



CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

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Davis Mine

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J.m.

REPORT ON
THE DAVIS GROUP OF MINES IN THE
HASSAYAMPA DISTRICT, YAVAPAI COUNTY,

ARIZONA

BY

R. N. DICKMAN

AUGUST 4TH, 1906

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Report on The Davis Group of Mines

Hassayampa Mining District

Yavapai County, Arizona.

Location.

As above indicated the group is located in the Hassayampa mining district about 14 miles by wagon road easterly from Prescott Arizona and about seven miles from Mount Union Station on the Poland Branch of the S. F. P. & P. R. R. a branch of the Santa Fe System. The location consisting of the Azurite, New Era, Davis No. 1, New Era No. 2 and Davis No. 3, all patented, run in a northeasterly and southwesterly direction and cover a total length of 6474.7 feet on the vein courses.

Geological.

The country rock in which the mineralized zones occur is porphyritic. To the northwest and not far from the main trend of mineralization the country rock is granitic, but no discovery has been made of any contact deposits. It may be surmised that at great depths the mineralization courses may run to this contact but the porphyry which is open and shattered locally, evidently offered less resistance to intrusions than the contact plane, so that the mineral trends are in porphyry at present known depths.

If we understand by "fissure veins" those enclosed by two well defined walls, the Davis mineralization would not come under

such a head. The porphyry presents rather wide belts of permeable rock which have been mineralized by replacement along natural fractures in a general northeasterly and southwesterly direction, sometimes following a well defined "slip on one or both walls (so called) but often departing abruptly from true course. Constant crosscutting is hence essential to following the ore bodies, and most apt to succeed toward the softer ground away from the granitic contact at present known zones. The writer has illustrated his idea of the ore occurrence in a general way on the map submitted. A magnified instance is the departure of the "dunkirk Vein" as well as the "South Vein" from the main trend.

Historical.

The properties have been intermittently worked since discovery in the early 60's. The surface ores are oxidized to but shallow depths and must have been free milling but to a small extent. Ore under \$50.00 gross value could not have been shipped under these old conditions.

Examination by Writer.

Explanatory.

In April 1905 a very complete examination was made by Mr. Wm. A. Farish assisted by Mr. Campbell. This examination covered all the accessible surface work. Accurate maps were made and the sampling was of a thorough nature. The writer is well acquainted with the methods used by Mr. Farish and is absolutely

content to take this data as beyond criticism or appeal on the ground which has remained unworked in the interval. In the meantime however much work has been done. This has been sampled by the writer, as well as the old work within the area comprised within these limits new and old. On the remainder the writer simply summarizes Mr. Farish's results. On tunnel No. 1 the results will not agree at all, since this tunnel has been raised and the bottom filled for a long distance, exposing new faces along the entire old roof, so that the vein matter is higher than that sampled by Mr. Farish. The old tunnel numbers are retained and should be retained in all future engineering work for convenience of reference.

Details of Examination.

New Era Shaft.

This shaft had reached a depth of 50 feet showing a streak of ore varying from .5 to 1.0 foot of sulphide ore. The bottom showed .5 ft. to the S. W. and .9 ft to the N. E. Sample No. 44 shows,

Gold	.30 oz	per ton)	
Silver	12.22	do)	Value \$16.90 per ton
Copper	2.99	per cent)	

Taking gold at \$20.00 per oz. silver at \$.60 per oz. and copper at \$.15 per lb. net or \$3.00 per unit or % of 20 lbs the Value is \$16.90 per ton. This will be the basis used in this report.

Tunnel No. 1

This tunnel for its entire length is in porphyritic rock as described in geological paragraph.

0' to 120 ft. For this distance the ore is continuous. The average width shows 2.44 ft. and an average money value of \$35.17 per ton.

120' to 180'. No ore. Occasional gouge easily followed.

180' Four (4) feet of ore, Sample 12 Value \$35.85 per ton.

184'-216' No ore.

216' Streak for a few feet averaging 1.0 ft, width. Sample 13 shows \$5.84. Possible concentrating ore.

219'-327' No ore

327' A few feet of ore 1.0 ft. wide. Sample 14 shows \$52.73

340'-440' Continuous ore averaging .6 ft. in width and showing a value of \$32.38 per ton. The streak is narrow but well defined.

440'-490 feet . No ore except occasional very small bunches.

490'-650 feet. 160 feet length averaging 2.02 ft. width and \$14.24 value per ton. With selection of the shipping ore which will run about 10% the balance is concentrating ore.

650'-740' No ore.

740feet Very narrow streak .2 ft. showing \$15.20 value.

740'-912' (7/4/'06) No ore. It appears as if possibly the narrow streak at 740 may run behind the shaft and the crosscut

at 860 feet was intended to cut and intercept. At 66 feet N.W. no ore had been met. The writer is not inclined to look for ore to the northwest in the harder closer granitic ground.

Summarized we have in this tunnel 513 feet out of 912 showing ore in four chutes averaging about 122 feet each in length with about 110 feet between them on the average. This is very satisfactory ore occurrence and the indication is that another ore chute will soon be encountered beneath tunnels 6 and 7.

As shown the ore averages about 1.8 foot and about \$25.11 per ton. taken as it runs. This average will be reduced by the exemption of shipping ores, but lack of upraises forbids any accurate tests on this subject since enough faces to get at three sides cannot be found. The data gained is however satisfactory as far as it goes.

Samples 43 and 45 show the dumps to sample 1. higher grade \$26.35 per ton. Milling Grade 2. \$13.33 per ton. The latter contains a good deal of waste, but the mill will easiest separate such material.

Tunnel No. 2.

This tunnel is 180 feet in length. At the mouth 80 feet has been stoped. The faces show as per sample No. 49 a value of \$108.59 per ton.

From 80 to 120 feet the hanging wall is followed and the average width was 1.5 feet. Sample taken along the 40 feet at

5 foot intervals shows (46) a value of \$43.91 per ton.

From 120 to 180 feet the foot wall is followed, the ore having been recovered by a short crosscut. This 60 feet sampled in 5 foot intervals shows (47) \$24.50 per ton value. Width Average 1.0 ft.

The face shows a width of 1.2 feet value (48) \$5.38.

The dump was much mixed and would probably have to be sorted. About 50% would be ore and a sample of this showed (50) a value of \$31.61 per ton.

At the mouth of the tunnel a shaft 40 feet in depth was sunk and the ground stoped both ways. The northeast drift shows from .4 to .8 feet of ore of value (51) \$83.37 per ton. The southwest drift shows 3.0 ft width of ore giving (51.B.) \$22.10 per ton.

