barcelona Mine
93 Round Mountain Mining District
94 Superior Prospect
95 Belmont Mining District
96 Manhattan Mining District
97 Hall Property
98 Tonopah Mining District
99 Oak Spring Mining District

PERSHING COUNTY

100 Rose Creek Mine
101 Stank Mine
102 Humboldt Mine
103 Fifty - Six Mine
104 Empire Mining District
105 Garfield Force Mine
120 Iron Forge (?) Prospect
121 Majuba Hill

STOREY COUNTY

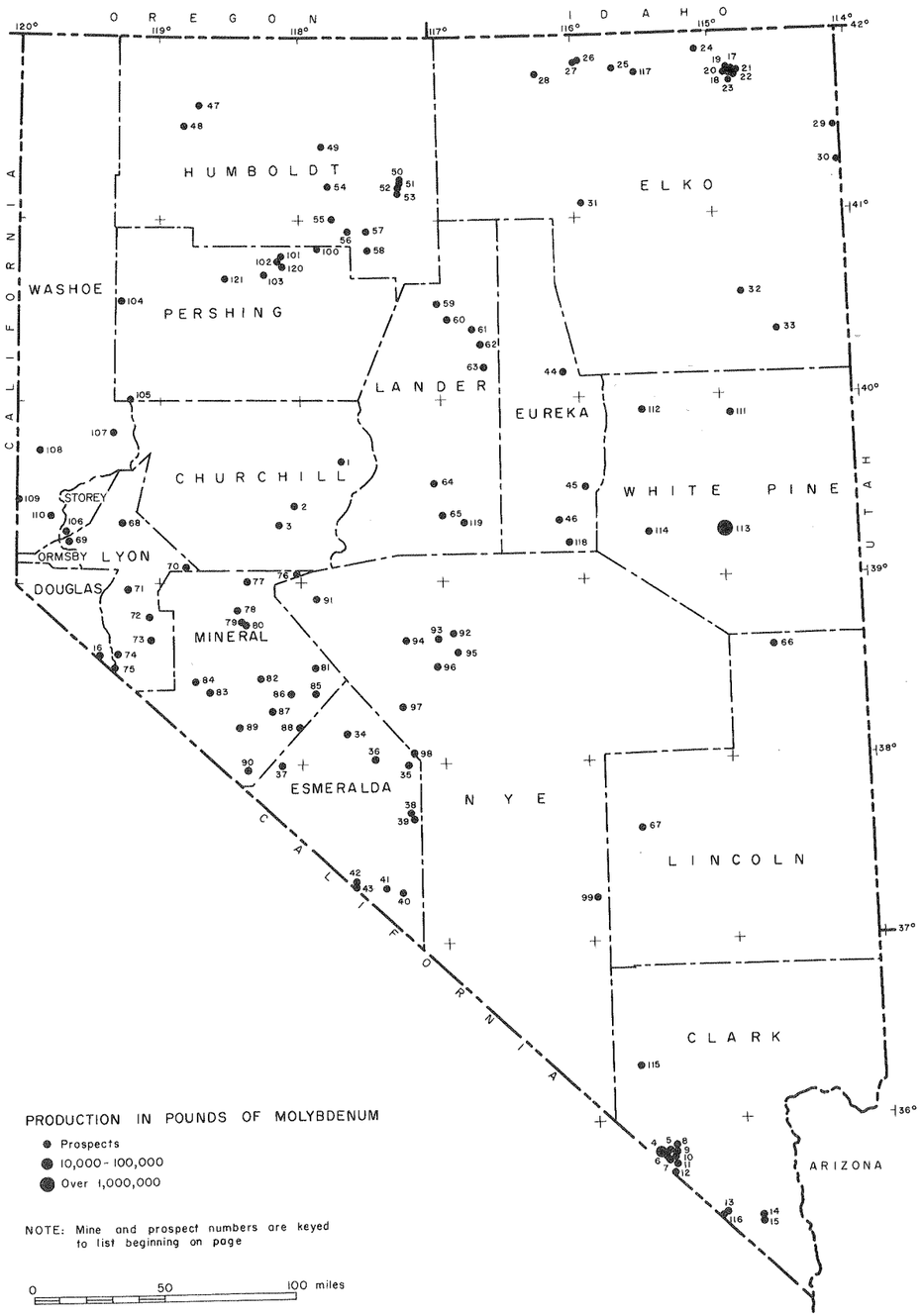
106 Comstock Lode

WASHOE COUNTY

107 Guanomi Mine
108 Hill - Johnson Prospect
109 Verdi
110 Steamboat Springs

WHITE PINE COUNTY

111 Mc Murry Prospect
112 Oddie Tunnel
113 Robinson Mining District
114 White Pine Mining District



PRODUCTION IN POUNDS OF MOLYBDENUM

- Prospects
- 10,000 - 100,000
- Over 1,000,000

NOTE: Mine and prospect numbers are keyed to list beginning on page

0 50 100 miles

Plate 1. Map showing location of Nevada molybdenum occurrences.

RVW

The Mackay School of Mines is one of the several colleges of the University of Nevada. The School consists of three divisions: the academic departments of instruction, the Nevada Bureau of Mines, and the Nevada Mining Analytical Laboratory. The Mackay School of Mines is thus the State of Nevada's educational, research, and public service center for the mineral industry.

The Nevada Bureau of Mines and the Nevada Mining Analytical Laboratory serve the public as State agencies to assist in developing Nevada's mineral resources. They identify, analyze, and evaluate minerals, rocks, and ores found in Nevada; they conduct field studies on Nevada geology and mineral deposits, including metallic and industrial minerals as well as oil and gas; they pursue laboratory and library research in mineral beneficiation, extractive metallurgy, and economic problems connected with the mineral industry of Nevada.

For information concerning the mineral resources and mineral industry of Nevada, write to: Director, Nevada Bureau of Mines, University of Nevada, Reno, Nevada.