MINING DISTRICTS
and
MINERAL RESOURCES
of
NEVADA

by

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PREFACE

Earlier Works. The object of this book is to present authentic information concerning the mining districts and mineral resources of Nevada. No comprehensive work of this character has appeared for a number of years. In the early days of Nevada mining, from 1866 to 1878, the field was covered by the federal reports of J. Ross Browne, Rossiter W. Raymond, and Clarence King; and the state reports of R. H. Stretch, A. F. White, and H. R. Whitehill. In 1909, E. E. Stuart, Inspector of Mines for Nevada, compiled "Nevada's Mineral Resources" which was printed by the State Printer at Carson City. J. M. Hill's "Mining Districts of Western United States", which included a section on Nevada, was published by the United States Geological Survey in 1912.

Plan. "Mining Districts and Mineral Resources of Nevada", as its name implies, is divided into two main parts:—one on mining districts and the other on mineral resources. The section on mining districts is modeled in a general way after Hill's bulletin, but gives more extended descriptions and includes mining as well as geological information. The map which accompanies this book shows the approximate location of each of the mining districts described. The section on mineral resources provides a cross reference by useful mineral substances to the section on mining districts, besides noting many localities not included under districts and containing a number of production tables and bibliographies of individual resources.

Acknowledgements. This work is essentially a compilation, and credit for its contents is due, except where especially noted, to the authorities listed in the bibliographies. The writings of the staff of the United States Geological Survey have furnished the bases for the majority of the geological descriptions; while the Division of Mineral Resources of the United States Geological Survey has contributed most of the data concerning productions. Authors writing for the technical press have been drawn upon very largely as may be seen by a glance at the bibliographies. On the historical side, the early reports mentioned in the first paragraph have proved most useful, as have also the histories of Thompson and West, Bancroft, and Davis. Weed's "Mines Handbook" has supplied much valuable data concerning operating companies. The accuracy and scope of the publication have been greatly increased by the corrections and additions which have been made to the original manuscript by Nevada mining men. The writer is glad of this opportunity to acknowledge his indebtedness to all who have assisted him either directly or indirectly in the preparation of this book, and to thank them for their help.

Reno, Nevada,
August, 1923.

ABBREVIATIONS EMPLOYED IN THE BIBLIOGRAPHIES

AAAS	American Association for the Advancement of Science.
AIME	American Institute of Mining and Metallurgical Engineers.
AJS	American Journal of Science.
AMC	American Mining Congress.
AR	Annual Report.
B	Bulletin.
B1866	Browne, J. R.,"A Report upon the Mineral Resources of the States and Territories West of the Rocky Mountains" (for 1866), Washington, Government Printing Office, (1867).
B1867	———Same for 1867,
Ball 285	Ball, S. H., "Notes on the Ore Deposits of Southwestern Nevada and Eastern California", USGS B 285 (1906) 53-73.
Ball 308	———"A Geologic Reconnaissance in Southwestern Nevada and Eastern California", USGS B 308 (1907).
Bancroft	Bancroft, H. H., "History of Nevada, Colorado, and Wyoming, 1540-1888", San FFrancisco, (1890).
C&ME	Chemical and Metallurgical Engineering.
Davis	Davis, S. P., Editor, "The History of Nevada", Reno and Los Angeles, (1913).
E&MJ	Engineering and Mining Journal, and Engineering and Mining Journal-Press.
EG	Economic Geology.
Emmons408	Emmons, W. H., "A Reconnaissance of Some Mining Camps in Elko, Lander, and Eureka Counties, Nevada", USGS B 408 (1910).
GSA	Geological Society of America.
Hill 507	Hill, J. M., "The Mining Districts of the Western United States", USGS B 507 (1912).
Hill 594	———"Some Mining Districts in Northeastern California and Northwestern Nevada", USGS B 594 (1915).
Hill 648	———"Notes on Some Mining Districts in Eastern Nevada", USGS B 648 (1916).
J	Journal.
JG	Journal of Geology.
M	Monograph.
M&EW	Mining and Engineering World.

