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Examination Report on the Inland Lead Mine of White Pine County, Nevada.
By G. W. Crane.

Greer-American

LOCATION AND ACCESSIBILITY; The Inland Lead Mine is located in the Aurum Mining District, White Pine County, Nevada. It is situated near the head of Silver Canyon on the east slope of the Schell Creek Range, at an elevation of about 7000 feet A.T. It is a good days drive of 245 miles, over the Lincoln Highway, from Salt Lake City to the mine. Warm Springs, the nearest station on the Nevada Northern Railroad is about 11 miles by good wagon road to the west.

PROPERTY; The property includes an option to purchase 7 unpatented lode mining claims and mining rights to additional 6 unpatented lode mining claims recently located by the present holders of the option.

OWNERSHIP; The 7 claims under option are owned by the Athens Mercantile Company, Incorporated, of Ely, Nevada and are held under option to purchase by D. W. Jeffs, who in turn has sold his interest in full to Messers J. T. Jukes, George H. Short and Phil P. Clark of Salt Lake City, who constitute the Inland Lead Mine syndicate, not yet incorporated.

The purchase price under the Jeffs option is $25,000.00 to be made in installments of $4000.00 on April 20th, 1927 and three additional installments of $7000.00 annually until completed. A royalty of 10% is to be paid on all ore shipped, which sum shall apply on the purchase price.

EQUIPMENT; The property is equipped with living quarters for 8 men, good spring water and sufficient timber for fuel and mining purposes. Mine equipment is limited to a

good set of mining tools, one or more hand windlasses and a 6 horse power, double geared, gasoline hoist.

HISTORY AND PRODUCTION; The seven claims held under option and constituting what are known as the Greco-American Group, were located in 1881. Mining operations were soon started and some ore was treated in an old stamp mill still to be seen in Silver Canyon about one mile below the mine. No records of shipments from the property are available but the extent of the underground workings indicate that a considerable tonnage has been produced. In 1912 the property was acquired by the Athens Mercantile Company, who did some work in 1912 to 1924, which was sufficiently productive to prompt the owners to build several miles of wagon road over the mountain as an outlet for the ore.

TRANSPORTATION; The mountain road to the railroad station at Warm Springs is still in good condition and is the shortest and best present outlet for the mine. Over this road hauling costs are about $4.50 per ton. Rail transportation from Warm Springs to the Salt Lake City Valley smelters ranges from $3.20 per ton up, depending upon the value of the ore.

MAPS AND LITERATURE; Prepared from hasty field notes and accompanying this report are two maps, designated as Maps 'A' and 'B'. Map 'A', showing the claims and the surface geology in the vicinity of the Inland Lead Mine, is on a scale of 300 feet to the inch. Map 'B', showing some underground workings in plan and section is on a scale of

30 feet to the inch. The latter also shows a generalized north-south cross-section in the vicinity of the Clara tunnels on a scale of 100 feet to the inch.

Some notes on the Greco-American mine by James M. Hill and a small general sketch map of the district appear in U.S.G.S. Bulletin 648, page 193. The district was also visited by Spur in 1903 (see U.S.G.S. Bulletin 208).

GEOLOGICAL FORMATIONS AND STRUCTURES; In the Schell Creek Range and its vicinity there is a very thick series of quartzites, shales and limestones showing considerable folding and faulting but with prevailing southwest to westerly dipping beds. The quartzites are of Cambrian age and the shales and limestones range from Cambrian to Mississippian age. Intruding the sediments are a few dikes and sills of granite-porphyry which are probably of Tertiary age.

Within the limits of the Inland Lead property the country rock consists wholly of limestone and interbedded shales, their total thickness certainly exceeding 3000 feet. Intruding the sediments, particularily the shales, are several dikes and sills of granite-porphyry, which though relatively small and accompanied by very little or no contact metamorphism certainly mark the period of igneous activity which immediately preceeded the deposition of the ore. Their structural relation to the ore bodies is not clearly established.