While impossible to accurately figure tonnage it will be seen that there is a strong probability, indeed a certainty of considerable tonnage in this ground. It will naturally be obtained by stoping from No. 1 tunnel.

Tunnel No. 3.

The face of this 50 foot tunnel shows 2.5 feet of ore of value (52.A.) \$36.32 per ton. The bottom of the winze shows 3.7 feet width and a value (52) \$61.48 per ton. The showing on bottom is extremely good being clean shipping sulphide ore. This area from No. 3 through No. 2 to No. 1 augurs exceedingly well.

No. 4 Tunnel. This tunnel 100 feet in length shows a vein almost continuous for 100 feet averaging 2.0 feet in width and still 1.0 foot at the face. Mr. Farish's sample was taken for this tunnel showing trace of gold, 6.20 oz., Silver and 3.70% copper which would now be valued at \$14.82 per ton.

No. 5 Tunnel. This tunnel is 200 feet in length. The ore streak is intermittent and very variable, giving appearance of little value in the main. Mr. Farish's samples showed no commercial value and the work was not resampled. Tunnel No. 1 below showed its poorest ore below this point, though of milling grade and the fact that underhand stopes (now filled) were carried on would indicate that some pay ore was extracted. It will require work from below to determine the value of the ground.

No. 6 Tunnel. This tunnel had reached 410 feet on 7/5/06. Up to 300 feet little ore was found beyond occasional bunches following the fractures. Some crosscutting is to be recommended. From 300 to 370 feet the ore is more or less continuous either on top or bottom, but is frequently found in several streaks in the porphyry. The samples taken showed as follows (See map table).

Number	Description	Width	Value
54	Winze 4' at 370 feet	5.0	\$20.57
56	Cut at 355 ft	5.0	7.18
57	Cut at 340 ft	5.0	10.16
58	Cut at 320 ft	2.0	24.74
59	Winze 4' at 305 ft	0.6	42.76
60	Selected at 300' .5 ft	0.5	86.10
55	Dump outside tunnel	---	15.19

The ore chute in No. 6 promises well for tunnel No. 1. in a short distance farther, in itself the ground is satisfactory.

Tunnel No. 7

This tunnel shows what is apparently milling material near its mouth. For the remainder of the distance the ore is intermittent. No sampling was done as the ore was much scattered and the tunnel not in shape for proper sampling. In this tunnel however may be seen an interesting instance of the change of the ore from one plane of the porphyry to another. This occurs near the end in a crosscut to the southeast. Work on this tunnel is scarcely to be advised as the stoping from No. 6 will naturally take the ore.

Ground to Northeast.

On this ground the writer did no sampling, but made a careful examination of the ground with the report of Wm. A. Farrish, Esq., in hand. The reason for this was primarily the opinion that it would be upon the deeper work and its results that the decision would rest, and the writer regards the ore now shown in the northeasterly work as only economically available when there shall be justification for the sinking of a shaft at or near Tunnel No. 9 with a tunnel similar to No. 1 run northeast to get under the higher ground. This will probably be some years distant. It will be well to summarize Mr. Farrish's results which is done herewith.

Tunnel No. 8. Length 60 feet. Winze 15 feet deep now water filled. Vein from .2 ft to 2.0 ft. width. Sample by writer showed: Gold trace. Silver 1.22 oz. Copper trace.

Tunnel No. 9. Length 70 feet. Vein 2 ft for 30 feet. Balance of distance mere seam in very hard porphyry. Shaft full of water. Dump sample by Farrish:

Gold	2.42 oz per ton
Silver	30.00 do
Copper	8.20 per cent
Value	\$91.00 per ton

Open cut No. 10

Decomposed honeycombed material. No value

Open Cut No. 11

Open cut and short tunnel showing a few inches of ore matter. Formation greenstone evidently either pushed up or an overflow.

From this point the vein "splits" or rather let it be said that the porphyry has two open zones permeable to mineral. At depth there is no doubt that the porphyry will be re-encountered as in the lower ground.

Tunnel No. 12. On north vein, caved and inaccessible.

Tunnel No. 13. Length 100 feet. Vein distorted. At face one foot of material, white quartz. Dump assay.

Gold	Trace
Silver	8.30 oz per ton
Copper	1.50 per cent
Value	\$9.48 per ton

Tunnel No. 14. Length 100 feet. Run in country rock, No ore.
Crosscutting would look promising at least.

Tunnel No. 15. Length 247 feet. Average width vein 1.0 ft.
walls greenstone. Samples

	Oz. per ton		%	\$
	Gold	Silver	Copper	Value
50 to 220 feet	Tr	5.80	2.60	\$10.28
Face	2.00	8.40	2.40	52.24

Tunnel No. 16. Length 116 feet. Vein badly broken up showing width
of about 2.5 feet of which a part by sorting might
be milled. Sample 1.8 ft. face.

oz. Gold	Oz. Silver	% Copper	Value
Tr	5.30	6.20	\$ 21.78

Tunnel No. 17 Length 40 ft. cut and 20 ft. tunnel. Old stopes.
Shaft (?) 40 feet with stope. Water filled.
Vein 3.8 ft. wide in tunnel. One half talc, bal-
ance quartz with iron and copper pyrites.

Samples from Dumps,

	Oz per ton		%	\$
	Gold	Silver	Copper	Value
First Class	.18	28.10	.40	\$22.60
Second "	.12	26.30	.40	\$19.98

Tunnel No. 18. South Vein. Open cut about 100 feet long along
crest of the mountain. Vein from 0.1 to #.0 ft.

Decomposed ore. Sample as follows;

Oz. per ton		%	\$
Gold	Silver	Copper	Value
3.40	37.80	Trace	\$90.68

Tunnel No. 19. Length 120 feet. width 1.0 to 4.0 feet
About one half is ore. Winze 15 ft. full of
water. Shaft at mough also full of water.

Samples as follows:

Description	Oz. per ton		% Copper	\$ Value
	Gold	Silver		
1.0 ft tunnel face	Tr	4.80	3.30	\$12.78
1.0 ft. Talc streak	Tr	Tr	Tr	-----
2.0 ft east end stope	.38	7.04	3.30	\$21.72

Tunnel No. 20. Caved in. Access impossible.

Tunnel No. 21. Open cut and tunnel 150 feet long, stoped out and
filled. Shaft 40 feet full of water. Dip to north
about 800 from horizontal.

In the north and south veins it is to be noticed that they
dip toward each other, indicating the correctness of the surmise on
the sketch that they may have common origin at depth.

