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LA BAJADA EXPLORATION ENGINEERING AND EQUIPMENT CORPORATION

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Index.

Phoenix, Arizona
October 29th, 1938.

A.L.Flagg,
Consulting Engineer.

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INTRODUCTION.

The examination on which this report is based was made between October 17th and October 21st, inclusive, 1938.

The following data were submitted for use in this connection:

Reports by:

G.W.Alsdorf	Phoenix, 1916
H.E.Armitage	Prescott 1911
E.M.Clark	Reno,Nev 1918
J.S.Coupal	New York 1917
J.S.Coupal	Phoenix 1934
E.M.Muter	Prescott 1916
S.A.Shappel	Phoenix 1935
H.A.Sill	Los Angeles
G.A.Thayer	Phoenix 1916

(There were no maps or sketches with the reports)

Extracts from U.S.Geological Survey Bul.782
A Discussion of assays on Tip Top Ore, from 1887 to 1922
by Frank E. Wager, assayer at Tip Top.

Daily Mill Reports, May 1 to October 30, inclusive, 1936.

Pay roll distribution sheet, June 16 to 30, 1936

A claim map, unsigned.

A sketch (elevation) of new "76" workings

Report of Ore Test by Southwestern Engineering Corp., 1926.

Report of Ore Test by Southwestern Engineering Corp., 1927.

Smelter liquidation sheets covering 24 shipments

Since the reports mentioned above gave all the pertinent data regarding location, accessability, water supply, and development on the Tip Top Group prior to the entrance of the La Bajada E.E.& E. Corp., into the district it is unnecessary to repeat such matter in this report.

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PROPERTIES.

La Bajada E. E. & E Corporation is operating at present the "76" Group of unpatented mining claims, under a lease and option agreement. The Corporation also has a lease agreement, as well as a small stock interest in the Tip Top Group, consisting of three patented and three unpatented mining claims. Neither of the contracts mentioned were reviewed by the writer, but they were discussed with Messrs Eggers and McDonald.

It seems advisable to comply with the terms and conditions of the lease and bond on the "76" Group, completing the payments as called for and securing the title. There is every reason to expect that the balance of the purchase price, and in addition, some profit can be taken out of this group of mining claims.

The arrangement with the Tip Top owners is not satisfactory and should be changed as soon as possible. The rental for the use of the mill equipment is prohibitive and the stockholders in the Tip Top should realize this. Should an extensive development program on the "76" Group open up a sufficient tonnage of mill ore it might be more economical and profitable to build a mill at the "76" if the Tip Top terms cannot be modified.

BUILDINGS.

There are buildings enough on the Tip Top ground to accomodate a crew of twenty men and profide administration headquarters also. Practically every building needs some repairs. It is to the best interest of the lessee to repair these buildings if he proposes to continue with work at the Tip Top mine or in the mill. There are no buildings onthe "76" Group.

WATER SUPPLY.

Water for domestic purposes is obtained from shallow, dug wells along Cottonwood Wash, which crosses the properties. This is adequate for immediate needs, However, while the ground water stage is low, advantage should be taken of this opportunity to deepen these wells.

Water for milling purposes can be had for a time from the Tip Top shaft. Nothing is knownabout the qualities of this water, or how it may effect the flotation. The "76" winze is reported to make four thousand gallons per day. This may or may not increase as depth is gained. Whatever water is produced can be delivered by gravity to the head of the present mill. A large capacity earth and rock reservoir with a concrete lining could be built here at low cost.

MINE EQUIPMENT

The mining equipment belonging to the Corporation is practically all at the "76" Group. The surface equipment seems to be adequate for all immediate requirements. The Foos engine, which drives the stationary air-compressor is said to need a new ring. It might be helpful if an air filter is added to the compressor intake. These are small matters, however. When conditions warrant and sinking in the winze is resumed the present air hoist can be used for another hundred feet. From beyond that depth hoisting should be done with heavier, more economical equipment from the surface. The location of such new working shaft can be determined only after more laterial work has been.

The drilling equipment on the job is not satisfactory. All the machines show signs of excessive wear. Efficiency must be low and repair costs high when such equipment is used. Air and water hose are badly worn and many-patched. The columns and arm are not usable. Leasers may worry along with such equipment but if used on company time they will be found to be very expensive.

The compressor at the mill, a Chicago Pneumatic "hot-head" type machine should be replaced by something efficient and dependable.

MILL EQUIPMENT.

The most striking thing a bout the mill is that when it was shut down the equipment was properly care for. Usually, in small plants, when the shut-down time comes everything is abandoned where last used with no thought for the future.

The necessity of a secondary crusher is clearly indicated by the large amount of coarse material in the fine ore bin. No effort was made to determine the amount of oversize for a casual observation indicates that much of it was too coarse for ball mill feed. Daily mill reports state frequently that time was loss due to choking of the ball mill. The daily capacity of the mill will be materially increased, a saving made on balls and liners, and, in all probability, a more uniform recovery made if a secondary crusher is installed. An Allis Chalmers #189 fine crusher or its equivalent is recommended.

The ball mill appears to be satisfactory though it has been operated out of alignment. Daily mill reports indicate that it required relining after less than a month's use. Presumably the liners are now in fair condition.

It is reported that the Dorr classifier, which operates in closed circuit with the ball mill was not satisfactory in its operation. There is nothing to be seen about the operating mechanism that is not normal or in any way faulty. The unsatisfactory performance was probably due to lack of proper adjustment, which can be corrected easily.

Conditioning equipment, flotation cells, tables, filters and other miscellaneous equipment seems to be satisfactory.

The engine was responsible for many delays while the mill was in operation according to daily mill reports. In the last half of June 1937 there was over 35% lost time charged to engine troubles. No superficial examination will determine why the engine did not operate at normal. It may or may not be for causes easily corrected.

There is no reason why used equipment should not be purchased for either mining or milling. However, such purchases should be made with cautinn and usually only reconditioned and guaranteed equipment should be considered. If quality and condition are made secondary considerations to price the result is very apt to be disappointing. In view of the short time this particular installation has been used at Tip Top and considering the lost time reported (See Table 11) the logical conclusion is that the equipment was selected on a price basis. The result is reflected in the unsatisfactory results of mill operation. The practice of economy in making capital expenditures is not criticised, but the purchase of equipment of inferior quality is not economy.

THE "76" GROUP.

Present operations of the La Bajada E.E. & E. Corporation are confined to the "76" Group, which lies to the northwest of the Tip Top Group. There are no company operations. There are three different leases in force which are very favorable to the company.

C O P Y

The oldest major development on the "76" Group consists of three adit levels on the Fourth of July claim. There is no accurate record of the production from these workings. On the "76" claim there were two short adit drifts driven in earlier days. On the Bernard which is on the south-west end of the group there were lesser workings, done in the early part of the camp's history.

There is no work in progress on the Fourth of July claim at this time. On the Bernard a lease is in force. An inclined shaft is being sunk in wall rock from which a crosscut will be made to the vein.

Exploration by the La Bajada company has been confined to the "76" claim. The area above the two old adits mentioned above was pretty well stoped out years ago. Later a new adit was begun below these. It had been driven on the vein in a north-easterly direction something over one hundred feet. Connection was made with an old shaft sunk at the portal of the lower of the two adits mentioned above. Then a winze was started and carried to a depth of about 35-ft.

The La Bajada company has continued the adit to a total length of 506 feet. The winze has been continued to a depth of 180-ft with a shallow sump below. Drifts have been driven from the winze at 60,120 and 180 foot levels. In all the company has done probably about 1000 feet of work on this claim. Stoping has been done here and there on the choice spots of high-grade ore. No regular stopes have been made. The gross production from this one claim during the tenure of the La Bajada company has been over $20,000, principally from high-grade shipments though some ore was milled.

The general geology at the "76" seems to be much the same as at the Tip Top claims. Five distinct, post-mineral faults, of moderate displacement were tentatively identified. In the reports referred to earlier in this report very little attention was pai to either structural geology ore ore genesis. Neither can be neglected in the further development of any group or claim.

In the explored area of the "76" vein system the vein is usually narrow. The strike is to the northeast with a dip of about 60 degrees to the west. High grade occurs in overlapping lenses, usually on the hanging wall side. The highgrade quartz is often frozen to the hangingwall and often breaks through the wall. The only explored shoot seems to have a length of at least one hundred feet. The rake is to the north-east. The shoot persists to the lowest level. The mineable width seemd to average less than two feet. The highgrade quartz streak is from two to four inches in thick-ness. Present leasers are mining not over twelve inches of ore of which not to exceed 30% is being sorted out for shipment. It is estimated that this sorted ore will approxi-mate 200 ounces silver to the ton. The rejects, or mill ore, is stored for company account.

The "76" and Fourth of July are the only two shoots of ore yet proven on the property. Neither of them is very long but it is reasonable to expect that they will be persistent to depths comparable to the depths attained in the old Tip Top. Whether other shoots will be developed on these claims, on the Silver Link and Bernard is problematical. There is no surface indication of a shoot on the Silver Link.

OPERATING DATA.

Very little complete data covering the past operations of the La Bajada company are available. Fragmentary records do not supply enough information to enable one to make a very satisfactory analysis of costs in any department. In Table III is given what seems to be about the best possible estimate of costs in the mill. However, it was necessary to make assumptions regarding some items. In addition it covers only fifteen days.

Even less information is available regarding the mines. Therefore any

estimates made may be found to be quite at variance with actual costs.

Smelter liquidation sheets covering twenty-four shipments of sorted ore and concentrates were available for study. The first shipment was received at the smelter March 23d, 1937; the final shipment August 4th, 1938. Shipments have been made since that date but the settlement sheets were not available. The following analysis was made of these shipments:

A

Shipments	24
Dry tons	212.7685
Total ounces silver	51953.45
Total ounces gold	41.68
Total pounds lead	6640.88
Gross value of metals	$41845.32
Total freight paid	1634.20
Net paid by smelter	29250.67
% gross value realized	69.88%

B

	% Recovery	Quantity	Unit Price	Total Value
Silver	85	44,160.43	77.5¢	$34,224.33
Gold	80	33.34	$32.00	1,066.88
Lead	60	3,984.53	4¢	159.38
Total gross recoverable by milling				$35,450.59

In the above table division "A" is a concise summary of the record of ore shipped. Actually only the silver was paid for because the amounts of gold and lead in the ore were below the minimum required for pay in the current smelter schedule. However, in milling some of these values will be recovered, Daily mill reports show no recoveries other than silver therefore the recovery of gold and lead in section "B" are only estimates. The mineralogical associations are such that one is justified in making the assumption that the precious metals and the lead are closely associated and that the recoveries together about in the percentages assumed above in section "B" are quite reasonable.

Section "B" is given only for the purpose of comparison, to further emphasize the difference between returns from shipped and milled ore. It is impractical to mill ores of such high silver content. In fact, some smelters will not accept such highgrade ore except at an increased base or special treatment rate. In the process of mining ore for a mill the large pieces of obviously highgrade ore should be sorted out and accumulated for shipment direct to the smelter.

An analysis was made of mill operations from May 11th, 1936 to October 30th, 1936, inclusive. The results are tabulated below.

Table II

Total possible milling hours	4176.00
Total hours mill operated	2739.14
Percent total operating time	65.59

Operations by months.

Month	Total Possible hours	Total Hours running	Percent Running time
May	504.00	258.65	57.67
June	720.00	322.75	44.82
July	744.00	421.75	55.68

Operations by months. (cont'd)

Month	Total Possible hours	Total Hours running	Percent Running time
August	744.00	562.00	75.53
September	720.00	572.25	79.47
October	744.00	601.74	80.74

It is logical to expect that during the first 60 days of the operation of any new mill there will be lost time, low recoveries and shut downs for rearrangement of flow-sheetand other adjustments. On these grounds, then, the record of actual time operated during the first fifty days is not out of line, except that the records show that the loss of time was not on account of any of the usual causes. According to the records the recoveries, though erratic, were generally satisfactory during the initial or "breaking" in period.

Concentration ratios were usually high and the mill feed practically always below what is the actual no-profit or "dead-line" limit.

The record of mill operations would indicate that the mill was operated by competent men, to whom no blame can be attached for the failure of equipment.

A distribution sheet covering the pay-roll from June 16th, 1927 to June 30th, 1937, inclusive, is summarized below and the milling cost calculated from this incomplete data.