Two major faults were observed; one extending north and south across the east end of the property and another running about N.75°E. just beyond the north boundary of

the Clara claim. While neither of the major faults are known to carry ore it is an interesting fact that a small 10 foot fault at the Jukes incline formed the locus of an ore shoot. These faults, with the probable exception of that crossing the east end of the property, are certainly pre-mineral and may play an important part in the localization of the ore bodies.

The general mono-clinal structure of the camp is shown in the north-south section through the Clara tunnel (see Map 'B' - Fig. No. 1).

ORE OCCURRENCES; The ore occurs in the limestone, which it replaces irregularily along the bedding planes, small faults and along zones of fracturing due to sharp flexures in the limestone without faulting. The replacement of the limestone by the ore was almost complete within the latters limits, so that the line of demarkation between ore and wall rock is generally well defined, though there is in places some marginal matter too low grade to be mined.

Within the limits of the Inland Lead Mine property and for about 1/3 mile to the north of it, the ore in all cases is found along or close to the contact of the thin bedded gray limestone and the massive white and blue limestone which lies about 20 feet below the base of the 300 feet of shale. This feature of the ore's occurrence is clearly established not only by the several main openings on the ore, described hereinafter unde 'Developments', but also by the numerous small ledges of secondary mineral bearing quartz which outcrop or have been exposed by minor developments along this contact. In that

restricted sense this is a contact deposit in which the overlying shale and the thin bedded gray limestone horizons have acted as limiting structures to the mineralizing solutions which were most certainly ascending and of magmatic source. It is probable that all of the several undeveloped quartz ledges along the line of this contact virtually represent ore outcrops.

CHARACTER OF THE ORE; The ore contains gold, silver, lead, iron and occassionally some zinc. That so far mined has been thoroughly oxidized and only occassionally is any sulphide ore found. Undoubtedly it was all deposited originally as the sulphide and were it traced to ground water depths would be found there in the primary sulphide state, accompanied by some secondary enrichment.

In general the ore is fairly uniform in character and of good grade. The records of earlier production are not to be had, but the returns of five lots shipped in 1924 as the result of doing the assessment work for that year are as follows -

Lot	AU.oz.	AG.oz.	PB.%	ZN.%	INSOL.%	SUL.%	FE.%	LIME %
1	0.01	4.5	13.7	0.7	8.0	0.9	36.8	4.9
1A	0.03	28.7	45.6	0.6	16.8	1.7	11.3	2.1
2A	0.02	32.0	49.5	2.5	10.2	3.0	11.0	1.6
1	0.09	4.9	14.5	1.8	10.2	1.6	36.5	
2	0.07	8.3	16.8	2.0	8.2	1.2	34.1	
3	0.06	4.7	15.1	1.8	4.2	2.2	44.4	

This ore, no doubt, represents gleanings from the old workings and probably is not up to grade. The above assays were made by the American Smelting and Refining Company to whom the shipments were made.

DEVELOPMENTS; Several incline shafts or tunnels have been driven on the property, some of which have produced considerable ore. The most important of these are the Davis incline, the Jukes incline, the Gold Vein incline and the Clara No. 1 and Clara No. 2 tunnels.

DAVIS INCLINE; These workings consist of a 40° incline shaft 98 feet deep on the pitch from which levels have been driven at the 50 foot, the 80 foot and the 98 foot depths. These levels were driven in ore and are all connected by irregular stopes ranging from a foot or two up to five feet in width giving the workings the appearance of one continuous stope. The accompanying Map 'B' - Figs. 2 and 3 show the incline winze workings in both plan and section on a scale of 30 feet to the inch. The Davis incline was sunk on the contact of a massive gray limestone with a thin bedded light gray limestone which is quite generally observed to form the hanging wall of much of the stoping. The workings are in the massive limestone and follow a zone of fracturing with southeasterly dipping joints. The first evidence of stoping appears in the back of the incline at about 20 feet below its collar. From this point irregular stopes extend roughly along the plane of the fracturing to the bottom most workings or about 105 feet on the incline. On the 50 foot level the ore was followed on the strike of the fracturing for 75 feet extending irregularily into both the hanging and foot wall limestone over an area 30 feet wide. At the foot of the incline the stopes are somewhat smaller in cross-section but still have about the same spread.

