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REPORT OF
E. C. Watson
1940

(Houlahan Prop.)
Nevada Champion

INTRODUCTION

The property described is a group of seven contiguous, patented lode mining claims lying in the east half of Section 32 and the west half of Section 33, Twp. 8 North, Range 55 East, Mt. Diablo Base and Meridian Surveys 3447, 4444 and 4612 give the position of the several claims with relation to each other and the location of the principal workings. (itculahan)

The known minerals of economic importance contained in the ores are copper and silver.

LOCATION

This property lies in the foothills of the Gabbs Valley Range of mountains at an elevation of 5000 ft. above sea level, about 4 miles east from Luning, Nevada, a station on the Hazen-Mina Branch of the Southern Pacific Railroad.

A deeply scored gorge known as Wall Street Canyon emerges from the mountains at the mine. The alluvial debris from this canyon forms a gently sloping cone leading southwesterly to the floor of Soda Springs Valley.

HISTORY AND PRODUCTION OF THE DISTRICT

The area within which these claims lie has been known for many years as Santa Fe Mining District, the accredited production of which is 8,849,597 pounds of copper. (See letter of E. W. Pehrson, Asst. Chief Engineer, U. S.

Bureau of Mines, dated January 18, 1937.) This production was made from 1912 to 1919, inclusive, during which period copper mining in the locality was greatly stimulated by (a) the operation of a custom smelter by Mason Valley Mines Co. at Wabuska, only 100 miles distant by rail, and (b) the high price of copper metal prevailing during the period of the World War.

The ores, to date, have been entirely of the direct smelting class.

IDENTIFICATION OF AND TITLE TO PROPERTY (Now called the ~~Houlahan~~)

The property covered by this statement comprises the Willie Higgins, Norah Higgins, Saddle, Goodenough, Copper Butte, Hecla and Copper Bar lode mining claims, the net area being approximately 115 acres. The present title is a derivative from the original patentees of the United States, The Nevada Champion Copper Co. as to the first two mentioned claims and Agnes P. Bennett as to the last four named claims. (See Commissioner's letter dated June 8, 1937.)

HISTORY AND PRODUCTION

Three parcels of this property were each owned and operated independently of the others for some years, and, for clarity, will be discussed separately. These parcels are (a) Willie Higgins and Norah Higgins, referred to below as the Champion claims, (b) the Copper Butte, Goodenough, Copper Bar and Hecla, referred to below as the Anderson claim, and (c) the Saddle.

(a) The Champion claims were acquired by Nevada Champion Copper Company, an Arizona corporation, in 1907 by purchase from the locators or their grantees. No record of this company or its operations from 1907 to 1915 can be found, but for the greater part of this period no operations of any kind were carried on. In 1915, Charles P. McCole and W. B. Andrews, financed by M. E. Urner, purchased the majority of the capital stock, elected themselves directors and executive officers and immediately commenced ore production. This continued for about three years, i. e. until February 1st, 1917. The Company's operations during this period consisted entirely of stoping out existing ore bodies and cleaning up ore dumps of profitable grade. No development work whatever was done. The entire production was made from territory above the 150 ft. intermediate level. The writer was informed at the time by Mr. A. C. Bachman (now dead), who was the company's mine superintendent for the three years mentioned, that ore of the gross value of \$100,000.00 was produced. It is alleged in a bill for receivership of this company filed in the U. S. District Court for Nevada on March 14, 1918, that the ore produced during this period had a net value of \$50,000.00. Neither figure can be confirmed. Possibly both are correct, depending upon the meaning of the terms "gross" and "net".

(b) The Anderson claims were located in December, 1906, and January, 1907, and in May, 1913, were taken over by Mason Valley Mines Co. under working lease and option at

\$15,000.00. This company began mining and shipping ore immediately and continued until June, 1914. Mr. Chris P. Smith, whose present address is Hawthorne, Nevada, had personal charge of the company's operations during this period. He states that the production averaged about 50 tons daily of $3\frac{1}{2}\%$ copper ore.