Table III

Distribution of pay-roll:

Milling	$ 338.31
Mining	491.16
Mill repairs	106.11
Crushing	3.00
Truck	33.31
Miscellaneous	91.00
Superintendent	49.98
Burro haul	205.04
Total	$ 1318.27
Less mining and truck	793.80
Tons milled	370.20
Mill idle 4 whole days and fraction	
Total hours milling	201.00
Total hours down for engine repairs	127.00
% total time " " " "	35.28

Average cost of milling ore based on above distribution of the pay-roll ($793.80 / 370.20 T) $2.144 per ton.

This cost figure is exclusive of overhead, taxes, insurance, state compensation insurance, supplies, Social Security etc.

C O P Y

For overhead add	$ 0.75 per ton
For supplies add	0.50 per ton
For miscellaneous add	0.25 per ton
Mill rental	1.50 per ton
Final estimated cost of milling per ton	$5.144

If this combination of actual figures covering a limited period and the few assumed items is taken as a fair estimate of what has been done in the mill it will be seen that if the excessive rental charge of $1.50 for use of the mill is deducted the milling cost is not unreasonably high. It is believed that by adding a secondary crusher the mill operation will be improved, the capacity increased somewhat, and the costs reduced perhaps 25%. This will bring the milling costs down to a very satisfactory and economical basis.

RECOMMENDATIONS.

Narrow vein mining presents a series of problems not met within other types of mines where the ratio of pay ore to stope width is not so small. To maintain the proper balance between width of stope, value of ore recovered and the per-ton cost of development requires a great deal more care than is necessary in wide vein deposits.

Lacking definite cost figures for mining in this camp it is necessary to resort to estimates again. Assuming stoping ground in length (horizontal measurement) not less than 100-ft and a minimum of 12 to 14 inches of ore that will pay to mine, it is reasonable to expect that ore can be broken in the stopes for not to exceed $8.00 per ton.

Because of the narrow nature of the veins it is hardly advisable to set less than $3.50 per ton of ore milled as a development charge.

The cost of milling can be brought to $3.50 per ton in all probability when the suggested changes are made in the mill.

For taxes, all insurance, overhead and amortization another $2.50 should be added, bringing the total cost of mining and milling of one ton of ore up to $17.50 per ton.

The current price of silver is 77.5¢ per ounce. If we figure on an 80% recovery of the silver we have 62¢ as the recoverable value of each ounce of silver shown by assay. To provide $17.50 for expenses each ton of ore stoped for milling must contain $17.50 / 62¢ or 28.2 ounces. Because of the gold, lead and tungsten content, which is not taken into consideration here, it is likely that this "dead-line" of 28 ounces can be reduced. It is possible too that the recovery may be greater than the assumed 80%. For estimating and planning purposes it is better to work with an ample safety factor. By similar reasoning approximately 14 ounce ore from dumps (on a delivery cost of $2.00 per ton) will constitute pay ore. It is believed that under a contract system dump ore can be sorted to 14 ounce silver or better and delivered at a receiving bin for $2.00 per ton, and yield a profit to the contractor.

Because of the hazards attendant upon narrow vein mining and the consequent relatively high "dead-line" for workable ore it is recommended that the company undertake to get all or most of its ore by a leasing system. Several plans are feasible by which the company will beneficiate the ores in its mill and the contractors make

a very acceptable profit. In addition such a plan will attract careful miners insuring a steady supply of ore to the mill, and if the company has milling capacity, it will bring in outside ores from neighboring prospects.

On leases or contracts in the company property the operations can be controlled closely to prevent damage to the mine but no other supervision would be necessary. A man with wide experience as shift boss in small mines can probably be found who will meet the requirements, obviating the necessity of a resident mining engineer. Engineering can be supervised by a consultant making regular visits and being on call.

The unit of greatest potential earning power is the mill. It is necessary to review only a few cases of mines in remote locations attempting to pay out by simply shipping high grade ore to realize that only in very rare instances do such projects have a long life with a favorable balance in the end. The mines which have paid the most dividends over a long period of years are those which have processed their ore at the mine. A mill well operated is the solution of the present situation.

To operate the mill on a leasing or contract basis and handle the ores from various sources a bin divided into unit compartments of ten tons should be built at the head of the mill with facilities for weighing and sampling all ores delivered.

The "76" mine alone cannot supply one shift (15 tons) to the mill at present. Assuming that blocks 100-ft long by 100-ft high by 1.3-ft wide can be mined entire for mill ore such blocks will yield approximately 860 tons (100 x 100 x 1.3 / 15) of ore., or not quite 60 days (60 x 15 - 900) of mill ore for one shift only. Therefore it is necessary to do a considerable amount of development to open up and make available enough ore to keep the mill operating on more than one shift. Even if a 100 x 100 foot block of ore should stope out completely for 2.0-ft in width the resulting tonnage would be only 1333 tons which would supply the mill for one shift for 88 days or less than one month at capacity.

On the "76" there is one other partly proven area, - the Fourth of July claim. A small amount of development work will probably put that in shape for leasing or for contract mining. A trail from the present mill head to the Fourth of July claim can be converted into a fair road at a small cost, bringing the road to a lower level than the present lowest adit.

If a satisfactory arrangement can be made for operating the Tip Top property there is indicated quite an income from the ore in the dumps. The Sill report credits the Tip Top with 30,000 tons of combined dump and stope fill. This is divided into 20,000 tons of dump carrying 8 ounces of silver and 10,000 tons of stope fill carrying over 10 oz. silver. Tungsten occurs in both dumps and stope fill; 0.23% or 4.3 pounds WO_3 per ton in the dumps and o.36% of 7.2 pounds in the stope fill. Tungsten commands a fairly high price today, several dollars a unit (a unit is 1%) above the usual price range.

Some of the dump ores have been milled and from the available records it would seem that the milling of several hundred tons has proven Mr. Sill's estimate of 8 oz in the dumps as conservative. No computations were made to determine the exact average silver content. It is believed that dump ore, graded up fifty to sixty percent, can be delivered at the mill head by contractors much cheaper than the company can handle it. If by so doing the volume is reduced as much as half there is still a very fine profit in the sumps and stope fill. In fact, 15,000 tons of 14 oz ore at 80% recovery will yield 67,200 oz silver which @ 77.5¢ an ounce is worth $52,080.00. With $2.00 for delivery and $3.50 for milling against it this ore should yield $3.18 or orer $40,000.00 profit.

It is likely that the bonanza ore body of the Tip Top claim is pretty well worked out. At the same time there is undoubtedly some good ore left in the claim. It is reported that there is considerable unstoped area above the 300 level on the original shoot. The Joker and South Tip Top should produce to the same horizons as the Tip Top, in fact the South Tip Top is but a faulted segment of the original Tip Top. If the South Tip Top produces to the same depth and for a corresponding shoot length as the old original Tip Top it will be a sizeable production. It would seem that the Tip Top group can produce a considerable tonnage of mill ore because there is still much virgin ground. With modern milling equipment on the property this should return a very acceptable profit.

Recommendations are summarized as follows:

1. Complete title to the "76" Group and make skeleton survey.

2. Prospect the "76" Vein system:

   (a) Drive present working adit ahead at least 50-ft.
   (b) Drive 120 level SW through fault.
   (c) If (a) and (b) prove a reasonable amount of mill ore expand development program.

3. Advance lowest adit on Fourth of July about 200-ft to prepare for leasing or contract mining.

4. Some surface trenching on "76" Vein strike on Silver Link and Barnard claims or make geological survey of the group.

5. Make skelton survey of the Tip Top group.

6. Advance South Tip Top lowest adit at least 100-ft and prepare for leasing or contract mining.

7. Advance lower Joker adit at least 100-ft and prepare for leasing or contract mining.

8. Crosscut to Joker from 200-level Tip Top.

9. Crosscut to Joker vein from 300-level Tip Top.

10. Rehabilitate mill.

11. Work dumps on contract.

12. Provide leasing (or contract)mining) program for Fourth of July, Joker and South Tip Top.

13. Establish commissary to supply leasers or contractors.

14. Plan to treat outside ores in the mill.

The attached schedules A - B - C show the estimated cost of each item of improvement or development recommended. Equipment costs are figured on the basis of new equipment, f. o. b., factory. Used equipment is not discriminated against but due caution should be exercised in its selection.

The development costs used may be reduced by contracting the work, or by making combination lease-contract arrangements.

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If the property is put on a producing basis at the earliest possible moment much of the cost of the program outlined above can be met out of the normal profits of operation.

CONCLUSION.

In spite of the fact that up to the present time the operations do not show a profit there seems to be no valid reason why the La Bajada E. E. & E., Corp., should not get into profitable production on the properties it controls, The project is beset with a certain difficulties not bommon to many mines but these same problems and some over greater ones were surmounted sixty years ago. The present problem seems to be one of the intelligent and economical management.

Respectfully submitted,

A. L. FLAGG,
Consulting Engineer

SCHEDULE A OF COSTS.

General

Building repairs	1000.00
Commisary	500.00

Mine Equipment for "76"

Drills:	
4 jackhammers @ $205	820.00
2 mountings @ 152	304.00
2 water tanks @ 27	54.00
1 self rotating stoper	210.00
6 sets water-air hose @ $45	270.00
Change dies in sharpener	75.00
Steel 1/2 ton	160.00
Timbers 1 car	850.00
Wedges	60.00
Rail, fish-plates, spikes (1 ton)	165.00
Air line	250.00
Skip	110.00
Hoist, outside	450.00
3 mine cars @ 110.00	330.00
Miscellaneous tools and equipment	500.00
Total	$ 4568.00

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SCHEDULE B OF COSTS

Estimated cost of mill improvements:

1.	Receiving bins for leasers ore, 10 tons each	750.00
2.	Picking belt and sampling equipment	1250.00
3.	Recondition trail (tram) from Tip Top dump at shaft to mill head with shute	200.00
4.	Drag line for lower dump	450.00
5.	Automatic samplers and drying equipment:	
	(a) Heads	114.00
	(b) Tails (home made)	25.00
	(c) Drying equipment	50.00
6.	Overhaul entire mill	500.00
7.	Secondary crusher installed	2140.00
8.	Assay equipment	
	Housing	125.00
	Furnace (oil fired)	310.00
	Button balance	225.00
	Misc. items	150.00
	Total	$6289.00

(Note: If dump ore is delivered on contract after sorting item 2 can be reduced to sampling equipment costs, less than half above estimated sum)

C O P Y

SCHEDULE C OF COSTS.

Mine Development:

1.	Skeleton survey on "76" Group	360.00	
2.	Advance "76" adit at least 50-ft @ $6.00 plus track, air line etc., with possible crosscuts left and right at end.	500.00	
3.	Advance 120 level SW for 75-ft beyond winze, with possible xcuts L & R of 15-ft	300.00	
4.	Advance 180-level drift NE, distance depending on development at 120-level.	5000.00	
5.	Skip pocket at 120-level	125.00	
6.	Sink Winze 100-ft @ $20	2000.00	
7.	Advance lower adit 4th of July 200-ft. with possible 3 raises 75-ft.	1600.00 1500.00	
8.	Drift on 280-level "76" winze 300-ft @ $12 with 3 raises 100 ft each and possible pump installation	3600.00 2000.00 250.00	
9.	Surface trenching on "76" Vein system	250.00	
A.	Skeleton survey Tip Top	420.00	
B.	Advance South Tip Top adit 100-ft	800.00	
C.	Advance Joker lower adit 100-ft	800.00	
D.	Crosscut from 200 level T.T. to Joker	2200.00	(a)
E.	Crosscut from 300 level T.T. to Joker	2612.50	
	Total	$ 6832.50	

(a) Distance unknown; estimated 275-ft.

Shappell.

OUTLINE OF COSTS

50 TON MILL AND CAMP READY FOR OPERATION.

ROAD:

Can get relief labor and by supplying materials and tools, dynamite, cement, drills, hammers, etc. Can get road fixed at small cost -Estimated at 250.00

CAMP:

Small repairs - mostly labor - will make camp livable 350.00

BLACKSMITH SHOP:

Equipped to handle preliminary work 150.00

CARPENTER SHOP:

" " " " " 100.00

KITCHEN EQPT. 300.00

BEDS & BEDDING 100.00

HOSPITAL & UNFORSEEN 100.00

TOTAL COST - Camp ready for men and work $1400.00

... .