The contact of the ore with the enclosing limestone is for the most part sharp and well defined and the old timers left but little ore behind them. However, where stoping operations left off there are still a few good leads from which some ore could be obtained. Samples of these, which represent about the character of the ore that could be obtained on resuming mining operations, are as follows -

	Au. oz -	Ag. oz -	Pb. %
1 - south side lowest workings -	0.55	19.9	24%
2 - south face of old incline -	0.10	5.05	14%

It is rather difficult to estimate the amount of ore that might be obtained from this source but it is not likely that it would greatly exceed a hundred tons.

At three points the ore bottomed on porphyry which at one place is shown by a winze to be about 8 feet thick (see Map 'B' - Fig. No. 3). While some mineralization was found in the limestone beneath the porphyry, the existance of ore at that horizon has not been determined.

Taking the Davis workings as a whole the best prospect for new ore lies in the strike of the fracturing and above the porphyry sill but it would be advisible also to prospect more thoroughly the limestones beneath the sill.

JUKES TUNNEL; These workings consist of about 50 feet of drifting and stoping on a seam of oxidized silver-lead ores which outcropped at the surface. The ore occurs replacing the massive limestone and conforms closely to the plane of a small fault which strikes N.30°E. and dips 45° S.E. It varies considerably in thickness ranging from about 18 ins. at the tunnel portal to 4 feet at 25 feet on the slope then pinching to about 6 ins. at the face.

The widest part of the stope has a cross-section of 4 feet by 10 feet and there has been no work done below the level of the tunnel. Good ore showings in the bottom where the ore was widest indicates that there is yet considerable ore to be had below the level.

About 35 tons of ore have been mined from this opening and is still held in stock at the tunnel portal. The ore is fully oxidized and judging from its appearance and the returns on several control samples it will average about $1.20 gold, 12 oz. silver and 12% lead to the ton.

GOLD VEIN INCLINE; These workings consist of about 80 feet of flat (25°) incline winze and some stoping which followed a seam of ore outcropping at the portal. The ore occurs in the massive limestone underlying the thin bedded gray limestone. The ore shoot conforms to the bedding and is very well defined and regular in its occurrence. It varies from 18 inches to 2 feet in width and at one place has been stoped to 10 feet above and about 15 feet below the general level of the incline (see Map 'B' - Fig. No. 5). At the bottom of the incline the ore occurs in three thin layers conforming to the bedding which at this place dips 55°SE. There is no evidence of any cross break or fissuring. Some ore has been shipped and there are about 30 tons of ore in stock at the mine, which assays 1.2 oz. gold, 10 oz. silver, 15% lead and 30% iron.

There is still some ore in sight in the back of the incline but the ground is blocky and would require some timbering. The best prospect lies on the dip of the

bedding and below the tunnel level.

CLARA TUNNELS; On the northwest end of the Clara claim and showing particularily interesting ore developments are two small tunnels which are designated as No. 1 and No. 2 (see Map 'B' - Fig. No. 4).

The No. 1 or most northerly tunnel was started on a large outcrop of secondary mineral quartz which occurs at the contact of the thin bedded and massive gray limestone and constitutes the first 20 feet of the tunnel. This was succeeded by 30 feet of soft decomposed limestone which at 50 feet from the portal was succeeded by a 6 foot rib of hard ferruginous quartz containing some lead carbonate and from this quartz to its breast a distance of 16 feet the tunnel is in high grade lead carbonate ore exposed to a thickness of 11 feet with neither top, sides nor bottom disclosed.