The U. S. Geological Survey records of the Sante Fe Mining District for the years 1912, 1913 and 1914 show a total production for the district of 1,148,000 pounds of copper. After due allowance for the copper produced by others during the period and other material facts, it can be stated that the Anderson claims produced about 750,000 pounds of copper down to July 1st, 1914. The records of Mason Valley Mines Co. are not available because of its dissolution.

As the time approached for that final payment on its option, the Mason Valley Mines Co. requested a further extension of 18 months and agreed if granted, to equip the property for deeper mining and to expend not less than \$50,000.00 in its lease.

The Anderson claims then lay idle for about three years until on August 14, 1917, Nevada Champion Copper Co., owner of the adjoining Willie Higgins and Horah Higgins claims, (which had meanwhile changed its corporate name to Pilot Copper Co.), purchased them for \$30,000.00 and there has since been a common ownership of the two parcels.

At about the same time, Pilot Copper Co. suspended mining operations on its own account and adopted a policy of

leasing its property. Among other leases granted was one to Henry and James Todd for a portion of the Copper Butte claim covering an incline winze from the North Drift, then 50 ft. in depth. The writer was granted and operated a lease block adjoining the Todds' on the south. A short drift extended northeasterly from the bottom of this winze but disclosed no ore. The Todd Bros. extended this drift about 50 ft. and opened a large body of ore from which they quickly extracted and shipped about 500 tons said to average 7% copper. This ore body still continues northeasterly on this level and can be examined and sampled. The Todds then deepened the winze to 125 ft. intending to drift to pick up the same ore body on its downward extension. Instead of drifting northeasterly as on the level above, these men, by one of the inexplicable quirks of mind characteristic of miners, ran a cross cut due west, exhausted their funds and abandoned their lease in March 1918. The writer and A. C. Bachman personally attempted to convince the Todds that their cross-cut was pointed in the wrong direction and could never reach the ore body they were seeking, but without success. The situation at this point is shown by Fig. 2.

McColm was appointed receiver for Pilot Copper Co. by U. S. District Court for Nevada on March 14, 1918.

Among the company's creditors was its superintendent, A. C. Bachman, with whom the writer was intimately acquainted. His claim amounted to \$4660.00 and was listed as a common or unsecured claim. It was, in fact, entitled to preference as

lien against the Anderson Claims. Being of the opinion that the Anderson claims were of substantially greater value than this amount and desiring to obtain the property for themselves, it was agreed that the writer would advance the cash necessary for the litigation to establish the preferential nature of Bachman's claim and that Bachman would bid \$4660.00 for the property at receiver's sale which would ultimately come to pass. If Bachman should prove the highest bidder and become the purchaser, he agreed to deed to the writer an undivided one-half interest in the mine as consideration of such advances. M. A. Diskin and Augustus Tilder, lawyers of Reno, Nevada, were retained and appeared in the receivership proceedings for Bachman and successfully established his claim as a first lien.

The receivership dragged out for nearly two years and during its progress Bachman and the writer mined and shipped ore from various parts of the Willie Higgins claim under a court-approved lease from the receiver which, by its terms, was to terminate upon receiver's sale. This was the last mining done on the property. The possibilities of the rodd Block were kept secret.

Receiver's sale was held at Hawthorne, Nevada, on December 29th, 1919, and Theodore Stebbins, acting as agent for Agnes P. Bennet, appeared at the sale and successfully bid the sum of \$11,000.00 cash for the Pilot Copper Co.'s entire property. Bachman's claim was paid in full and, according to agreement, he reimbursed the writer the sum of \$1800.00 which had been paid Diskin and Tilder for fees and costs.

Subsequently, in 1926, Mrs. Bennett applied for and obtained U. S. Mineral Patent for the four Anderson claims.