CREW:

	1	Cook	@	$125	125.00	
	2	Flunkies	@	40	80.00	
	1	Genl Supt.	@	250	250.00	(24 hrs.)
	1	Mill Supt	@	200	200.00	(24 hrs.)
	3	Mill Foremn	@	5.00	450.00	(8 ")
	6	Mill Men	@	3.50	630.00	(8 ")
(motor)	1	Trammer	@	4.50	135.00	" "
	1	Ore Loader	@	4.00	120.00	" "
	1	Pump & Black	@	150.00	150.00	(24 ")
	1	Blksmth hlpr	@	100.00	100.00	" "
	1	Carpenter	@	125.00	125.00	" "
	1	Carp Helpr	@	100.00	100.00	(8 ")
	4	Laborers	@	3.00	360.00	
		Monthly payroll			$2,825.00	2825.00

RUNNING EXPENSE:

Cost of feeding 30 people at 45¢ per day $ 405.00

Truck @ $5, and Driver @ $4 - per day (30 da) 270.00

Utility & Mail Car - $3 per day 90.00

Insurance - 8% of pay roll 240.00

Materials, supplies, repairs	$ 1000.00	
Incidentals & Unforseen	300.00	
Camp in shape, pay roll, and running expense - Total		$6530.00

Note:

$5,000 per month running expense and pay-roll, should be a safe estimate.

POWER INSTALLATION:	Either Diesel or Arizona Power Co. electric. This figure can be reduced several thousand dollars by care - Good buys of suitable used equipment	10,000.00
MILL:	50 ton mill, complete, installed, and ready to operate. (Careful buying can reduce materially)	25,000.00
WATER	Developed at the mine	3,000.00
	" " Boulder Creek	3,000.00
	(Both are required for suitable margin of safety - peak loads - contingencies - . And consist largely of pipes, pumps, and suitable power (motors)	
ORE BINS-TRACKS-CARS		2,000.00
	GRAND TOTAL	$49,530.00

Camp equipped, occupied, mill installed and running, and one month operations, included above.

By careful planning, best cash buying, discounts and close figuring, this total should be reduced approximately by $10,000.00. Reasonable net cost figured @ $40,000.00, but should not be reduced below a margin of safety covering delays, contingencies, etc.

* * * * * * * * * * * * * * * *

Estimating $6530 operating exp. (1st Mo. as over) - on a 50-60 mill 30 day full run = 1500 tons @ 50 ton per day = $4.36 per ton recovery cost - Operating on low grade - 90% recovery @ 77¢ = 50 x .907 = [illegible] = $453.50 daily gross

Less operating or 50 x 4.36 or	215.00
Daily Net Recovery	238.50

Monthly net on low grade $238.50 daily x 30 - $7,155.00

(An average of $1.00 per ton gold - $50.00 per day - $1,500 per month
(And
(1/2 of 1% - known WO_3 content - as ignored - a factor of safety WO_3

Handling Costs

		Cents
1 Drag line operator	@ 5.00 per day	16.6 per ton
1 loader	@ 3.00	10.
1 Trammer	@ 4.50	15.
1 Ore sorter	@ 4.00	13.4
Supplies	@ 3.00	10.
		65¢ per ton

Milling

1 Mill Supt.	@ 5.00	$5.00	
3 Mill Foremen	@ 4.00	12.00	Labor per ton
3 Mill Helprs	@ 3.00	9.00	
1 Assayer 1/2 time	@ 2.50	2.50	$30.00 / 50 = $.60
1 Extra man " "	@ 1.50	1.50	
9 Employed	daily -	30.00	

Comp'n Ins.	.13 per ton
Power Cost	.50
Overhead	.30
Supplies	.32
Labor	.60
	1.85 milling cost per ton

Handling	$.65
Milling	1.85
Total	$2.50 per ton

Safety Factor

50 ton daily run - gold recovery @ $1.00 per ton - Monthly	$1,500
50 " " " WO_3 " @ 3,875 " " (193.75 x 30)	5,812.50
Gold and Wolframite	7,312.50

Wolframite figured @ $15.50 per unit
" " approx. 1/4 of 1% saved (Being 1/2 of known content)

Marketing Cost & Loss per ton -

A 25-1 Concentration - (2) tons daily on 50 ton run)

Hauling from Mine to R.R. -per ton	$5.00
R.R. to Smelter -Freight per ton	10.00
Smelter Base Charges	5.00
Smelter Settlement 95% silver (less 5%)	12.10
Concentrate Marketing Cost & Loss per ton	32.10

Above on 25 tons crude ore - 32.10 / 25 - $1.25 per ton (silver and gold)

Wolframite -
On 50 tons ore - 1/4 of 1% - 5# per ton or 250#
20# per unit - 12.5 units @ $15.50 - $193.75 daily
Marketing cost $3,00 per unit or 37.50
156.25 daily

or $.75 per ton crude ore

Daily Net Recovery	Silver	$ 238.50	
" " "	Gold	50.00	
		288.50	
Less Marketing (50 x 1.25)		62.50	
Silver and Gold Daily Net			$226.00
Wolframite (as and when recovered) adds			156.25
			382.25

Allowing a loss or omission to recover 50% of known WO_3 content

382.25 x 30 leaves a monthly net on low grade of: $11,467.50

9/16/35

Discussion of

Assays of Tip Top Ores by Frank E. Wager

Assay Ledger Record of Frank E. Wager
1887 to 1920

Extracts

UNITED STATES GEOLOGICAL SURVEY -- Bulletin #782

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Preliminary Survey of

SOURCES OF CUSTOMS MILLING ORE - TIP TOP DISTRICT

DISCUSSION OF ASSAYS

OF TIP TOP ORES BY

Frank E. Wager

Tip Top Mine
Sept. 9, 1935

From July 1887 to 1922 Mr. Frank E. Wager maintained an assay office at Tip Top Camp. He kept an assay ledger record of all samples tested and upon his death his nephew Mr. Oscar Wager came into possession of this ledger. Mr. Oscar Wager very kindly allowed me to study this ledger and to copy from it all of the assays made on Tip Top ores. The accompanying tables are the records copied - separated into years and days of the month.

In this discussion I will consider each year.

-1887-

With the exception of two samplesit would appear that most assays made this year were identification samples. Some are samples of shipping ore especially those for Louis Hill. These samples show very high values. They indicate the values carried in different type ores such as samples #203,204,205. Samples #271 and #290 indicate a check on pulp from a smelter shipment.

-1888-

During the latter part of 1887 and up until 1892 Bauer & Co. were operating the Tip Top mine. Most of the samples this year were evidently identification samples and check samples on shipping ore.

-1889-

Sample #38 is interesting as it covers a sample on dump screenings. The rest of the samples seem to be check samples and general samples from Tip Top taken by various persons.

-1890-

These again seem to be check samples for Bauer and general samples of the richer ores in the mine.

-1891-

These also seem to be check samples and general samples. The last sample this year is a dump sample carrying 98.44 oz. silver.

-1892-

The first three samples this year are screened samples from the dump. It is stated that $250,000 was recovered from the dumps at Tip Top and these may be samples taken while this operation was in progress. The rest seem to be check samples and general samples of the high grade ore.

-1893-

All of these samples seem to be identification samples on new workings and general samples

-1894-

No Tip Top samples run this year.

-1895-

Only two samples and these seem to be check samples on shipments.

-1895 to 1899-

Mr. Wager moved office to another sump. No assay records for these years.

-1899-

These seem to be general check up samplesby persons looking for a place to mine some ore.

-1900-

The most interesting samples here are of the two lots of sacked ore as they give a good indication of what values they were shipping in 1900.

-1901-

All of these seem to be check samples on new workings.

-1902-

It would seem that several people were doing high grading in the mine and on the dumps and that many of the samples were for identification for types of ore that carried high values. For instance, all samples run on August 6, also samples run on August 12th were for identifying ore values. Those run on September 8th, were probably identification samples.

-1903-

Only one sample on a piece of rich float.

-1904-

Only one sample for identification.

-1905-

These indicate a general check-up sampling of types of ores from the mine and from the dumps. The dump samples here are of particular interest. Mine samples taken from the dumps give an average of 102.27 oz. of silver per ton. These were surely picked samples and do not represent a general sampling.

-1906-

Samples of exposed ledge east of hoist. This shows good values.

-1906-1910-

Mr. Wager out of district.

-1910-

These samples are for identification of mineral bearing ores and types, also a general check up sampling of the exposed sections of the mine. The assays covering the washing of the stope dirt and the resultant concentration is interesting.

-1911-

These are all check up samples from the exposed ore in the mine and at various places on the surface. The four samples taken by Ensign are not localized and could have come from anywhere. The two new discovery samples are interesting but there is no way of knowing where they came from.

Additional assays for 1911 -
-These were entered in ledger on another page, but dated 1911. The pages here were torn and loose in the book, -test on 1750# of ore.

These assays represent another concentration test. Here the heads are given as 23.09 oz. These concentrates run 191.91 oz. silver and are shown to carry 30% tungsten. In this case the midlings were reconcentrated and gave a product carrying 387.67 oz. silver. Another lot was tested with heads of 35.24 oz. Here the canvass table slimes ran higher in values than the concentrates.

Inall of the mill tests and concentration tests it is very noticeable that the slimes run very high in values and that we will have a slime problem in our milling work.

-1912-

Several tests were made here for cyanide extraction but were quite crude and results were not good. The type of ore selected for these tests is interesting, one averaging 15.80 oz. silver and the other 23.00 oz. heads. The dump samples taken on 1-27, 2-3, 2-11 and 3-17 of this year are extrelely interesting. The seventeen actual dump samples as checked give an average value of 16.36 oz. silver per ton. The samples taken on 9-26 oover a concentration experiment that seemed not to have been very satisfactory because of the high values left in the tailings. They managed to bring their #1 concentrate up to 291.66 oz. with a #2 concentrate running 41.32 oz. On 10-3 they tried it again and carried their experiment on through 10-5 and 10-8. This is very interesting as it seems they were methodical in their work but the crude apparatus at their disposal then defeated them. I would infer that their head samples - 15.80 oz. and 12.15oz. are what their studies and assays indicated to them to be the average values in the dumps. This is quite apparent from the record given in the book and will form a check on other dump samplings. - On 10-14 they made another test using 12.15 oz. as their head values for the first lot and 18.23 oz. as their head values on the second lot. These tests worked out fairly good as they secured a #1 concentrate of 298.95 oz. and a #2 concentrate of 43.75 oz. On 10-25 they made another list with heads of 19.44 oz. and from this secured a #1 concentrate of 317.18 oz. with a #2 concentrate of 76.56 oz. This test shows a 2nd table concentrate of 87.50 oz. silver.

The most interesting feature here, as previously mentioned, are the values in the ores used by them for these tests. Their heads range from 12.15 oz. to 19.44 oz. per ton. It is quite firmly my opinion that this range of values indicated to them the values of ores in the dumps.

-1913-

The assays of most interest here are those of the dumps. The first two are evidently large average samples that were used for a concentration test the results of which are shown in the next two samples. The two dump samples taken on 10-28 are interesting because of values shown. The dump screening samples taken on 12-23 are also interesting from the standpoint of values.

-1914-

These 1/2 ton leaching samples are interesting because of the average values that are represented.

-1915-1916-

No samples

-1916-1918- (Note: 1919 represents samples taken around old mill.)

One sample

-1920-

The last samples taken were by Barth on the 335 foot level. These were taken at the time Mr. Coupal pumped the water from the mine to this level. The sample in the foot wall was five inches wide and gave 279.51 oz. silver. One piece of ore from this same vein gave 585.47 oz. silver.

REMARKS

From a hurried study of these old assays there are several things that stand out.

1. An Average of 198 assays over the period when the mine was being worked and high graded gave 360 oz. silver per ton silver.

2. Chloride samples range from 70 oz. silver to 2100 oz. silver per ton. Samples classified under chlorides are strictly surface.

Sulphide samples range from 121 oz. silver to 1760 oz. silver per ton. Samples classified as sulphides are from depth and may extend to great depth.

3. Sample #87 in year 1888 is marked in the notes by 800 - If this means taken from the 800' level it is very interesting and important. If the sulphide ores on the 800' level carry these values it is very encouraging for deep carrying values.

The fact that it checks in values so closely to the sample taken by Barth on the 335' level in 1920 is also interesting.

High grade ore in depth means something in this district.

4. The tests on the dumps made in 1912 are of great interest as they show an average value of 18.26 oz. of silver per ton. Other samples show mill heads of from 12.51 oz. to 19.44 oz. silver per ton. This can be taken as an indication that they figured the average values in the dump ores at about 15 oz. silver per ton. This figure will be one to check against in our sampling.

5. The mill tests indicate that good concentration can be secured but indicates also that the ores will slime badly and we must check on this carefully in all mill tests.

6. Careful study of these records and a compilation of various types of samples will surely give much additional valuable information.

7. The book of records is in possession of Mr. Oscar Wager, Tip Top Camp and can be had at any time for verification of assays and notes as given.