General Matter of Presumable tonnage.

As previously stated there is no place on the property
where three sides of an ore body are exposed and hence no accurate
figures can possibly be offered. The various dumps contain between
3000 and 4000 tons of ore of various grades, presumably of the charac-
ter shown by the cut samples. In a general way it is safe to assume
about 8000 tons in the area about No. 1 and No. 6 tunnels, though it
will require raises to prove the matter.

The chief feature is that despite the lack of mathematical proof of tonnage, the ore is recurrent under ground and at depth and the chutes have been encountered without passing through any excessive amount of barren ground. The depth reached is relatively small and the depth gained, is rapid as the tunnels move northeast. It is reasonable to expect a substantial multiplication of the tonnage (estimated on a very conservative basis) with continuance of work.

Tunnels 1 and 6. should both be driven and connected by raises as soon as practicable both for ventilation as well as cheapness of ultimate ore delivery. At a later date the shaft should be sunk as recommended near Tunnel No. 9.

Mining Method.

Mr. Farrish covers this point amply. Shipping ore will be separated in stoping of grade compatible with cost of mining, freight and treatment. The quality will depend on the transportation ultimately available. The low grade ore apparently will concentrate, though the writer would advise exhaustive tests prior to adopting any set type of mill arrangement. I suspect that with the hard gauge and the soft mineral, sliming will be the problem to be met.

Mining Cost.

The vein as shown will average about two feet in width. While this will economize in timbering, it reduces the output per man.

Present wages per 8 hour shift are

Sinking	\$4.00
Drifting	3.50
Trammers	3.00
Common Labor	2.50
Engineers	4.00

Including management I am of the opinion that the ore will cost all of \$4.00 per ton delivered at any ordinary millsite. Freight. Should the proposed narrow gauge railroad be built, we may assume a haul of not over 1 1/2 miles according to authorities at the mine. This should cost about \$.50 per ton.

Rail Freight to Smelter.

This is an open question but should not exceed \$1.50 per ton.

Milling Cost.

The mine will not probably with a 2 ft vein stand a mill of over 75 tons daily capacity, leaving a balance for shipping ore. On this basis I should estimate about \$1.25 as milling cost.

Smelting Charge.

The shipping ore will naturally be of high iron content and would take the neutral charge plus a maximum roasting charge. This should permit an estimate of about \$7.00 per ton based on a \$5.00 neutral charge.

Approximate estimate of Yield.

The writer thinks it will be perfectly safe to assume that the selected shipping ore will run gross \$50.00 per ton, as

shipped. This of course cannot be accurately foretold at present, but the cut samples seem to indicate it. Thirteen of the 51 cut samples taken by the writer exceed this figure or approximately 25% of the samples. If this be the case we can with conservatism adopt the hypothesis that out of 6 tons mined 1 ton will be shipped or 16 2/3 %. Assuming then 90 tons mined of which 75 are concentrated we may calculate as follows:

Shipping Ore.

Mining 15 tons shipping ore	© \$4.00	\$60.00
Delivery to cars	© \$.50	7.50
Rail Freight	© \$1.25	18.75
Smelting	© \$7.00	105.00
15 tons @ \$12.73 costs		<u>\$191.25</u>

Concentrating Ore

Arbitrarily assumed at \$20.00 per ton average indicated safely.

Mining 75 tons milling ore	© \$4.00	\$300.00
Milling 75 tons	© 1.25	93.75
Freight on 13 tons concentrate	.50	6.50
Rail on same		
based on \$90 value	© 2.00	26.00
Smelting charge	© 10.00	130.00
Cost per ton	© \$7.41	<u>\$556.25</u>
Based on 80% saving of 20:00 ore and 85% return on \$92.30 concentrates the yield of 13 tons will be		1140.00
		<u>556.25</u>
Profit on 75 tons @ \$9.11		<u>683.85</u> \$683.85

On a cost of \$7.41 per ton and 80% yield it takes an average \$9.26 ore to keep even.

Summary 90 tons output at \$12.97 profit - \$1167.50

Taking the lowest presumable figure of 8000 tons, (leaving the 3000 to 4000 tons on dumps as a factor of safety,) and the writers average of \$30.93 on 51 cut samples, reducing this even to the profit of \$12.93 per ton, we have a calculated profit of \$103,760.00 which though not proven seems safely presumable.

More ore must be developed, and that already "presumed" must be proven, before any mill construction is contemplated. At least 50,000 tons should be assured, so as to keep a mill in steady operation. Dependent upon good fortune or bad, from \$50,000 to \$100,000 will be needed for this purpose.

Fuel and Water and Millsite. *WJ*

Ample water is present on the Ni Wot mill site for all contemplated operations. Considerable wood is also available in the district and would cost about \$3.50 per cord delivered. At a later date the use of oil either at the mine or at a power station on the railroad should be considered. The millsite is all that could be desired.

Other property.

The extension of the Davis lodes to the northeast brings into line some desirable ground which offers good opportunity to work the east end of the ground from other tunnel sites. It is stated that three claims or extensions can be gotten from \$7,000 to \$10,000 and if this be the case, purchasers of the Davis should include the ground. It is also an open question as to

whether the "Dunkirk" ground should not be taken in, if a long band on reasonable terms could be obtained. This would give the purchasers a large mineralized area, workable through No. 1 tunnel on its deep levels and additional openings now showing excellent ore in the initial stages.