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Rocky Mountains" (for 1866), Wash-
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stricts in Eastern Nevada",

Abbreviations Employed in the Bibliographies — Continued

M&M	Mines and Minerals.
M&Met	Mining and Metallurgy.
M&SP	Mining and Scientific Press.
MI	Mineral Industry.
MR1882 to MR1921	"Mineral Resources of the United States", for the years designated, by the U .S. Geological Survey.
MS	Mining Science.
P	Proceedings.
PP	Profesional Paper.
QJGS	Quarterly Journal of the Geological Society.
R	Report.
R1868	Raymond, R. W., "Report on the Mineral Resources of the States Territories West of the Rocky Mountains" (for 1868), Washington, Government Printing Office, (1869).
R1869	———Same for 1869.
R1870	———Same for 1870.
R1871	———Same for 1871.
R1872	———Same for 1872.
R1873	———Same for 1873.
R1874	———Same for 1874.
R1875	———Same for 1874.
Ransome414	Ransome, F. L., "Notes on Some Mining Districts in Humboldt County, Nevada", USGS B 414 (1909).
S	Science.
SLMR	Salt Lake Mining Review.
SMN1866	Stretch, R. H., "Annual Report of the State Mineralogist of the State of Nevada for 1866", Carson City, (1867).
SMN1867-8	White, A. F., "Report of the State Mineralogist of Nevada for the Years 1867 and 1868", Carson City, (1869).
SMN1869-70	———Same for 1869 and 1870.
SMN1871-2	Whitehill, H. R., "Biennial Report of the State Mineralogist of the State of Nevada for the Years 1871 and 1872".
SMN1873-4	———Same for 1873 and 1874.
SMN1875-6	———Same for 1875 and 1876.
SMN1877-8	———Same for 1877 and1878.
SMQ	School of Mines Quarterly.
Schrader624	Schrader, F. C.;Stone, R. W.; and Sanford, S., "Usefu lMinerals of the United States", USGS B 624 (1917).

Spurr208	Spurr, J. E., "Descriptve Geology of Nevada South of the Fortieth Parallel and Adjacent Portions of California", USGS B 208 (1903).
StuartNMR	Stuart, E.E., "Nevada's Mineral Resources", Carson City, (1909).
T	Transactions.
TP	Technical Paper.
Thompson & West	Thompson & West, Publishers, "History of Nevada", Oakland, (1881).
USBM	United States Bureau of Mines.
USGE40th	King, C., Geologist-in-Charge, "United States Geological Exploration of the Fortieth Parallel", Washington, Government Printing Office.
USGS	United States Geological Survey.
USGSW100th	Wheeler, G. M., In charge, "United States Geographical Surveys West of the 100th Meridian", Washington, Government Printing Office.
Weed MH	Weed, W. H., Editor, "The Mines Handbook", Volume XV, Tuckahoe, N. Y., (1922).
WSP	Water Supply Paper.

copper and lead carbonates and contain a microscopic metallic mineral which gives tests for iron, copper, arsenic, silver, and lead. Sulphide ore from the Monitor Mine consists of black limestone cut by veinlets of white calcite containing galena, sphalerite and a light gray mineral composed of copper, arsenic, sulphur, and silver.

Bibliography. R1875 194; SMN1873-4 77; SMN1875-6 172; MR1914 I 714; MR1917 I 298; MR1919 I 416; MR1920 I 337; MR1921 I 398; Hill507 228. Hill648 200-2. Thompson & West 657. WeedMH 1378 Wyoming M. & M. Co.

TUNGSTEN .(Hub, Lincoln)
Tungsten, (Silver)

Location. The Tungsten District is located at Tungsten, formerly Hub, on the W. flank of the Snake Range S. of Wheeler Peak. Ely on the N. N. R. R. is 45 m. N.W.

History. Silver ore was discovered in the district in 1869 and the Lincoln District was organized, but the mines were unsuccessful and the district was soon abandoned. The Tungsten District was organized in the same region in 1900. Tungsten claims were developed, and in 1904 were sold to the Tungsten M. & M. Co. which shipped a little ore and continued the development. The Huebnerite-Tungsten Co. purchased the property in 1909. The following year this company changed its name to U. S. Tungsten Corp., and erected a 50-ton concentrating mill which operated for a short time in 1911 and again in 1915 and 1916.

Geology. Huebnerite-bearing quartz veins occur in granite porphyry which is intrusive into Cambrian quartzites and argillites, according to Weeks. The veins are narrow and irregular and dip at angles of from 55 degrees to 75 degrees. A little fluorite, pyrite, and scheelite are present in the veins, and they carry a small amount of silver and gold.