Respectfully,

(Signed) S. A. Shappell

9-10-35

ASSAY LISTS

No.	Date	Oz. of Silver Per ton	Value Gold Per ton	$18.00 per oz. Gold	
1887					
7	1-2	486.11			Wade & Co. No. 1 Arizona
8	1-2	215.11			" " " No. 2 "
9	1-6	534.72			Wm. Tyach Tip Top Sample
10	1-6	568.75°			Bauer & Co. Tip Top Chloride
34	2-13	68.05			Andy Johnson
43	2-19	172.57			2nd Extension South on Tip Top
169	6-10	387.67			Louis Hill S. Tip Top
194	7-19	7.29			" " & Co. " " "
198	7-23	36.46			" " " " " " "
202	7-28	70.48°			" " " " S.of Tip Top Yellow Chloride of Lead
203	7-28	439.93°			" " " " Blue Quartz
204	7-28	264.99°			" " " " Red iron Hard
205	7-28	1285.75°			" " " " Blue Matalic
223	8-13	128.82			" " " " S. Tip Top
242	9-12	212.67			" " " " " " " 1
243	9-12	142.19			" " " " " " " 2
244	9-12	877.43			" " " " " " " 3
245	9-12	12.15			" " " " " " " 4
					T. Top
271	10-4	1017.20			Bauer & Co. Pulp from Socoro, N. M.
290	11-16	332.98			Aug. Bauer T. T. pulp sample
300	11-24	2104.85°			Tip Top Chloride specimen
1888					
56	1-30	441.14			J. W. Cover, Sample 1 Tip Top
57	1-30	526.21			" " " " 2 " "
83	2-19	675.69			Bauer & Herman " Tip Top
84	2-19	328.12			G. O. Wager " " "
87	2-20	265.35			Cover & Tyach, Tip Top Sulphureta (800)
121	3-17	381.59			" " " " " fine
146	3-24	459.37			Tip Top (J.W.C.)
173	4-25	490.97			Bauer & Hermon, Tip Top
182	5-16	94.38			Geo. O. Wager & Fuller Joker
287	12-18	189.38			J. R. Bueklers S. Tip Top 1
288	12-18	14.58			" " " " " " 2
1889					
12	1-16	1397.56°			Bauer & Co. T. T. Chloride & Sulphides
38	1-30	145.73			Siss & Howard, T. T. dump screenings
47	2-5	473.95			Bauer & Co., Sample Tip Top
48	2-5	252.77			Jno. Held, " " "
52	2-14	432.63			Bauer & Co., Tip Top Flint Rock
62	2-20	1032.98°			Jno. Roe, " " Sulphants
102	4-8	145.83			Aug. Bauer Tip Top

No.	Date	Oz. of Silver Per ton	Value Gold Per ton	$18.00 per oz. Gold	
1889					
108	4-13	427.77			Bauer & Co. Tip Top
109	4-13	319.23			Siss & Howard, Tip Top
110	4-20	4-5.90			Bauer & Co. Tip Top
111	4-20	211.46			Peter Arnold Deep Sample
117	4-23	24.30			Buckley & G. O. Wager, S. Tip Top
118	4-30	222.40			Howard & Siss, Sample Tip Top
119	4-30	211.46			Bauer & Co.
124	5-4	85.07			Buckley & G. O. Wager, S. Tip Top 1
125	5-4	54.69			" " " " " " " " 2
126	5-4	63.19			" " " " " " " " 3
149	5-21	93.58°			G. O. Wager " " " Chloride
150	5-21	121.53°			" " " Galena
207	7-17	475.17			Bauer & Co., Sample Tip Top
254	9-21	213.89			Aug. Bauer & Co., Tip Top Screenings
285	9-29	764.40			Bauer & Co. No. 1 Sample
286	9-29	354.85			" " " " 2 "
312	11-17	114.23			G. O. Wager, Joker 1
220	11-17	41.32			" " " " 2
326	12-8	20.66			Dave Care, S. Tip Top
1890					
51	1-9	17.01			Bauer & Co., Red Blende, Tip Top
118	5-15	115.45			" " " Screenings, " "
128	7-3	1985.75			Doubtful ore, Tip Top hard
129	7-6	272.22			Aug. Bauer & Co., 2nd class price
143	7-30	172.57			Bauer & Co., 2nd class sample, T. T.
156	7-12	852.90			" " " Tip Top sample 1
157	7-12	153.56			G. O. Wager " " " 2
158	7-12	285.58			" " " " " " "
183	9-17	69.27			Felis Duron, East of Tip Top
239	12-13	853.12			Bauer Bercheim Co., Tip Top 1
240	12-13	296.31			" " " " " 2
1891					
28	2-6	204.17			P. Arnold, S. Tip Top
no	4-5	12.15			S. " " N 51
sample	5-24	209.13			Joe Gastring & Co., S. Tip Top
number	6-1	92.36			" " " " " " "
	7-18	463.02			Bauer & Co., T. T. Sample
	8-7	890.79			Jos. Gastring, S. T.T.
	9-18	480.03°			" " zinc ore Tip Top
	10-27	98.44			G. O. Wager, Dump below Tip Top

1892

1-4	235.76	F. Carrega No. 1 T. T. dump screenings
1-4	173.79	" " " 2 " " "
1-4	88.71	" " " 3 " " "
1-4	262.49	Bauer & Herman T. T. sample
3-22	211.46	Correga & Co., Sample
3-22	108.16	Ed Howard, No.1 Sample
3-22	128.82	" " No.2 "
6-7	283.45	Bauer & Co., Tip Top ore No. 1
6-7	151.91	" " " " " " " 2
2-3	34.03	Taylor & Odell, S. Ex. of S.T.T.
2-9	158.00	Taylor " " " " " " " "
3-7	632.00	Minges Bros., Sample Tip Top
10-21	63.19	H. Norton, Tip Top sample New Prospect

No activity at Tip Top from 6/19/1895 to March 11, 1899 Shut Down.

1895

5-19	354.85	Andy Johnson, Tip Top No.1 Sample
5-19	322.05	" " " " " 2" "

1899

3-11	296.52	Joker Shaft ore
5-6	155.91	Old North Tip Top
6-6	111.80	Tip Top at Magazine
6-7	75.35	Joker Fines
7-31		Two assays ore in new)
9-2		tunnel, no good)
9-14	14.58	Tip Top new tunnel 20 ft. in
9-14	9.72	Joker " " 12 " "
9-14	1866.66	" " " 18 " "
9-24	98.44	" " " 20 antimony ore
9-24	63.19	Tip Top of new tunnel
		Stringers - East shaft,
		T. T. 12 ft. down
		" " Green stain ore
9-2	65.62	Tip Top surface iron cap.
10-8	231.90	" " F.E.W.1
10-8	20.06	" " " " " 2
10-8	158.00	Sample H.V.W. ore
10-8	116.67	Taylor & Bechtel, sample
10-29	1468.04°	Tip Top sulphide specimen
11-5	431.42	" " dump ore

1900				
1-4	295.00			F. E. W. Sample 3 x T.T.ore
1-21	257.63			4 Sx T. T. dump
5-2	245.48			Tip Top Sacked ore
5-2	66.84			" " " " 2nd class
	38.89			Joker Blend ore, over drift in 1st winze
1901				
3-1	167.71			Tip Top East Shaft grab sample 35x
7-14	79.20	$4.00	($20.00	O. A. Ensign, S. T. Top Heads 1
7-14	17.00		per 32)	O. A. Ensign, S. T. Top Heads 1
10-13	24.30			Joker 30 ft. in tunnel No. 2
1902				
9-6	226.04			Tip Top mine old top stope, small streak oxide ore
9-6	252.77°			Same stope-quartz with galena and sulphur
9-6	60.78°			Bluish part of same ore
9-6	82.64°			Quartz from bottom part of same stope
9-6	7.29°			Quartz in old car levelback from near door
9-6	46.18			Dump sample at old walk on summit N.W. of Foy mine
9-12	4.86°			Tip Top car level entrance
9-12	425.34			Stope near surface chloride ore 1
9-12	331.70			" " " " " 2
9-12	97.22			" " " " " 3
9-12	87.50			South ledge down in hole
10-8	362.15			Chloride ore
10-8	261.82			Leached residues
10-8	54.69			Oxide ore
10-8	46.18			Residue
10-8	125.17			Dump screenings
10-8	87.50			Residues
1903				
12-4	755.90			South Tip Top Chloride "Float"
1904				
3-12	1736.10°			South Tip Top Blue Sulphide ore
1905				
-23	116.00			F.E.W. & F. O. E. Samples Tip Top ore N. Pile
-23	116.00			" " " " " " " " " " " S. "
-23	274.65			East Dump Good C.
-23	175.00			Doubtful
-23	75.35			Upper E. Dump
-23	136.11			O.H.E. Fines
-23	176.22°			Grey Spar
-23	410.76°			Green Spar

-23	145.83°			Red Quartz
-23	72.92			B. & W. T. T. Dump Course
-23	36.46			L. Dump main sample
-23	58.33			E. & W. N. Dump coarse
-23	41.32			L. Dump Brown
-23	41.32			N. Fine
-23	21.87			Jasper
6-13	150.60			F.E.W. O.O.E. Sample 150S x T.T.
1906				
9-24	160.90			F. E. W. T.T.Exposed ledge just east of hoist
1910				
4-2	1110.75			T.T.Blackish Brown Assenical
4-2	64.50			North Mining claim carbonate
4-18	355.40°			F.E.W. Tip Top Red Oxidized ore
4-18	177.43°			Bluish & Metallic
4-18	578.47°			Cheorides mixed & metallic
4-18	21.87°			Bluish non-metallic
4-18	311.10°			Sulphur ore
5-2	312.52			Sulphur Reassay
5-2	319.61	.25 @ $20 oz.	5.00	Joker Float E. End
		1.27	25.40	Carbonate ore N.E.of Degendt claim
		1.27	25.40	White quartz near south side of Degendt claim
5-2	24.30°			T.T.Wolf-stope dirt
5-2	318.40°			" " " " cots
5-2	200.00°			" " " zinc blende
6-14	165.30			Tip Top Tungsten and silver
6-14	64.40			" " " Spar & Chl.
6-24				" " Spar & Chloride
	158.00			Point of stope under copper tunnel
6-24	580.60			Tip Top Horn silver & C.East of shaft in car level
6-24	7.29°			Fall of car level 100 ft. in under middle
6-24	10.90°			Stope dirt stope tunnel coarse rock discarded
6-24	19.44			Stope dirt after washing out fines
6-24	9.70°			Fines washed out of above samples
6-24	294.10°			Concentrates assayed
1911				
1-26	62.00°			T.T. Oxidized ore under shaft at station on car level. 3rd class refuse from sorted ore
1-26	1960.23°			Chloride & anti-monial silver in 30 ft. east of shaft car level.
1-26	1762.14°			Solid Sulphured & blend ore found in waste
2-6	119.10°			Top of raise East of shaft
2-6	72.92			" " " " " " No. 2
2-6	7.29			
3-13	66.84			Mill dirt around roaster
3-21	10.94			Reassay
3-21	23.09			Upper dump lean fines Mo CCH.
3-21				Carbonate & oxide of copper in dump 33%

3-21	58.33		Sulphured ore north ledge upper tunnel
3-21	218.75		Concentrates
11-4	646.53		No. 1 S. Tip Top O. A. Ensign
11-4	53.47		" 2 " " "
11-4	627.08		" 3 " " "
11-4	53.47		" 4 " " "
12-20	539.58		F.E.W. now disc. surface 1
12-20	418.27		" 2

1912

1-13	54.60		Prospect N. of Tip Top
1-23	15.80°		Rejected ore foot of hoist dump
			Same ore cyanid with 1/2 of 1%
			H.C. y Sol-extraction 113
1-23	25.00		T.T.No.3 dump upper fines- same ore cyan
			extraction with 1/2 of 1% C.K.Y.Sol. d
			90%
1-27	14.58		N. side lower dump
1-27	2.43		S. " " "
1-27	9.72		" " middle dump - Tried by 25% C.K.y
			Sol. extraction very small
2-3	2.43		T.T.Lower dump W. side.
2-3	8.51		T.T. Lower Dump N. side
2-3	5.50		N. side S. dump
2-3	12.15		S.E. side N. dump
2-3	4.86		Hoist dump
2-3	2.43		Fine fines under ½ in.extraction with 1%
			C.K. y sol-over ½ in.
2-3	53.47		Refuse quartz 60%
2-3	27.95		Upper dumps over upper tunnel
2-11	21.87	80% Val.) Gold)	Hoist dump quartz after ox.with 1% C.K.y.
			sol.
2-11	4.86		Top dump over upper tunnel after cyn.
			with 1% C.K.y. sol.
3-17	61.04		T.T.dump S.side dump near bottom
3-17	12.15		" S.side gap between coarse ore dumps.
3-17	14.58		Fines N. side N. dump
3-17	36.46		Mediums " " "
3-17	38.89		Coarse " " " "
3-17	13.37		Screenings gap between dumps
3-17	240.00		Concentrate from samples
5-12	77.78		Tip Top green ore
5-12	76.56		" " brown "
7-18	2953.00		Tip Top Zinc blende & sulphur
			(1 pick up piece)
9-25	267.14		No. 1 Concentrates
9-25	148.20		" 2 "
9-25	166.50		" " " Pit
9-26	15.80		Head sample
9-26	6.00		Tail "
9-26	10.90		Spitzers overflow
9-26	9.70		Pit and limes
9-26	9.70		Sands
9-26	291.66		No. 1 Concentrates
9-26	41.32		No. 2 "
9-26	347.56		Blue "