Conclusions

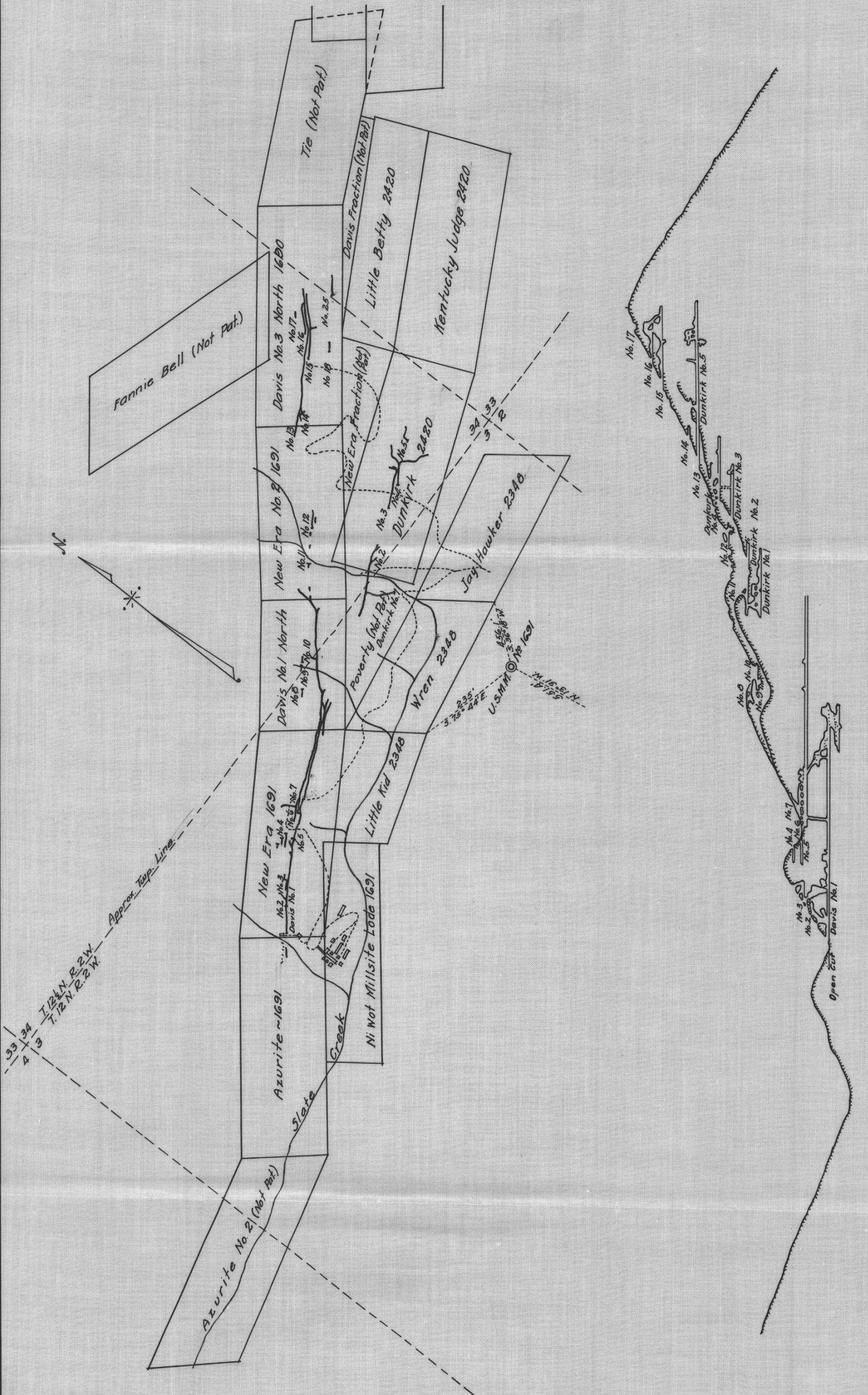
With the above data, the writer felt warranted in advising purchases speculatively inclined and able to expend from \$200,000 to \$250,000 on purchase and equipment of a property, to purchase the Davis at \$100,000 in four months instead of \$175,000 in deferred payments. It should be borne in mind that purchase and equipment are not now net in sight, but that there is a probability that the price can be put net in sight including development fund and equipment with a reasonable amount of intelligent development. The writer most strongly recommends the installation of an assay office and daily data on the work if for no other reason to check up the above data and make any doubt, which is now unavoidable, into a certainty. The ground should be blocked out by upraises at frequent intervals.

Submitted,

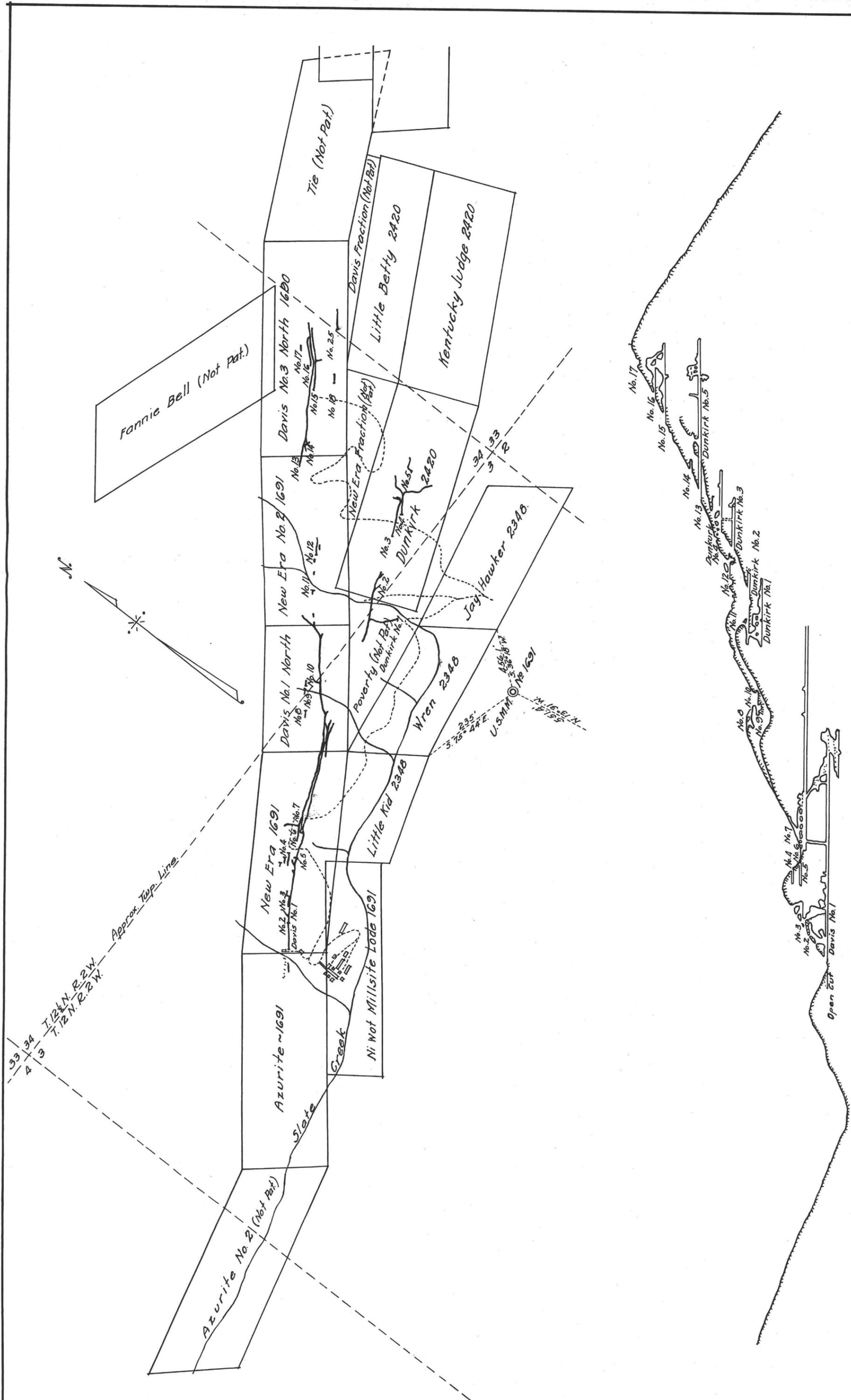
N. N. Dickman

Chicago, Ills.