The ore materials are of three kinds -

No. 1 - pure crystalline, sand carbonates forming the bulk of the deposit and extending to the back of the drift.

No. 2 - porous, white quartz containing streaks and irregular inclusions of lead carbonate and occupying a position near the middle of the deposit.

No. 3 - somewhat rusty and lower grade lead carbonate underlying the rib of white quartz and extending to the bottom of the 6 foot winze.

Representative samples of the three types of ore gave assays as follows -

	Gold oz.	Silver oz.	Lead %	Zinc %	Character
No. 1	0.09	17.0	29.9	none	sand carbonate
No. 2	0.03	3.2	6.8	none	porous quartz
No. 3	0.05	2.6	16.4	none	rusty ore

This is in fact a very remarkable ore showing and though there must have been some very good ore faces at times in the Davis incline, this probably is better than anything heretofore disclosed on the property.

CLARA NO. 2 TUNNEL; The No. 2 tunnel lies about 30 feet to the southeast and runs nearly parallel to the Clara No. 1. Passing through about the same materials in the first 30 feet of its course, it entered a mineralized formation consisting of spongy ferrugenous quartz with small seams of lead carbonate. The material here is more like that designated as No. 3 in the Clara No. 1 tunnel but does not contain as much lead carbonate and is too low grade to be classed as ore. No doubt the two classes of material form a part of the same ore body and it will be interesting to watch developments here.

CONCLUSIONS

As a prospect in an undeveloped and unproven mining district I consider this of the first order. The ore in both composition and origin is practically identical to that in most of our best silver-lead camps and occurring as a replacement of the limestone, where limestone is abundant, has possibilities limited only by the strength or abundance of the mineralizing solution, which can be determined only by extensive developments.

No such showing as that in the Clara tunnels or in any of the several openings, for that matter, would have

escaped development so long were they located in better established mining districts. In fact ore showings such as these no longer exist anywhere in proven camps.

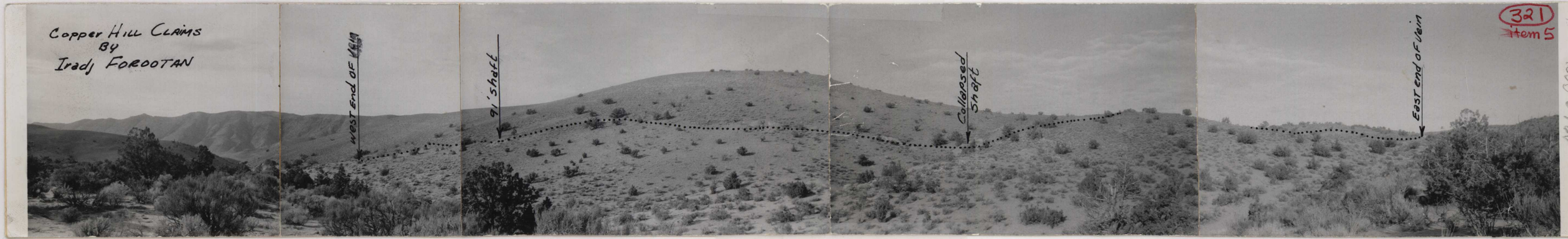
The ore has the appearance of being shallow due largely to the fact that developments have not exceeded 100 feet in depth. But this is more seeming than real as with the possible exception of the Davis incline, none of these ore bodies have been worked to their lower limits. No doubt erosion has removed some of the original ore shoot but to what degree can not be determined except by prospecting at depth. At the point of transition from oxides to sulphides there should be considerable enrichment of the silver content.

The apparent localization of the ore to the limestone-shale contact and to the intersection of this with cross-breaks is indicative of marked regularity of occurrence which in turn fosters ore bodies of considerable size as well as easeof development.

In view of these considerations I do not hesitate to pronounce the Inland Lead property at this stage of the industry an exceptional opportunity to make a new mine in what is practically a new district.

Signed

G.W. Crane



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