10-3	12.15	Head sample
10-3	8.51	Tail "
10-3	13.37	Spitzer overflow
10-3	277.08	No. 1 concentrates
10-3	36.46	" 2 "
10-5	209.03	" 1 " out of No. 2 cots
10-5	40.10	" 2 " " " " " "
10-5	29.17	Medium sand
10-5	21.87	Coarse sand (15 mesh)
10-8	7.29	Tailing pit sands
10-8	3.64	" " screened over 60 mesh
10-8	3.64	" " " under " "
10-8	14.58	" " Slimes
10-8	256.42	No. 1 concentrates
10-8	38.89	No. 2 "
10-8	12.15	Head sample
10-8	7.29	Tail "
10-8	226.04	Tungsten concentrates
10-14	12.15	Head 1
10-14	7.29	Tail 1
10-14	18.23	Head 2nd lot
10-14	10.94	Tail " "
10-14	13.37	Spitz
10-14	298.95	No. 1 cots
10-14	43.75	" 2 "
10-14	144.62	" " 2nd lot
10-14	252.77	Tung. " "
10-25	19.44	Head
10-25	13.37	Tail after cyanide 7.29 a g
10-25	46.18	Overflow slimes between lower tanks
10-25	17.01	North dump small coarse fines screened out
10-25	317.18	No. 1 concentrates
10-25	76.56	" 2 "
10-25	87.50	" " " 2nd table
10-25	116.67	Sorted hard ore-north dump
10-26	71.70	Sands and slimes from sorted ore Oct. 20th
10-26	18.23	N. dump red fines
10-268	11.00	Gap betw. dumps 1/2-2"
10-26	7.29	" " " fines
10-26	7.29	North dump fines with coarse ore 1/2-2"
10-26	14.58	Ruby ore
10-26	128.82	Residue after concentration
10-26	48.61	Concentrates
10-26	2985.26	Upper work Tundsten ore
11-4	10.94	" " Silver "
11-4	58.33	Tungsten cots silver assay
11-4	9.72	Old upper work - red brown ore
11-4	74.13	Reconsentration of No. 2 & 3 cots
11-4	218.75	

1911			
3-21	23.09		Lot 1 1769# hard sorted ore head
3-21	12.15		Lot 1 Hard sorted ore tail
3-21	191.91		Concentrates about 30% tungsten
3-21	12.15		Lot 2 - Tail
3-21	287.67		" " - Midlings Reconcentrated
3-21	35.24		Head
3-21	15.80		Middle tail
3-21	230.90		Canvas table slimes
3-21	26.74		End tailings
3-21	218.75		Concentrates
1913			
3-31	14.58		Tungsten slimes hand crushed and panned
8-27	32.81	.81	Upper dump fines
9-4	23.00		Mill slimes, north tank
9-4	5.40	.70	Mill slimes after leaching
9-4	24.30		South tank
9-4	8.50	.65	after leaching
9-4	31.60		Iron tank
9-4	12.15	.60	after leaching
9-4	87.50		S. Tip Top upper dump
9-4	17.00	.80 1/2 %	after leaching
9-4	56.00		Lower dump
9-4	26.75	.53 1/2 %	" "
9-4	360.93		Concentrates upper dump
9-4	364.58		" Lower "
9-24	25.50		T. T. iron tank slimes and sands
10-28	26.74		" upper dump just above trail #1
	48.60		" " "higher up " #2
11-10	4.80	.82%	No. 1 after leaching
11-10	6.00	.87%	No. 2 " "
11-10	22.00	36/100	Jno.Quich cyanided concentrates
	80.21		" " tailings head sample
12-23	4.86		Tip Top fines from pan cleanup
12-23	4.86		Ensign T.T.midlings after leaching
	17.00		Sample slimes south set Th.mill
	21.87		Top dump T.T.screened to 5/8"
	31.60		" " " " " 1/4"
1914			
			Sulphides 2625 oz. 2 2430 o_z.3
1-9	36.46	2.00	Top dump Tip Top leaching sample
1-22	36.00		of 1/2 ton
			T.T.upper dump leached head samples
1-22	36.00		1/2 ton lot 1
			T.T.upper dump leached 800#
1915			
9-17	173.80		Silver Tungsten fine

1919

2-18	123.96	F.E.W.	Tip Top Bldg. house No. 1
2-18	102.08	"	" " " " " 2
2-18	12.15	"	Assay office ore in box
2-18	199.31	"	Mill Wilfley in tub
2-18	127.61	"	" " " box
2-18	100.87		Duister "
2-18	137.33		" " cans
2-18	119.10		Mill Duister outside
2-18	69.27		" " Security midling

1920

11-17	585.47	Barth	T.T.ore piece in ft.wall at 335-fine zinc blend ore

Barth T. T. ore average sample 335' level 279.51 oz. silver

Tip Top Mine
September 9, 1935.

PRELIMINARY SURVEY

REPORT ON SOURCES OF CUSTOM MILLING ORES IN TIP TOP DISTRICT

Within a radius of three miles of the Tip Top mine there are six groups of mining claims that are in shape to supply milling ores in varying quantities. On the topographical map I have shown the location of these groups using different colors to show each group. A description of these groups is not possible in detail but the following will give an idea of the milling ore available from each.

FOURTH OF JULY GROUP

OSCAR WAGER, OWNER

Distance from Tip Top	Name of Claim	Type of ore	Average per ton	Possible Production per day
3/4 mile	4 July	Silver	20-30 oz.	25 tons (Stopes must be put in shape)
1/2 "	"76"	Silver	20-50 oz.	25 tons
1/2 "	Water Witch	Silver		(no development)
1 "	El Dorado	Silver	20-50 oz.	25 tons
1 "	Arizona	Silver	15-40 oz.	25 tons (needs development)

There are two other claims in this group that are undeveloped. This group could be relied uponto supply a minimum of 25 tons of 25 oz. silver milling ore per day. The ore from this group would be almost identical in character to that of the Tip Top, and so would present no difficult metallurgical problem.

OSCAR WAGER GROUP

OSCAR WAGER, OWNER

2 miles	Wisconsin	Silver	20 oz.	25 tons	(Stopes need development)
2 "	Arnold	Silver	"	-	(no development)
2½ "	Williams	Silver	-	-	(no development)
2½ "	Marks	Silver	-	-	(no development)

These ores are very similar to those of Tip Top so there would be no problem in their handling. This group could not be relied upon for steady production as it isnot opened up sufficiently to have any ore blocked out.

From workings on the veins it appears that good bodies of mill ore can be developed.

FOY GROUP

LESTER AND HERRON, OWNERS

Distance from Tip Top	Name of Claim	Type of ore	Average per ton	Possible Production Per Day
2½ miles	Carbonate Queen	Silver	15-50 oz.	25 tons (Needs some development)
3 "	Foy Claims (5 in number) *	Silver	15-50 oz.	25 tons
		Silver	15-50 oz.	25 tons

* (On these five claims there are numerous workings - many caved in and considerable work would be required to put them in shape).

This group has produced some $140,000 in high grade shipping ore. It is estimated that there are 700 tons of 25 oz. silver ore on the dump. The claims of this group are located onthe midway vein.

This group could be depended upon to supply a minimum of 20 tons of mill grade ore daily.

The ore is the same type as Tip Top.

SILVER MUSEUM GROUP

OWNED BY JOHNSON AND BESSIE MORGAN

OPTIONED TO GRAHAM AND SHERRARD OF LOS ANGELES

Distance from Tip Top	Name of Claim	Type of ore	Aver. per ton	Possible production per day
2½ miles	Gold Coin #1	Silver	20-40 oz.	10 tons
2½ "	" " #2	"	20-40 oz.	10 "
3 "	Swilling	"	20-40 oz.	10 "

The Swilling is one of the oldest mines in the district and together with the Gold Coin #1 and #2 are now under lease to and are being developed by a Los Angeles Company. They are sinking a shaft and are getting ready for production.

The ores are the same type as those of Tip Top so present no problem.

This group could be relied upon to supply a minimum of 20 tons of mill grade ore daily. Past production $250,000, mainly silver.

LITTLE JOE GROUP

MRS. BERGER, OWNER

Distance from Tip Top	Name of Claim	Type of ore	Average per ton	Possible Production Per Day
3 miles	Little Joe	Gold & Silver	$20.00	25 tons

This property is shipping a car load of ore each week and have so far shipped seven cars. They are building up a large tonnage of mill grade ore.

The ores from this mine are of the same type as Tip Top and do not present any problem.

This property could be relied upon to produce 15 tons of mill ore daily.

SULLIVAN GROUP

BAUER AND JOHNSON, OWNERS

3 miles	Sullivan	Gold & Silver	$ 15.00 - $25.00 -	25 tons
3 "	DeGendt	Gold & Silver	$15.00 - $25.00 -	uncertain
3 "	Bauer	Gold & Silver	$15.00 - $25.00 -	Uncertain

These ores differ from the Tip Top ores considerably. The values are mainly in gold. They present no problem as the free gold could be plated and the sulphides, gold and sliver, floated.

This group could probably supply 15 tons of mill grade ore daily.

SUMMARY OF

MILLING ORES AVAILABLE

Fourth of July	25 tons
Foy Group	20 "
Silver Museum	20 "
Little Joe	15 "
Sullivan Group	15 "
	95 "

The above shows that the district is now capable of producing 95 tons of mill grade ore daily, after a period of 60 days. With some months of development this tonnage estimate would probably be materially increased. - It is my opinion that within six months from the time a mill is put in operation a constant supply of 100 tons per day of good grade mill ore will be assured.

In addition to the foregoing there are four groups of claims that are owned by Mr. J. B. Johnston. These were not considered with the foregoing because of the difference in the type of ores and the metallurgical problems involved. A brief description of the Johnson group follows:

JOHNSTON GROUPS

OWNED BY J. B. JOHNSTON

1. Antimony group. Has had some silver production. Good virgin ground. Ore same type as Tip Top.

2. Tungsten group. Shipped tungsten during war. Has good undeveloped showing of gold and silver.

3. Great Cross-Cut Group. Will furnish 50 tons per day at present of gold and silver mill grade ore.

4. Gold Hill Group. Has produced gold ore of mill grade - can furnish 25 tons per day now by extension of exposed ore breasts in tunnels by development only. With six months development work would be in shape to produce 100 tons daily. This group would add materially to the tonnage of mill grade ores available in the section. -- The problem of handling these ores should not be too difficult.

CONCLUSION

There can be no doubt but that the custom milling ores available in this district are sufficient in quantity and value to warrant the installation of milling equipment to handle them.

To equipment to handle custom ores at the mill under consideration for the Tip Top mine would, in my opinion, be worthy of mature consideration.

Respectfully,

(Signed) S. A. Shappell

August 7, 1935

La Bajada Exploration, Engineering & Equipment Co.,
St. Louis, Missouri.

Gentlemen:

In my capacity of Consulting Engineer, I supplied reports on the Tip Top properties dated 1917 and 1934 respectively, to which I refer you. I have kept in touch with the property, and in 1920 I secured an option upon it. I installed compressor, air lift, and unwatered to 400 foot level, but made no official report of my findings. So far as I know, this is the only examination made to this depth subsequent to original work, (about 1892). Work stopped because I was unable to meet terms of my option. Since that date my effords have been directed towards a continued holding in the property on any basis possible.

Checking in your interest, June 1935, I find no material change in the property since my report to Mr. Findley April 9, 1934, just after I had completed a re-examination of the property and steel tape measurements of ore available.