August 4, 1906.



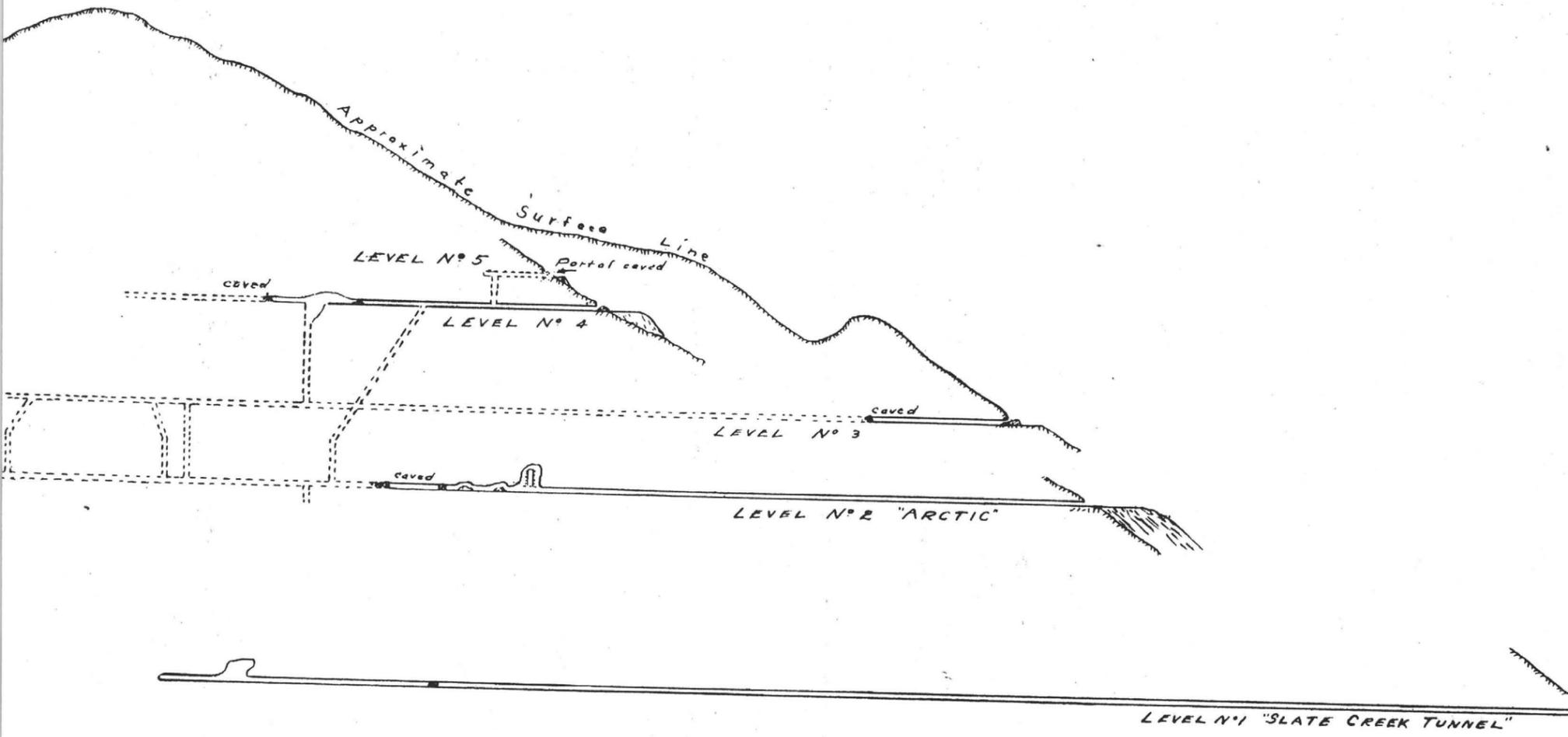
DAVIS-DUNKIRK MINE
Scale 1" = 600'



DAVIS-DUNKIRK MINE
Scale 1" = 600'