Bibliography SMN1869-70 95-6; SMN1871-2 145; MR1900 257-8; MR1901 262; MR1904 331; MR1905 412; MR1906 525; MR1908 I 725; MR1909 I 579-580; MR1910 I 739; MR1911 I 943; MR1912 I 991; MR1913 I 356; MR1915 I 825; MR1916 I 793

Spurr208 25-36 Snake Range. Thompson & West 654.

WeedMH 1365 U. S. Tungsten Corp.

Weeks, F. B., "An Occurrence of Tungsten Ore in Eastern Nevada,5' USGS 21st AR VI (1901) 301, 319-320.

———"Tungsten Deposits in the Snake Range, White Pine County, Eastern Nevada," USGS B 340 (1908) 263-270.

TUNGSTONIA see EAGLE

WARD
Silver, Lead, Copper

Location. The Ward District is located at Ward on the E. slope of the Egan Range. Ely on the N. N. R. R. is 16 m. N. The elevation of Ward is about 8,025 ft., and the range behind it rises some 1,500 ft. higher.

History. The district was discovered in 1872 by Thomas F. Ward and others. The principal mines were owned by the Martin White S. M. Co., which in 1876 had two smelting furnaces and a 20-stamp mill. Ward was founded in 1876 and grew to a population of 1,500 in 1877. The mines were actively worked up to 1882. In 1906, the Nevada United Ms. Co. acquired most of the mining claims in the Ward District. This pro-

perty is now being operated by the Ward Leasing Co. owned by Julius Goldsmith, Tonopah, of which S. B. Elbert is Mgr.

Production. Hill states that the present owners estimate the production of the district at $7,000,000.

Geology. The country rock consists of Carboniferous limestones intruded by quartz-monzonite dikes, according to Hill. The orebodies occur along the contact as replacements and veins both in the limestone and in the intrusive quartz-monzonite. The intrusive rock has been calcitized and sericitized and contains finely disseminated pyrite and galena. The rich ore of the early days was argentiferous lead carbonate carrying silver, in part as chloride. The present sulphide ore consists largely of sphalerite, pyrite, and galena, with chalcopyrite in some places.

Bibliography.

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SMN1873-4 75
SMN1875-6 167-170
SMN1877-8 160-175
MR1907 I 384
MR1908 I 505-6
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MR1917 I 298
MR1918 I 263
MR1919 I 416
MR1920 I 337
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Hill507 228. Hill1648 180-6.
Plate, H. R., "The Old Camp at Ward, Nevada," M&SP 94 (1907) 281.
Spurr208 47-54 Egan Range. Thompson & West 663-4.
WeedMH 1288 Nevada United Ms. Co. 1369 Ward Leasing Co.

WHITE PINE (Hamilton)
Silver, Lead, Copper, Gold, (Oil Shale)

Location. The White Pine District is located at Hamilton in the White Pine Range. Ely on the N. N. R. R. is 36 m. E, and Eureka on the E. N. R. R. is 40 m. N.W. Hamilton is 8,003 ft. above sea-level. Treasure Hill to the S. of the town rises to an elevation of 9,239 ft., and White Pine Mt. at the W. border of the district is the highest point with an altitude of 10,792 ft.

History. Ore was discovered on the W. slope of White Pine Mt. by A. J. Leathers, Thomas Murphy, and other prospectors from Austin, in 1865. The Monte Cristo M. Co. was formed with Edward Marchand as superintendent and a mill was built and put in operation in 1867. An Indian gave Leathers a piece of rich silver chloride ore and was persuaded to show where he found it. Guided by this Indian, Leathers, Murphy, and Marchand located the rich Hidden Treasure Mine on Treasure Hill on January 4, 1868. Shortly afterwards, T. E. Eberhardt discovered the remarkable silver chloride deposit known as the Eberhardt Mine on Treasure Hill. Other rich properties were located and the great White Pine rush began. This sensational stampede continued and increased throughout the year, culminating in the spring of 1869. At that time Hamilton had a population of 10,000 people and 15,000 more were living in smaller cities and towns in the district. There were 195 White Pine mining companies incorporated, and over 13,000 mining claims were recorded in the district in 2 years' time. The rich surface ores of Treasure Hill were soon exhausted, but silver ore continued to be mined from that section up to 1887, since which time most of the mining has been conducted in the lead-silver belt between Treasure Hill and Monte Cristo. In 1885, a disastrous fire destroyed the county buildings and most of the town of Hamilton and the county seat was moved to Ely.