Attached hereto are photographs taken at the property:

#1 - Ore dump - 200' Adit level, showing milling ore - 6,500 Tons
at this point. (In foreground Mess Hall, store room, and bunk houses). Excavations and retaining walls for mill to right at foot of dump. Work stopped on mill in course of construction (under direction of Harley A. Sill) in early fall of 1929;

#2 - Lower Portion of same dump;

#3 - Upper Portion of same dump;

#4 - Sampling dump at collar main shaft - this dump measures (of milling ore) 18,500 tons 18,500 "

Coarse ore at lower right is shipping ore 900 "

#5 - Extension Tip Top vein on South Tip Top claim of your property, ore from this shoot early days reported 10,000 ounces per ton, vein faulted, my belief additional work likely to pick it up;

#6 - portal of 100 foot adit level, Harley A. Sill, E. M. at left (1011 So. Figueroa St., Los Angeles, Cal.);

Not shown on photographs: At portal 100' adit level	1,800 "
Ore in place - pillars, above 200' level	1,000 "
Ore in stope fills above 200' level	8,400 "
Total available ore	37,100 "

Of the above total tonnage I allow about 8,800 tons waste, which can be profitably removed from picking belt before going to mill.

Assays on lower grade dump ores vary from 10 to 11 ounces in silver. Stope fills run from 14 to 20 ounces silver. Unmined ore inpillars above 200' level run 40 to 70 ounces silver, and the two sorted ore dumps near collar of shaft run from 40 to 70 ounces per ton of silver.

Weighing the various assays with tonnages represented by them, and allowing a 25% reject of waste and low-grade dumps and stope fills, we can approximate 28,300 tons of mill ore available, which, at lowest figures of independent sampling should average 12 1/2 ounces per ton in silver.

Tungsten occurs in all the ores and will produce an appreciable income.

I earnestly recommend the installation of a 50 to 100 ton mill, and expect the accuracy of my figures to be the basis of my continued interest and connection with the property.

Respectfully submitted,

(SIGNED) J. S. Coupal
Mining Engineer

3/9/1927

I have enclosed a copy of my report for Judge Riddle if you care to give it to him. He has written asking me to send him a copy and I believe that he should perhaps have a copy. However as I have been your representative I believe that you should properly give out any information of this nature.

Please keep me advised.

Yours very truly,

(Signed) Harley A. Sill
Consulting Engineer.

COPY

Note - this letter dated March 9, 1927. Observe consistent opinion thro over two years of close contact and effort as shown by letters and wires

ASC 8/6/35

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ASC 8/6/35

CLAUDE CREWDSON FINDLY
Attorney and Counselor
Arcade Building,
St. Louis, Missouri

July 27th, 1935

Mr. Arthur S. Carruthers,
1554 West Papin Street,
St. Louis, Missouri

My dear Mr. Carruthers: - -

I carefully checked the abstract of titles to the mining claims at present owned by Tip Top Mines, Inc., in 1930, when the Tip Top Mines, Inc., took title to the six claims in the Tip Top District, Yavapai County, Arizona, three of the claims being patented claims, known as the TIP TOP, THE JOKER, AND THE KEYSTONE LODE, and three unpatented claims known as the TIP TOP SOUTH, THE VERY TOP, AND THE BLACK JACK.

The three patented claims were conveyed to the Company by General Warranty Deeds and three unpatented claims by Mining Deed. It was my opinion at that time that the company had good and clear title to the six claims.

I have been practically in charge of the Company affairs since that time, and with the exception of two labor liens, and current taxes, it is my opinion that the title is still clear in the Tip Top Company.

Clark & Clark, Heard Building, Phoenix, Arizona, have the abstracts at the present time and would gladly give you their opinion as to their views at the present time.

Yours very truly,

(Signed)Claude C. Findley

CLAUDE CREWDSON FINDLY
Attorney and Counselor
Arcade Building,
St. Louis, Missouri

July 27th, 1935

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Yours very truly,

(Signed)Claude C. Findley

NOTE:

SUBSEQUENT REPORTS BY J. S. COUPAL
Dated April 9, 1934
August 1935 ---
Both preceded by a period of operation
and exploration of the Tip Top Mine

April 9, 1934

Mr. Claude C. Findly,
Laird Apartments,
Phoenix, Arizona.

Dear Sir:

I have been over the Tip Top property several times in the past few months and have had access to, and have reviewed all of the various engineer's reports available, including a copy of a report made by myself in 1917.

Since writing my report in 1917, I acquired a lease on the property, and in 1919 installed some equipment and unwatered the mine to apoint about 150 feet below the 200 foot level. Due to business reverses the leasing company had to stop work.

On a recent trip I re-measured the dumps, in order to check my former figures and also measured up certain parts of the stopes and stope fills above the 200 foot level.

From measurements taken I have calculated the ore available in the various dumps as follows:

Main Dump, at collar of shaft	18,500 tons.
Dump at Portal of 200 ft. level	6,500 "
Dump at Portal of 100 ft. "	1,800 "
Fine sorted Dump, near main dump	700 "
Coarse sorted dump near main dump	200 "
	27,700 tons

This is somewhat in excess of the 20,000 tons mentioned as dump ore in the various reports. There is about 27% to 30% of waste in the dumps, which could and should be sorted out from a picking belt as the ore is delivered to the mill -- so that approximately 20,000 tons of ore will be available for milling from the total of 27,700 tons of ore calculated on the present dumps. My recent figures on the dump ore available thus check the statements made in various reports as to tonnage.

In the stopes above the 200 foot level are several pillars of unmined ore left standing. I have estimated this unmined ore at about 1000 tons. There is, in addition, about 8400 tons of stope fill in the stoped area above the 200 foot level. (((COMMENT - a total of 9,400 tons, plus the first listed total of 27,700 less 30% waste or net -- 21,000 tons, or actually between 30,000 and 31,000 of available ore)))

The dumps, stope fills and pillars have been sampled at various times by competent men. The assays on the low grade dump ores vary from 10 to 16 ounces of silver per ton; the stope fill from 14 to 20 ounces of silver per ton; the unmined ore in the pillars above the 200 foot level from 40 to 70 ounces of silver per ton and the two sorted dumps near the main dump from 40 to 70 ounces of silver per ton.

Weighing the various assays with the tonnages represented by them, and

allowing a 25% reject in the low grade dumps and stope fills we can approximate 28,000 tons of mill ore available --- above the 200 ft. level, which, at the lowest figure from the various s amplings, should average 16.5 ounces of silver per ton. (NOTE -- Independent samplings)

The 28,000 tons should be moved from the dumps and stopes at a cost of 75¢ per ton or less; milling costs on a basis of 50 tons per day should not exceed $1.75 per ton; a recovery of not less than 90% of silver content should be made; with silver at $.645 per ounce, this would show a net recoverable profit of $7.00 per ton approximately, on 28,000 tons, or a total profit of $196,000 net operating profit on the ore now available.

The cost of a plant, installation, and working capital to accomplish this should not exceed $50,000. It would take approximately one and one half years to work out the ore now available above the 200 foot level.

The value of Tip Top mine does not rest on the dumps and stope fills mentioned. They simply show evidence of the values which may be recovered from the rejected ore from early high grade operations.

The operating procedure may vary greatly according to the objective one wishes to attain, the time to reach this objective, and the amount of money available.

The values in the dumps and stope fills are ample security to show a profit on all capital requirements.

I recommend the installation of a 50 ton flotation mill to treat the ores in the dumps and stope fills.

Respectfully,

(SIGNED) J. S. Coupal

TREASURY DEPARTMENT

WASHINGTON

Feb. 19, 1934

Attention : Mr. C. G. Ewing, President.

Dear Sirs:

Reference is made to your letter of January 23.

On February 7, the Director of the Mint sent the following telegram to the office of your mine at Philipsburg, Montana:

> Retal sixth addressed to Secretary of Treasury STOP The Secretary of Treasury has informed mints and assay offices that phrase QUOTE Mined subsequent to December 21 COMMA nineteen thirty three COMMA from natural deposits in the United States UNQUOTE as used in President's Proclamation of December 21 COMMA nineteen thirty three and Regulations issued thereunder shall be construed to include Silver recovered or extracted after December 21 COMMA nineteen thirty three from rock in which it was found in its natural state provided such rock was on or under ground after December 21 COMMA nineteen thirty three and that if the silver-bearing material was on a dump or tailing pile on December 22 COMMA nineteen thirty three the silver recovered or extracted therefrom may be accepted COMMA but that if the rock was off the ground and was in a mill or smelter on that date COMMA even though processing had not then begun COMMA the silver therefrom may not be accepted."

The phrase, "gold recovered from natural deposits in the United States, or within the jurisdiction thereof, and which shall not have entered into monetary or industrial use" as used in Section 35 of the Provisional Regulations issued under the Gold Reserve Act of 1934, includes gold recovered or extracted from gold-bearing materials taken from a dump or tailing pile, provided that the place of origin of such gold-bearing materials is in the United States or a place subject to the jurisdiction thereof, and that such gold has not previously entered into monetary or industrial use.

Yours very truly,

(signed) Herman Oliphant
General Counsel to the Secretary

PHILIPSBURG MINING COMPANY
Security Building
St. Louis, Missouri.

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(signed) Herman Oliphant
General Counsel to the Secretary

PHILIPSBURG MINING COMPANY
Security Building
St. Louis, Missouri.

WESTERN UNION

July 28, 1929

CLAUDE C FINDLY

LIBERTY CENTRAL TRUST BLDG STLOUIS MO

AM LEAVING FOR TIPTOP MONDAY EVENING SIX OCLOCK TO PAY PAYROLL AND SUSPEND ALL OPERATIONS IMMEDIATELY BECAUSE WE ARE ABSOLUTELY OUT OF FUNDS CANNOT PAY FREIGHT AND OTHER BILLS AM AFRAID CREDITORS MAY PUT LIEN ON EQUIPMENT FOR BILLS STOP IN ADDITION TO WIRING THIS EFFECT HAVE TRIED TWO DAYS AND NIGHTS COMMUNICATE WITH YOU BY TELEPHONE YOU DID NOT ANSWER ALTHOUGH I WAS ADVISED YOU WERE IN CITY AND THEREFORE ADVISING YOU BY TELEGRAPH AM VERY SORRY MUST SUSPEND OPERATIONS AS I AM VERY ENTHUSIASTIC OVER SUCCESS UPON COMPLETION OF MILL

HARLEY A SILL

WESTERN UNION

1928

CLAUDE C FINDLY

LIBERTY CENTRAL TRUST BLDG ST LOUIS MO

JUST RETURNED HAVE EVERYTHING WORKING SMOOTHLY AT MINE OUR ROAD WORK WILL COVER ASSESSMENT FOR CLAIMS NOT ALREADY FILED AS COMPLETED STOP FOUND RIDDLE CHECKS CAUSED DISCONTENT AMONG OWNERS STOP IF YOU CAN FINANCE WE CAN MAKE A SUCCESS OF THIS I FEEL SURE IF YOU ARRANGE TO KEEP MEN CONTINUSOULY AT WORK WE SHOULD EXPERIENCE NO FURTHER DIFFICULTY EITHER WITH JOHNSTON OR OWNERS STOP I HAVE FAITH IN MINE AND YOU PLEASE ADVISE ME YOUR INTENTIONS AM WRITING FULLY

HARLEY A SILL

COPY

WESTERN UNION

July 28, 1929

CLAUDE C FINDLY

LIBERTY CENTRAL TRUST BLDG STLOUIS MO

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CLAUDE C FINDLY

LIBERTY CENTRAL TRUST BLDG ST LOUIS MO

JUST RETURNED HAVE EVERYTHING WORKING SMOOTHLY AT MINE OUR ROAD WORK WILL COVER ASSESSMENT FOR CLAIMS NOT ALREADY FILED AS COMPLETED STOP FOUND RIDDLE CHECKS CAUSED DISCONTENT AMONG OWNERS STOP IF YOU CAN FINANCE WE CAN MAKE A SUCCESS OF THIS I FEEL SURE IF YOU ARRANGE TO KEEP MEN CONTINUSOULY AT WORK WE SHOULD EXPERIENCE NO FURTHER DIFFICULTY EITHER WITH JOHNSTON OR OWNERS STOP I HAVE FAITH IN MINE AND YOU PLEASE ADVISE ME YOUR INTENTIONS AM WRITING FULLY

HARLEY A SILL

Los Angeles, Cal.
July 22, 1929

WESTERN UNION TELEGRAM

CLAUDE C FINDLY

MY RECENT VISIT TO TOPTOP SHOWED MATERIAL IMPROVEMENT IN ORE PROBABILITIES AND FUTURE PROFITS STOP TUNNEL ON SOUTH TIPTOP REACHED OLD SHAFT AND SHOWED GOOD VALUES MESSAGE FROM JOHNSTON THIS MORNING STATES STRUCK SOME VERY GOOD LOOKING HIGH GRADE ORE THIS TUNNEL STOP ALSO REPORTS ORE IN TUNNEL ON TIPTOP DRIVEN TO CUT THREE HUNDRED FOOT LEVEL OPENING UP GOOD STOP THIS LOOKED PROMISING WHILE I WAS THERE STOP I HAVE NEVER BEEN AS ENTHUSIASTIC AS NOW IF YOU COULD RAISE SUFFICIENT MONEY TO GET THE MILL INTO OPERATION WE WOULD MAKE SPLENDID SHOWING STOP AM SORRY THAT YOU CANNOT COLLECT THESE FUNDS STOP STERLING DID NOT PAY THIS GREAT LOSS TO US NOW PROBABLY FUTURE REGRET HIM HAVE HAD BUT EIGHT THOUSAND DOLLARS TO ORGANIZE ON PAY DISMANTLING AND FREIGHT WILL HAVE TO STOP ALL WORK FEW DAYS UNLESS YOU WIRE FURTHER SUMS STOP FEEL SO CONFIDENT OF SPLENDID SHOWING UPON COMPLETION MILL THAT FEEL EXCEEDINGLY SORRY THIS WORK CANNOT BE CARRIED ON CONTINUOUSLY PLEASE WIRE ME TODAY WITHOUT FAIL STATUS FINANCES SO THAT I CAN ADVISE MEN AT PROPERTY REGARDING EXPENSES

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HARLEY A SILL

COPY

SAN NICOLAS MINING & MILLING CO., S. A.
Vicente Guerrero, Durango, Mexico.