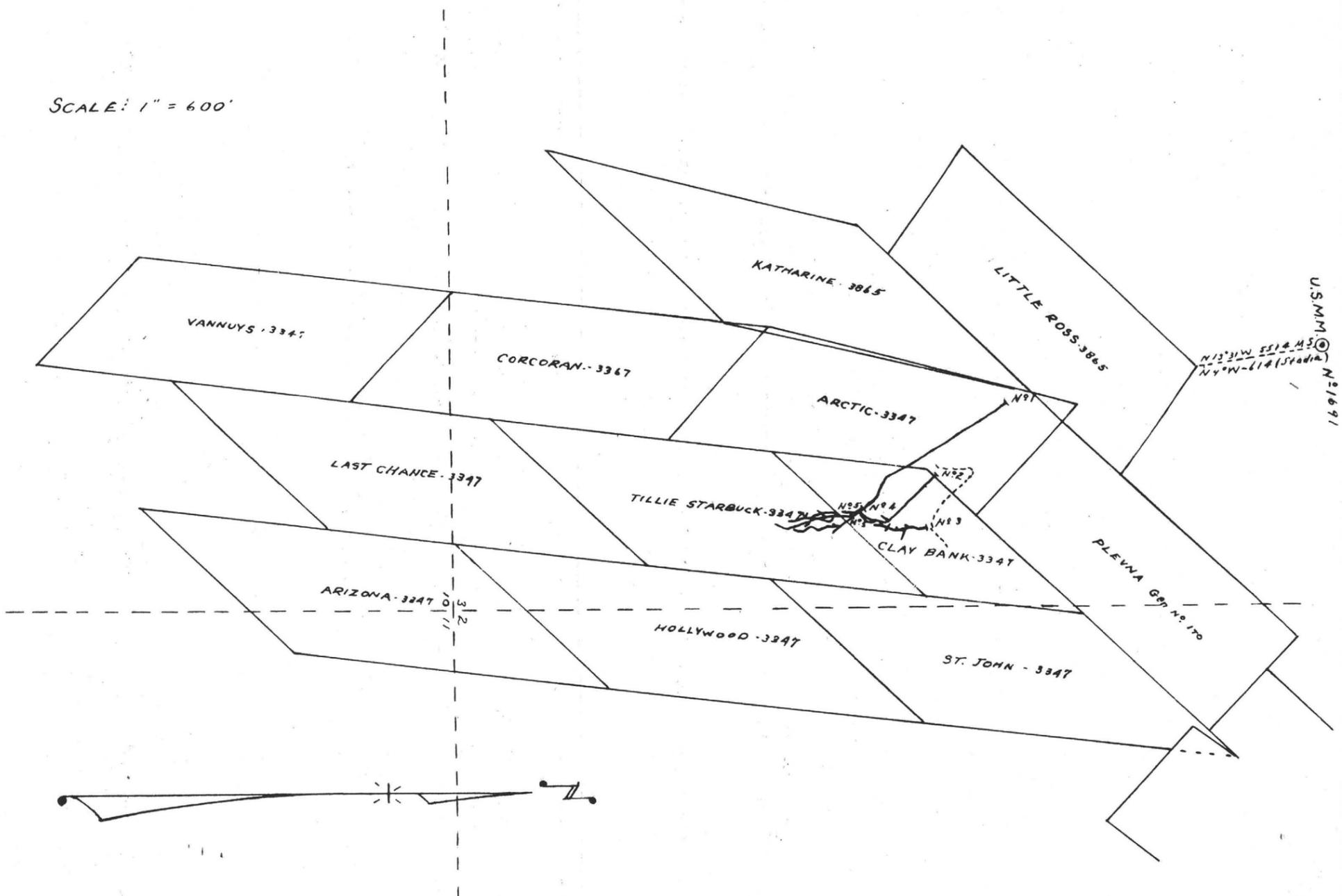
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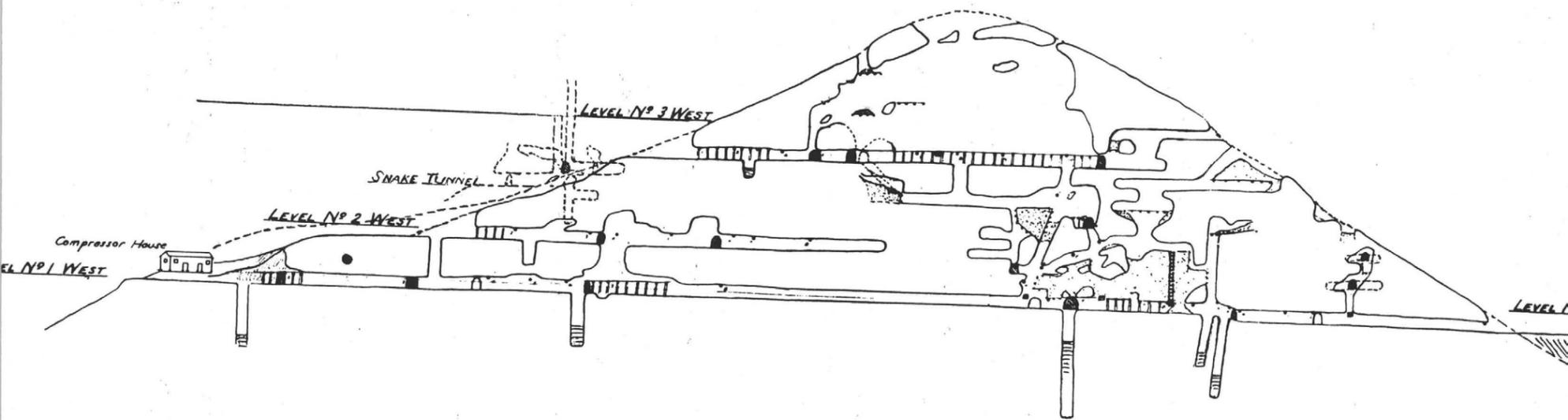
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TILLIE STARBUCK MINE

SCALE: 1" = 600'