In 1932, Mrs. Bennett allowed both the Champion claims and Anderson claims to be sold for delinquent taxes and tax deed was issued in 1935. The present owners claim under grantees of the Treasurer of Mineral County, Nevada by his deed dated October 5th, 1936.

(c) The Saddle claim was purchased in 1917 by the writer from the original locators and application made for U. S. Mineral Patent thereto. Patent issued in 1921. This claim was never owned by Pilot Copper Co. or Agnes Bennett. The outcrop of the Volcano Peak fault traverses this claim for about 1000 linear feet, entering the west side line and leaving the south end line. This fault is intimately associated with the Copper Butte ore bodies. The writer purchased and has held the Saddle for 20 years in the belief that these ore bodies will eventually prove to continue into the Saddle on their southerly extension. There exists geological evidence to support this opinion.

DEVELOPMENT AND SURFACE IMPROVEMENTS

By far the greater amount of mine development and stope openings center upon the Willie Higgins and Copper Butte claims. A three-compartment, timbered shaft, with gallows frame, located slightly north of the center of the Willie Higgins claim is 400 ft. in depth, with levels at 100, 200 and 300 ft. from which extend easterly and westerly lateral

workings aggregating about 4000 linear feet. There is also an intermediate level, mentioned above, at a depth of 150 ft. connecting with the 100 shaft lv. by winze and with the 200 shaft lv. by vertical raise. In addition, there are on this claim approximately 1400 ft. of shallow tunnels and shafts disconnected from the main shaft.

Two ore bins with connecting trestles remain. The hoist is obsolete and ruined. On the same claim are a number of small houses and boarding house all in bad repair but capable of cheap and quick rehabilitation.

The Copper Butte claim was first opened by a shallow tunnel. When the ore was encountered it was mined to the surface, resulting in two open glory holes. A drift was run north, along the fault, on the glory hole level and approximately 20,000 cubic feet of low grade ore drawn off by chutes. The so-called Todd Winze, now 125 ft. in depth on the incline, referred to above, heads in the North Drift.

A vertical shaft 125 ft. deep, called the Mason Valley Shaft, was sunk in the glory hole at a point about 125 ft. south of the Todd winze. Extensive latteral workings were run from the Mason Vally Shaft at the bottom.

Practically all existing work on the Copper Butte claim was done by Mason Valley Mines Co. with the exception of the lower 75 ft. of the Todd Winze, which was sunk by Todd Bros. as above related.

Both the Mason Valley Shaft and the Todd Winze are untimbered. The winze is open to the bottom and with slight

repairs can be put into immediate working condition. The Mason Valley Shaft is bulkheaded at the glory hole level, is not immediately accessible, and its condition and the condition of the workings from it is unknown, although believed to be open.

Reference is made to a print from an unsigned and undated mine map marked "Anderson Mine" for a more detailed description of the character and extent of the Copper Butte mine workings. It is believed this map was made during the time of Mason Valley Mines Co.'s operations. The Todd Bros.' workings are not shown on this map, having been run long after the map was made.

There is an old 50 ton ore bin upon this claim but it is in shcu poor repair as to require partial reconstruction before use.

GEOLOGY AND ORE OCCURRENCES

The ore bodies occur in limestones which have been intruded by monzonite dykes and are associated with one or the other of two major faults known as the Champion Fault and Volcano Peak Fault. The Volcano Peak Fault has been referred to by Hill (see U. S. G. S. Bulletin 594). It traverses the Saddle, Goodenough and Copper Butte claims, striking about N 40° W and dipping southwest. If this fault persists in depth, it would pass under the Willie Higgins claim below any existing workings.

The Champion Fault strikes east and west through the Higgins claims and dips south. No valuable ore has been found in the footwall of this fault. It is encountered by the Champion Main Shaft at about 190 ft., vertical depth. (Fig. 1)

In the writer's opinion, the ore bodies are secondary depositions but this question is controversial. They are now completely oxidized and are porous, soft and friable. The copper minerals are in the forms of carbonates, silicates and oxides with much hematite.