April 13th, 1929

Mr. Claude C. Findly,
Liberty Central Trust Bldg.,
St. Louis, Mo.

My dear Claude:

I received your telegram late last night requesting me to send you an estimate of the cost of dismantling and erecting the mill, together with the power line and telephone and necessary working capital for starting operations. It has been nearly a year and a half since I made these calculations and I have none of the data with me. I have not even been to the mine in over a year, as you will remember, and I am not as closely in touch with the details as I was during the first few months after the property was examined. However, if you will look my correspondence over a year or so ago you will find my complete extimate for the moving and erection of the mill, together with the power line and working capital. The estimate has not changed any since that time. In case you cannot find this estimate among my letters, if you will wire to my office my Secretary will be able to find it and send it to you. It is my recollection that the power line installed would cost approximately Dlls. 15,000.00 and that we estimated Dlls. 25,000.00 for dismantling the mill, moving and erecting it; at least another Dlls. 10,000.00 would be required for working capital until bullion returns were received. As to the success of the enterprise, my opinion is the same now as it has always been. If this property is properly equipped and handled scientifically you will make money in this enterprise, in my opinion.

I expect to leave here about May first and as there is no reference in your telegram regarding my coming to St. Louis I will discontinue my plans to make this trip.

Wishing you every success and with kindest personal regards, I am

Yours very truly,

(Signed) Harley A. Sill

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WESTERN UNION TELEGRAM

COPY

11/28/27

HARLEY A SILL, CARE CLAUDE C FINDLY.

LIBERTY CENTRAL TRUST BLDG. ST LOUIS MO.

SAMPLES CAME YESTERDAY LAST FLOTATION TEST TIP TOP CONCENTRATES SEVEN HUNDRED OUNCES MIDDLING TWO HUNDRED FORTY SEVEN OUNCES TABLE CONCENTRATES NINE OUNCES TAILINGS TWO POINT SEVEN TWO OUNCES RATIO ABOUT THIRTY TO ONE GROCH SAYS CAN DO BETTER YET STOP OTHER WORK GOING NICELY HAVE NOT HEARD FROM CHARLES OR THOMPSON.

E. J. MAY.

WESTERN UNION TELEGRAM

11/28/27

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E. J. MAY.

C O P Y

REPORT OF THE TIP TOP MINES

By
J. S. Coupal, E. M.
New York City, N. Y.
September 20, 1917.

This group of properties consists of three patented claims and two unpatented ones, titles to which are held clear by annual assessment work. The patented claims are the ones which the so-called Tip Top Mine is located and the unpatented ones are adjoining and have the extension of the Tip Top out-cropping throughout their length.

The property is located on Cotton Wood Creek, and is approximately 63 miles from Prescott and about 39 from Phoenix. From Phoenix the State Automobile Road is over practically level country and the last four miles from the State Road to the Mine, up Cotton Wood Creek, is over a good truck road, with a grade of not more than 4 or 5%.

GEOLOGY

In general, the section is a series of pre-cambrian sedimentary deposits, which thru a number of foldings and deformations have lost their sedimentary structure and are metamorphored into a more or less intensely foliated schist. These schists, before the over-lying burden eroded, had intruded into them (2) gigantic magmas along their generally vertical schistosity.

This section immediately covered by the Tip Top, claims shows a larger part of the schist included between dykes of gneissic, granite, and shows undoubtedly a partial absorption of the schist by granatic intrusions.

The vein as developed in the Tip Top mine is a true fissure vein, which cuts across the schistosity at about an angle of 10 degrees and dips 80 degrees, which is very near the dip of the schist.

The vein filling is a quartz diorite and carries the silver values as native silver, horn silver, and some antimonial silver, Tungsten also occurs wolframite.

HISTORY

The Tip Top mine was discovered in 1876 and was purchased shortly after by Haggin, Head and Hearst, of San Francisco. On the surface were two parallel veins that joined on the 350 foot level. To this depth the foot wallvein widened out and was of lower grade, the bulk of which had to be concentrated. The low grade ore was hauled to Gillette, where a concentrator was—the Agua Fria River, about ten miles from—operation and the drop in price precluded any chance of profit and the property was shut down. Up to that time, however, an officially recorded production of $2,000,000 in silver was made.

One item of cost which stands out prominently, is a charge of $200 per ton for freighting supplies shipped in and ore taken out, by way of Yuma. No ore or concentrate less than $400 per ton could be handled at such cost. The itemized records of production have been lost, but from 1886 to 1893. the St. Louis Yavapai Company had a lease on the property, and the Lessee's record of $235,000 produced is on hand, which shows an ore average of 486 ounces per ton for ore shipped.

The mine has been stoped for high grade ore above the 500 foot level on the foot wall vein, but in all these stopes are low grade blocks of ore (too low to handle profitably in early days).

By drawing some of these stopes above the 200 foot level, several low grade blocks of ore, aggregating about 1000 tons, have been uncovered. The se averaged 40 ounces silver, and 8/10 of 1% tungstic acid.

The hanging wall vein was stoped to a depth of 150 feet, which leaves a block of ground between the 150 and 350 foot levels of 200' x 600' (59) averaging 2' wide -- or a tonnage of about 16,000 tons. Three Thousand pounds of ore taken from different parts of this vein, were carefully sampled, and gave a return of 167 ounces of silver per ton.

If these values are representative, the value of this block of ore would exceed $2,500,000. If the block averaged 1/10 of this figure it would show net profits of $160,000.

According to the statement of the foreman, who was a shift boss when the mine just opened, and a lessee under the St. Louis Yavapai Company, there are low grade blocks of ore all the way from the 500 foot level to the 200 foot. He also states that tungsten accompanied the silver throughout, and in places almost entirely replaced it. Whenever this happened, the ore was left standing in place, or broken and remained in stopes; the general notation being that it was zinc blende and of no value. The samplings from all dumps show tungsten and the above statements have been made by many of the other "old timers" of the district.

Early in 1916, an extensive sampling and examination of the mines was made. I personally looked over the places from which the sampling on the dump was made, and can say it was so carried out as to give an average (60) value. The dump ore approximately 20,000 tons of 10.5 silver, 2/10 tungstic acid - or a value of approximately $285,000 -- @ $1.00 silver, and @ $30 per unit tungsten.

In addition, there is approximately 20,000 tons of ore in stopes above 200' level, part of which was drawn and sampled by a series of 5 chutes so placed as to allow drawing the ore; the result of the sampling gave 14.1 silver and 2/10% tungstic acid. At the above mentioned prices this would have a value of $18.90 per ton or a total of $378,000. ((((Note- @ $.77 current value of 8/7/35 and ignoring tungsten - the values exceed greatly the operating estimates used for La Bajada Corporation estimates))))

In determining these values a total of 63 3/4 tons was taken and crushed and put through an experimental mill, so that the results may be considered fairly representative of what the low grade ore will run.

This sampling cost approximately $12,000 and was undertaken by a Company formed to effect a sale of the property. Their terms for cash payments were such that they were unable to finance or sell the proposition and their option expired.

Record from a lease by Cover & Yack in 1888 shows that they took out 150 tons of high grade ore in 90 days, which had an average per ton of 597 ounces, or approximately 86,500.00 at present prices. (6i)

With the options to the property, are power and water rights on Boulder Creek, which offer possibilities of developing power and large water supply.

The figures for values now in sight are high, and could be discounted 50% and still make a very attractive proposition. In addition to the above, there is drifting and other development work from 500' to the 800' level, which leaves a large amount of prospective value in practically virgin ground.

I spent about two days on the property, and whereas I only checked in a general way by observation the statements made herein, I believe them to be approximately true.

In conclusion will say that from the historic and official records regarding the property, I am convinced that there is enough low grade ore on the dumps and broken in the stopes as filling, to warrant the erection of a 50 or a 100 ton mill.

From these milling operations alone, the cost of installation, operation and the price of the mine can be paid several times over. In addition to this work there is a large amount of undeveloped or rather unmined ore in the mine, which from the nature of the vein should extend to much greater depth. Live assets covering all possible expenditures are in sight and a very probable big profit from high grade ore in depth. (62)

I take pleasure in being able to recommend the property on a bond and lease under the terms which you have obtained.

Respectfully submitted,

J. S. Coupal,
120 Broadway,
New York City.

Sept. 20, 1917

TIP TOP (1) ?

HMC
1
Flagon
K

THE TIP TOP DISTRICT

Author - Unknown
Date - Unknown

Introduction.

The examination of this district was preliminary in nature and was undertaken by four mining men, two to a group at different times, one as a check on the other. The findings given below are the result of these examinations and simply set forth the bare facts without embellishments. It seems apparent that the district, because of its isolation, has been overlooked and that now, with modern means of transportation, mining and milling, the district can be revived and once more take its place in the ranks of profitable producers.

To prove this it will be necessary to make a thorough examination, but enough was seen to feel certain that this thorough examination is warranted.

History.

The Tip Top Mining District is an old silver mining camp and was discovered and worked in 1875. From this time on until 1883 the mines were operated profitably and reopened in 1888 and worked until the demonetization of silver in 1895. Since that time no work worthy of the name has been done here.

All of the silver produced was of exceptional purity indicating that absence of any undesirable impurities.

With the exception of the Tip Top Shaft, which is 800 ft. deep on a 65 degree incline, the deepest working in the Tip Top District is only 150 feet in a few shallow shafts. "Chloriders" did not work any but the high grade outcrops and did not go to any depth. It was easy to find high grade ore and when mining presented difficulties in one place, they looked for other ore shoot outcrops.

The transportation problem, such as a thousand mile ox-team haul to the smelter, confronting the old timers has been solved, milling problems that bothered have been worked out, and modern machinery and mining methods will reduce costs and increase profits. All of these together make it possible to reopen the camp for the legitimate purpose of making money.

Between three and four million ounces of silver have been won from this district and the ore was very high grade. Thousand ounces per ton rock was not uncommon and five hundred ounce rock was common. Samples taken during the examination at various places gave equally good results and there is every reason to believe that the veins of this district will be as productive in the future as they were in the past. Productive of high as well as low grade silver ore.

Location.

The Tip Top Mining District lies four and one-half miles west of a point on the Agua Fria River where Yavapai and

Maricopa Counties border each other, or it is thirty-nine or forty miles a little East of North from Phoenix, Arizona. It is thirty-five miles by the Black Canon Highway to the Agua Fria River and from here to Tip Top it is eight miles over a passable road.

The country is typical of the Southwest foothill mountains at the 3500 ft. altitude. Cacti and mesquit are abundant. There are no large trees.

Boulder Creek in which Tip Top is located has running water during six or seven months of the year and indications lead to the belief that water for camp, mining or milling purposes can be counted on.