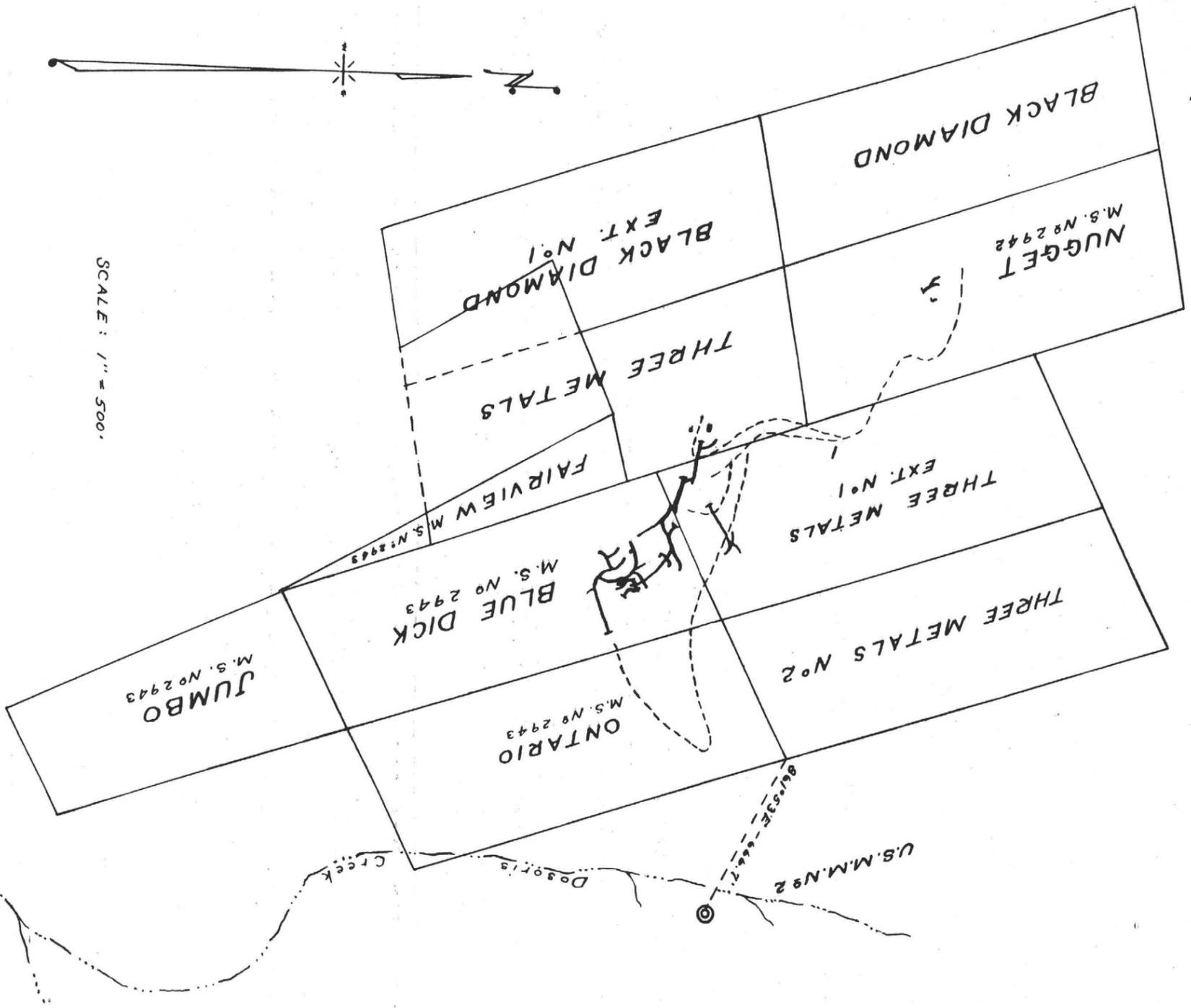


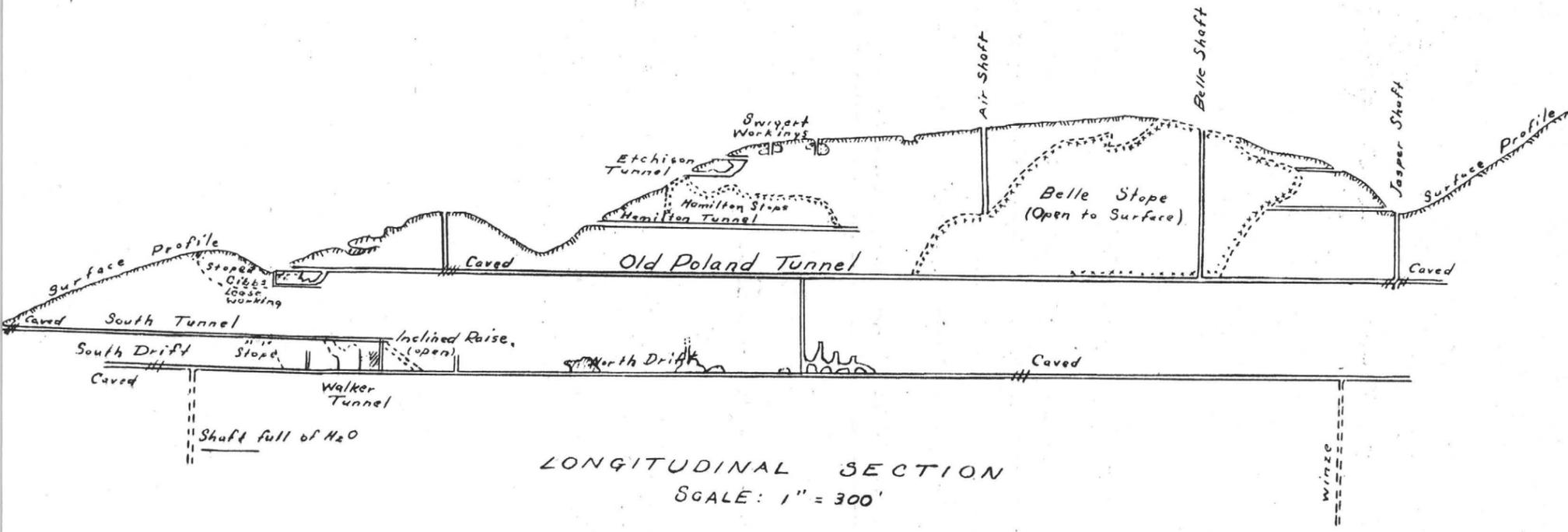
BLUE DICK — BLACK DIAMOND



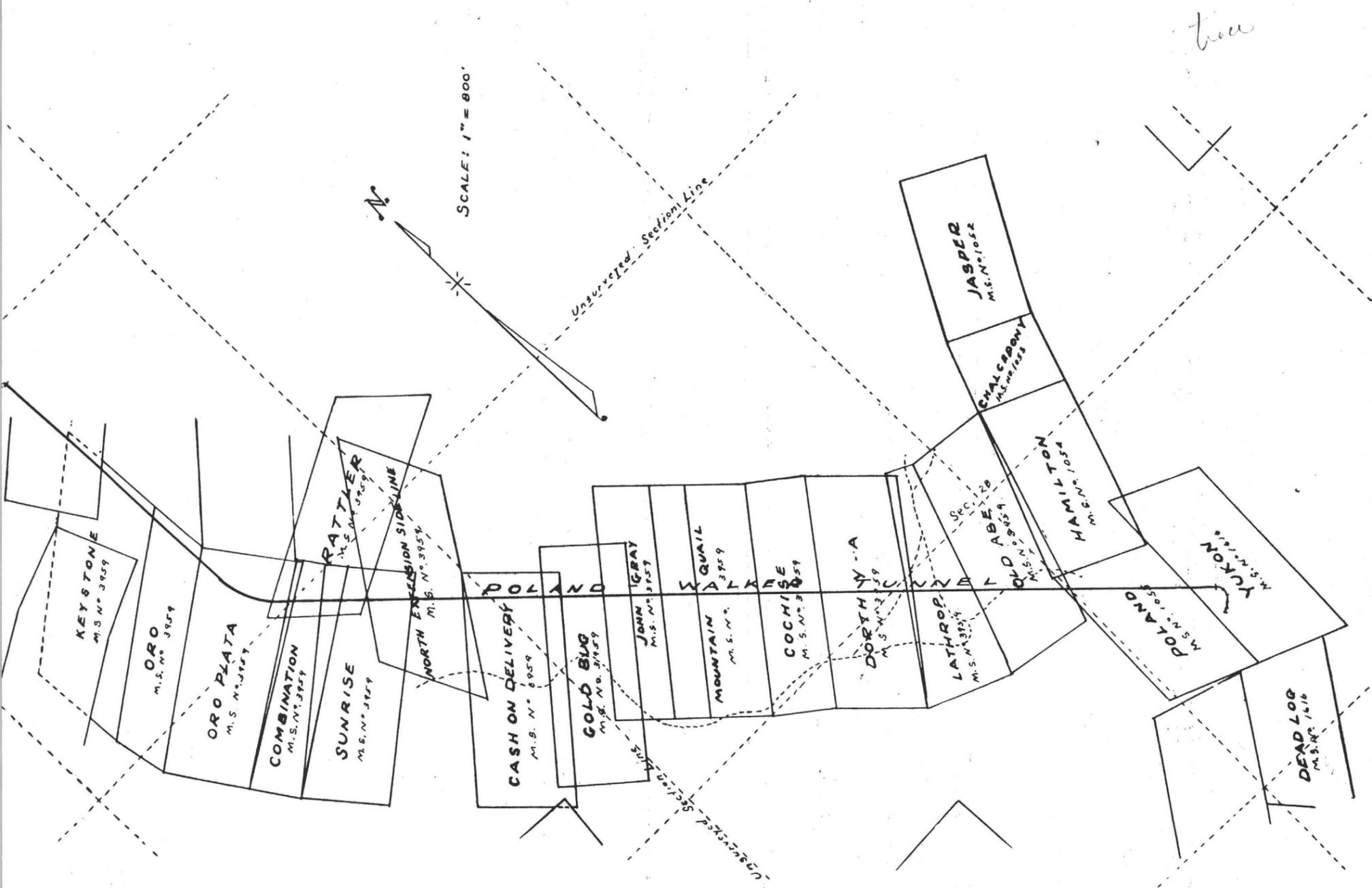
SCALE : 1" = 500'