Past operations consisted of selective mining of portions of ore bodies carrying from 4% to 9% copper, leaving the low grade shells standing. Measurements and sampling of existing ore bodies are said to expose in these claims, standing in mine and on dumps, approximately 250,000 tons of $2\frac{1}{2}\%$ copper ore. The source of the writer's information as to these figures are the allegations to that effect in the bill for receivership, above mentioned, and oral communications made to the writer, about 1917, by A. C. Bachman and John C. Skuse, then respectively mine superintendent and mining engineer of Pilot Copper Co. These statements are supplemented by frequent personal observations and estimates based upon actual personal experience and knowledge in mining these and other similar ore bodies in the same district.

In the writers opinion, these figures are substantially correct. If for any reason ore of this grade and character should ever become profitable, a small amount of additional development would probably expose not less than one million tons of the same grade and character. Three specific areas will be mentioned as promising to that end: 1st, the so-called West Hill ore body in the extreme northwest corner of the Willie Higgins claim; 2nd, the area (approximately 750

ft. in length) along an east and west line from the Willie Higgins shaft to the Anderson ore bin (much of the rock surface of this area is obscured by alluvial debris); and 3rd, the fault zone immediately south of the Mason Valley shaft.

Since ores of this character and grade, in this locality, are not now of sufficient value to profitably mine, ship and smelt, their existence is mentioned only to indicate the size and extent of the mineralization. No process is now known by which oxidized copper ores can be successfully concentrated. Flotation of these ores can be successfully carried out in laboratory but is not practical on a working scale (see letter of Director of Utah Engineering Experiment Station, dated February 20, 1937.)

LOCAL OPERATING CONDITIONS

The district lies within the arid Inter-Mountain area and is barren of trees and other vegetation except low sage brush. The water supply for mine and domestic purposes is obtained from wells in the floor of Soda Springs Valley where the water lies 40 ft. below the surface. No underground water has ever been encountered in the mine workings. The rock stands well without the necessity of timbering. Large, open stopes which have stood untimbered for years without any caving whatsoever are numerous in the old workings. Some of these openings are 75 ft. long, 40 ft. high and 15 ft. wide.

There is a good mountain road from Luning to the mine, traversable by automobile or truck.

Ore can be trucked from the mine to railroad cars for \$1.00 per ton. The present effective freight rate on \$10.00 ore from Luning to Salt Lake Valley smelters is \$3.20 per ton. Custom Smelting rates quoted by International Smelting Co. on these ores are, at present, \$4.00 per ton.

FUTURE OPERATIONS

The expenditure of a substantial amount in further exploration of this property is will justified. Profitable production of ore can be commenced at no great expense or delay. Extraction of ore is unquestionably the best form of development for a property of this type. The mining of one ore body tends to the discovery of others. The profits should be plowed back into new development as rapidly as they become available. The amount of necessary new capital could be thereby kept at a minimum.

A number of specific steps in a plan of general development are outlined below, in the order of their importance:

(a) The Todd Winze on the Copper Butte claim should be put into working condition and equipped with a hoist. A lateral working should be run northeasterly from the bottom of this winze. Approximately 50 ft. of drift ought to be sufficient to encounter the downward extension of the Todd ore body. As soon as this ore is assured at the bottom level, the Anderson ore bin should be rebuilt and shipments to smelter commenced. If the ore body proves as good in size and values as on the level above, the Todd winze should then be deepened

at least an additional 75 ft. and mining again commenced at the lowest horizon. In short, the Todd ore body should be aggressively followed downward so long as its size and copper content justify extraction.