Geology

The rock which interests us most is a Cambrian gneissic granite which has a great many schist inclusions. Pegmatite veins are not uncommon, but the veins of economic importance and which cut all formations are well defined easily traceable quartz veins. There are three vein systems which cross each other. The first one is the "Great Cross Cut" which has numerous shallow workings on it and parallel side veins which occur close to it. This system is very continuous and traceable for more than five miles. (See District Sketch Map.) It strikes a little East of North and dips to the West at an angle of about 75 degrees.

Much more productive of ore, but not necessarily more important is the "Zip Top El Dorado" vein system which strikes about N 65E and dips 65 to 70 degrees to the Northwest. This zone of veins is very close to 2000 ft. wide.

The third vein system is known as the "Museum". It has produced a very considerable quantity of high grade silver ore.

The most striking feature of all of these vein systems is that the veins are so persistent in their course across the country. This feature argues well for their continuity in depth.

The ore occurs in shoots of variable length and width. The veins themselves are at times 8 to 10 ft. wide, but the quartz matter except in the shoots is not absolutely continuous. Horses of waste and the pinching and swelling of the vein are responsible for this. The shoots are often several hundred feet in length and the typical ore shoot occurrence is illustrated by the figure shown.

The primary ore is composed of about 95% quartz and the remaining 5% is made up of sulphides of lead, silver, iron and zinc, as well as arsenides and sulparsenides of silver. In the oxidized or surface ores horn and native silver are present. The zone of oxidation has a variable depth reaching from about 50 to 100 ft. below the surface.

The richest ore is found in the shoots and where either side veins or intersecting veins cross each other.

At times the veins cross pegmatite veins or run along

them. In these cases it is not unusual to find Tungsten minerals. Sheelite and ferberite. These minerals may be considered of commercial importance, as in the event that the ore has to be concentrated a concentrate of these minerals will be produced as a by-product.

The conditions as observed and past performances certainly warrant the doing of more work in the district. While there is always a degree of hazard in undertaking a mining venture, the Tip Top District offers greater chance for success than usual.

A thorough, painstaking examination of the district will undoubtedly show that it can easily be established as a producer of high grade silver ore.

SECTIONS OF THE DISTRICT

Marlowe

The lead claims, two in number, are located on a vein having a strike of N 60 W and a dip to the Southwest. The vein varies in width from 18" to 7' or 8' and is parallel to the Carbonate Queen System. The vein material which is considered of economic importance is quartz containing oxidized Sulphides, and in the Tule Creek which runs through the northerly end of the Northern claim a large cropping of solid Anglesite, or Sulphate of Lead was found which ran better than 50% lead and had about 15 oz. in silver. Several cuts and shafts on these claims were

sampled with the results shown below:

	Au.	Ag.	Pb.
#1	0.10	0.96	-
#2	0.13	6.98	10.2
#3	0.18	2.24	-

The conclusions which seem warranted from the observation and assay returns are that prospecting on the Andesite should be pushed in depth and that the tunnel on the footwall of the vein should be turned to encounter the vein to see what the vein does in depth which would be about 50 ft. below the surface at this point. These claims are worthy of more work and considering the small amount of work done on them are considered a good prospect.

South End of Great Cross Cut Vein
Merwin Claims #1 to #7 Inclusive.

The samples taken here were the best obtainable at the time and did not show up these claims as very promising. (See assay returns below.) That this group has good points is unquestionable and a more careful and lengthy examination with more sampling is in order at some future time. The region where the Dip Top Vein cuts the Great Cross Cut Vein is especially recommended for further investigation, as a place where a good tonnage of low grade ore may be expected.

	Au.	Ag.
Average of 4 samples	0.04	5 oz.

North End of Great Cross Cut Vein and Vein Systems other than the Cip Top and El Dorado.

Marks Claim

A sample taken in a cut on its Southern end did not show very good returns, but the vein is said to average 25 oz. in silver at this point.

Brown Claim

Supposedly on the intersection of the El Dorado and Great Cross Cut Vein. The sample taken here was of second class ore from three different places and assayed 0.13 Au. and 42.04 Ag. It is worthy of further sampling and closer investigation at an early date.

Arnold Side Vein

On the Arnold Claim. A vein about one hundred feet long which from its indicated dip will intersect the Great Cross Cut Vein to which it is parallel. Vein is 18" to 2 ft. wide. Sample taken from vein showed excellent values - Au. 2.52, Ag. 218.60.

Arnold Claim

On the Great Cross Cut Vein. Dump sample here supposedly representative of vein 2 ft. wide. Did not assay well. The Arnold Claim at these two places or near them should be prospected further.

Brunson Vein

Not on any claim. Much high grade reported from these workings which are not over 70 feet deep. Sample taken from outcrop of vein 2' wide. The values show that this vein would possibly be worthy of locating. The vein runs somewhat more Northerly than the Tip Top and El Dorado Vein system and seems not to cross to the East of the Great Cross Cut. There are several fair sized dumps along this vein. Assays of sample gave Au. 0.18, Ag. 42.40. On account of the width of the vein tonnagecould be made fast.

Neewanda Claim

Probably on Side Vein of Great Cross Cut. Sample did not show much except that the cobbing done by the shippers from this place were remarkably clean. The 30-foot cut along the vein here was caved and the vein or extent of workings not visible.

Henderson Claim

Sample taken here was of a 2-foot vein in the footwall and did not look promising. The ore is probably further to the West toward the hanging wall. Sample did not show any values worth noting.

Museum Side Vein

Sample taken from the vein and dump did not give very good assay results. This ground is partly located and may be worthy of including in the holdings of the Museum Vein proper if it should be taken up, especially because of possible apex litigation.

Swilling Vein. This vein recently included in the holdings of the Museum Group was referred to by the old timers as a low grade big tonnage proposition. Assys taken from this vein ran from five to ninety ounces per ton.

Museum Vein

Owned by F. M. Morgan. Was a good producer of high grade in the past and is a likely looking property. Can be had for a reasonable price and is certainly worthy of closer examination. Sample from dump showed Au. 0.14, Ag. 70.80. Good concentrating ore seems reasonably certain of development along with some high grade. One of four good properties. Claim as at present located has been moved to include claim formerly occupying extension of ore shoot which was mined to the end line. It is more than likely that ore can be mined from this claim after the expenditure of a little money. Ore to the value of $250,000.00 is reported as having been mined from this vein and a 150 ft. shaft will presumably pick up the extension of the ore formerly worked. (See map of ore shoot which was worked and the unmined portion.)

Sanderson Claim

10" vein reported 120 oz. ore. Sample from small dump near 40 ft. shaft did not give very good returns, but ore of 29 or 30 oz. silver would undoubtedly make good ore for concentrating or for cyanide treatment.

Puzzle Claim

Some small pieces of Galena here, but vein was obliterated or so small that sampling seemed of no value. Since seeing the Carbonate Queen Vein elsewhere, it seems as though it shouldbe given more attention and investigation.

Ferrel Claim

Has a side vein one foot wide from which a sample was taken which ran 8 to 10 oz. in silver. While this is not promising it does not condemn the claim.

Foy Claim

This claim has several short tunnels and workings on it. It is claimed that 1,000 tons of 30 oz. silver are on the dump. The tonnage was verified and two samples, one of picked ore and the other dump average exceeded the claims made for them. This property is decidedly likable and could easily be brought to a producing stage. It is one of four properties in the district which are worthy of immediate closer investigation and would give good account of itself. A reasonable price has been set on it. The picked sample ran Au. 0.11, Ag. 140.40, and the average of the dump 0.09 Au. and 69.80 Ag.

Belcher Claim

There are two veins on this claim - the Tex and the Pin Pool. Samples from dump here gave good returns in spite of the soil which was mixed with them. Should be included in Foy Group as one mine. Worthy of investigation and development. Samples ran: - Tex Vein 0.12 Au. and 66.52 Ag., while the Pin Pool vein sample ran 0.04 Au. and 70.24 Ag. 100 tons of 300 oz. ore shipped from 2-foot vein.

El Dorado Vein

The El Dorado vein which is parallel to and about 1,000 feet to the North of the Zip Top Vein has the same characteristics as the Zip Top Vein, and dump samples taken lead to the belief that this vein would, if properly opened and developed, give as good an account of itself as the Zip Top. It is, next to the Zip Top Mine, the best of the four good properties.

El Dorado Claim #1. Two fair samples from dumps amounting to about 100 tons gave good results and since there is a good chance of encountering ore of a like or higher grade in the vein a shaft for prospect and development purposes is indicated near here. Samples ran 0.11 Au. and 84.72 Ag.; 0.07 Au. and 52.8 Ag. 60 ton dump.

On the 7d Claim, the dump sample returns were quite satisfactory, being Au. 0.10 and Ag. 69.76. There is a cut and three tunnels on this claim. They have shown the presence of the dip of the ore shoot, and a winze out of the lower tunnel is supposedly in Ruby Silver 2" wide. Water in quantities which would embarrass the "ohlorider", but not a modern small pumping equipment, stopped operations. This place is recommended as a place to investigate because this section of the claims has given a good account of itself.

There are three other claims: The Johnson, Security and Security Annex. The Johnson and Security Annex have had no work done on them. The Security has three tunnels on it. The

tunnels were prospecting for the shoots of ore but with rather unsatisfactory results, probably because the prospectors lost the vein. Crosscutting would prove this.

The Johnson Claim on the El Dorado Vein looks promising, as it seems to cover the seat of a great disturbance, probably the intersection of the El Dorado and Carbonate Queen Veins. If this be so, this region is a promising place for prospecting. Closer study is warranted.

The El Dorado Vein is credited with a production of $150,000 worth of silver.

The El Dorado Vein should be prospected on the El Dorado #1 Claim and in the winze on the 76, also the tunnel from which the winze was sunk should be pushed to the Northeast to catch the shoot mined on the upper levels. Some surveying done since this report was written proves that in searching for the downward extension of the ore shoot mined on the Security the tunnel was driven on a parallel vein and that some cross-cutting should pick up the vein and the ore shoot.

The Zip Top Mine is undoubtedly the best proposition in the Zip Top District, and will, it seems certain, from observation and all that can be learned about it make a great mine from which much money can be made. This property and its dumps need a very careful examination. This will prove the need of a mill to treat the dumps and stope filling. The road from the river into Zip Top is passable, but should be put in better shape to permit shipment of supplies and tools necessary to carry on operations. This could be done very reasonably.

The mine has been mined pretty thoroughly down to about 350 or 400 feet along one shoot (see Map) but is partly prospected to the 800 on the shoot, some ore having been blocked out. Other shoots which are practically proven can be developed from this shaft and the stope filling and pillars which are in the upper levels can be taken for milling purposes, provided the grade of ore claimed for them is present. The shaft is in good shape. The dumps have considerable tonnage, not less than 10,000 tons being millable. The grade is about 20 oz. while the stope filling estimate at 10000 tons of has a grade of about 20 oz.

A satisfactory settlement or agreement can be entered into with the owners of this property and it is unquestionably the best property to secure. A great deal could be written about this property mostly on hearsay, but enough was seen to be able to recommend it for careful and thorough examination.

High grade ore from the Tip Top dump ran 0.04 oz. Au. and 594.96 oz. Ag. Picked ore from the dump ran 0.08 oz. Au. and 169.28 oz. Ag. Sample of stope filling as drawn from chute on 100 ft. level tunnel ran 0.06 oz. Au. and 21.5 oz. Ag.

Conclusion.

From the above will be readily seen that to operate in the Tip Top District to the best advantage, it is desirable to have all of the worth while properties controlled by one organization. These worthwhile properties are The Tip Top Mine, the El Dorado Group, the Museum Group and the Boy Group.

The combination of these properties under one head will result in the production of sufficient ore both smelting and milling to make such a venture profitable.

The capital necessary to secure the properties, at this time, is small compared with the returns promised.

A new road is about to be built through the Tip Top District and when it is opened there will undoubtedly be an awakened interest in the Camp with the result that properties now available at a reasonable figure will be held at an increase in price and the chance for the desirable consolidation past.

All of the desirable group are tied up at present and should be examined now. They are considered so good that they are recommended for a thorough examination.

To sum it up:

The Tip Top District is to be considered as an opportunity which does not often present itself and at least merits a careful examination. That the Camp will come through giving an excellent account of itself is confidently expected.

That the District has produced and will again produce high grade ore is a fact and it is concievable that now that low grade ore can be treated more cheaply and by better methods than in the past that it also will come into its own.

Whether or not the camp can be classed as one of a large tonnage of low grade ore is a question that can best be answered by sampling but the chances of this being so are good as the gneiss is often found to carry horn silver which is due to its mineralization at the time of the vein formation.

The possibilities of the low grade ore were given very little consideration when the examination was made.

Date - unknown
Author - unknown