(b) A careful, detailed geological reconnaissance, both surface and underground, should be made of the entire property and the results mapped. Especial attention should be given to the two faults, and all available evidence assembled to determine the position of their surface outcrops, their dips and their age with respect to ore deposition, that is, whether post-mineral or pre-mineral, the direction and extent of fault movement and determination of which side moved in relation to the other. Also some attention should be given to the area of their presumable intersection (Northern half of Copper Butte claim.).

The importance and future value of the assembly of such geological data can hardly be overestimated.

(c) An exploratory cross-cut should be run south from the 200 ft. lv. of the Champion Shaft to test a virgin section of the hanging wall area of the Champion Fault. Although hundreds of feet of lateral work was done by former owners at and below the 200 lv. of the Champion Shaft, not one foot of this work penetrated the hanging wall of the fault, from which all the former production had been made.

(d) A 50 ft. incline prospect shaft was sunk near the trail on the Goodenough claim, about 200 ft. south of the Anderson Glory Hole, for the evident purpose of testing a

promising gossan outcrop on the Volcano Peak Fault and a short cross-cut toward the fault was run from the bottom. In the writer's opinion, this cross-cut failed to reach its objective and it would be well to continue it to the fault. The geological information gained would be of value to appraise the possibilities of the southward continuation of the Copper Bute ore body. This shaft is indicated as Pat. Imp. No. 1 on the official patent survey.

CONCLUSION

Admittedly, these claims, as they now stand, constitute a marginal property, i.e. one whose profitable operation is possible only during periods when copper metal is at or above a certain figure per pound. In this instance the minimum price is approximately 13¢ and the minimum grade approximately 6%. If the market price of copper increases above 13¢ the profit on a theoretical 6% ore is correspondingly greater and, conversely, ores of less than 6% grade are rendered profitable.

The chance of large increase in the value of this property must necessarily depend upon one or more of four possible future events coming to pass, namely:

- (1) The discovery of important virgin bodies of 6% or better ore.
- (2) The discovery of extensive sulphide ore bodies averaging, say, 2½% copper.
- (3) The discovery of a process by which the known ores can be either profitably treated or concentrated in the immediate vicinity.

(4) An increase in market value of copper metal to a figure high enough to render, say, 3% copper ores profitable at custom smelting plants.

Arrating of these contingencies in the order of their probability according to the writer's judgment would be as follows:

(1) is reasonably certain to follow from a reasonable amount of intelligently directed work.

(2) is a good probability, but not certain. This is the chance for "big money" in this property. The adventure for millions lies down this road.

(3) is an economic question purely, lying entirely outside the realm of geology or mining. If a person can visualize a future copper price of 20¢ per pound (and there are many who do), there are large profit possibilities in this property.

(4) is a question of future improvements in the beneficiation of copper ores. If, for example, the process of concentration known as "flotation" should be successfully applied to oxidized copper ores, this property would take on immediate value of \$250,000.00 without any further development whatever, for the reason that by that process the 250,000 tons of known ore would net at least \$1.00 per ton profit.

(1) and (2) are legitimate mining chances. (3) and (4) are remote but are, nevertheless, entitled to some weight in appraising the ground.

Of course, if the ore bodies, regardless of grade continue downward, there would normally come some point where their character would change from oxide to sulphide. There is not much evidence available in this case useful in forming an opinion of the depth at which such change would take place. A body of true sulphide ore (chalcoite and chalcocynite) was found on the intermediate level ((150 ft. vertical depth) of the Champion at the head of the raise. Strangely, no work was ever done to determine the question of its downward continuance. In the writer's opinion, 300 ft. of vertical depth on the Anderson ore bodies ought to settle the question. There is no doubt that the Mason Valley Mines Co.'s plan of development, had it been able to renew its option, pointed in this direction.

At the first demonstration that true sulphide ore bodies of substantial size have been proven in this grouse, it could be quickly sold to any one of the larger copper companies, notably Anaconda, which has already entered Nevada in two instances, to-wit, Silver Peak and Copper Mountain.