BLUE DICK — BLACK DIAMOND





POLAND MINE



POLAND PROPERTY

5.75
13.75

BRADSHAW MINES, INC.



This booklet contains a brief description of the properties now being operated, together with claim maps and pictures of the properties in the various stages of development. This booklet is not to be construed as an offer to dispose of stock of this Company, or to solicit an offer to buy stock of this Company. In connection with any such offer to dispose of stock or to solicit an offer to buy stock, this booklet may be used by underwriters and dealers only if accompanied or preceded by a prospectus. The offer is made only by the prospectus, copies of which may be obtained at the office of

ALEXANDER, McARTHUR & Co.
922 BALTIMORE AVENUE, KANSAS CITY, MISSOURI

JULY 23, 1936
PRINTED IN U. S. A.

Handwritten notes:
Also dated
Credited by
the Prospectus



VIEW OF DAVIS-DUNKIRK PROPERTY SHOWING
FLOTATION MILL, CAMP SITE, AND ENTRANCE TO
MAIN TUNNEL ON MILL LEVEL

Davis-Dunkirk Mines, Inc.

This property, comprising 23 mining claims including a mill site and certain water rights, is operated under the provisions of a lease expiring May 17, 1945, but can be extended by 10 year periods up to May 17, 1985 at the option of Bradshaw Mines, Inc. Under the terms of the lease, the lessee may operate the mines and the mill located on the property and from the proceeds of the sale of ore and concentrates may recover operating costs plus 75 cents per ton for mining and plus a like amount for milling. Any balance remaining is, after deduction of interest at the rate of 6% for any advances made by the lessee, to be applied first to the repayment of advances and then to the liquidation of certain specified indebtedness of the lessor to various persons and firms, the schedule of which as it appears in the lease, totals \$34,037.43. At such time as the lessor's specified indebtedness has been paid in this manner, the permission to mine ores may be revoked at the option of the lessor without, however, revoking the right to mill the ore. The lease provides that the mill may also be operated by the lessee as a custom mill. Davis-Dunkirk Mines, Inc. has outstanding 500,000 shares of Common Stock and \$256,000 par value of Preferred Stock of which Bradshaw Mines, Inc. owns 20,000 shares of Common Stock and \$176,700 par value of Preferred Stock.

(This summary does not set forth all of the terms or provisions of the lease. For such provisions you are referred to exhibits filed with the Registration Statement).

The Davis-Dunkirk Mines are located about 14 miles south of Prescott in the Hassayampa Mining District, Yavapai County, Arizona, in Sections 34 and 35, T12½ N, R 2 W and Section 3 and 4, T12 N, R 2 W. The property includes a group of nine patented and 14 unpatented claims located in a general northeasterly and southwesterly direction along the strike of the Davis-Dunkirk vein system at an elevation between 6,400' and 7,000' above sea level, and a 75 ton mill.

These veins were located in the early sixties of the past century and have been worked intermittently by various parties until 1925 when the Davis-Dunkirk Mines, Inc. took over the entire property.

The Davis-Dunkirk vein occupies a strong fault fissure, striking northeastward with a nearly vertical dip to the southeast, in a country rock of hard medium grained diorite. The main vein is distinctly of the deep-

seated type with a filling for the most part a coarse-grained, grayish white quartz with abundant pyrite and chalcopyrite. At about the middle of the property the vein sends off a branch on a more northerly course into the diorite footwall. This branch, known as the Davis vein, is considered by Lindgren of the shallow-seated type. The management, judging from the respective dips of the two members as so far developed, believe it is reasonable to suppose that they converge at depth with probable concentration of values.

The ore in both veins occurs in lenticular bodies somewhat irregular in form and distribution along the veins which vary in width from a few inches to over four feet; the ore, as shown by 1,076 assays made by the Company of samples taken indiscriminately from various parts of the mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$13.45 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$13.45 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. From these assays and from results obtained by milling ore taken from various portions of the mine and from knowledge gained from extensive development work to date, it is the opinion of the management that a large scale operation of this property is justified.

The claims cover about 13,000 feet on the veins and reference to the longitudinal section shows the various openings tapping the vein. According to the reports and records of former owners the workings consist of a total of 7,660' of drifts, 1,655' of cross-cut, and about 1,500' of raises and winzes. This gives a total of 10,815' of development work to date, of which 90.8% is accessible. No. 1 tunnel, the lowest main haulage level, opens the vein for a distance of 2,000 feet from the portal giving 460' depth on the Dunkirk vein at this point. A winze below No. 1, from which 135' drifts were run both ways along the vein, gives 82' additional depth. This No. 1 tunnel is a vital part of the mine at present. The next 500' of drifting will open up a hitherto untouched block of ground with an average depth of 500' from surface. Aside from its development value, this tunnel delivers ore directly to the mill at its portal, and by suitable connections with above workings may serve as a main haulage tunnel for the entire mine.

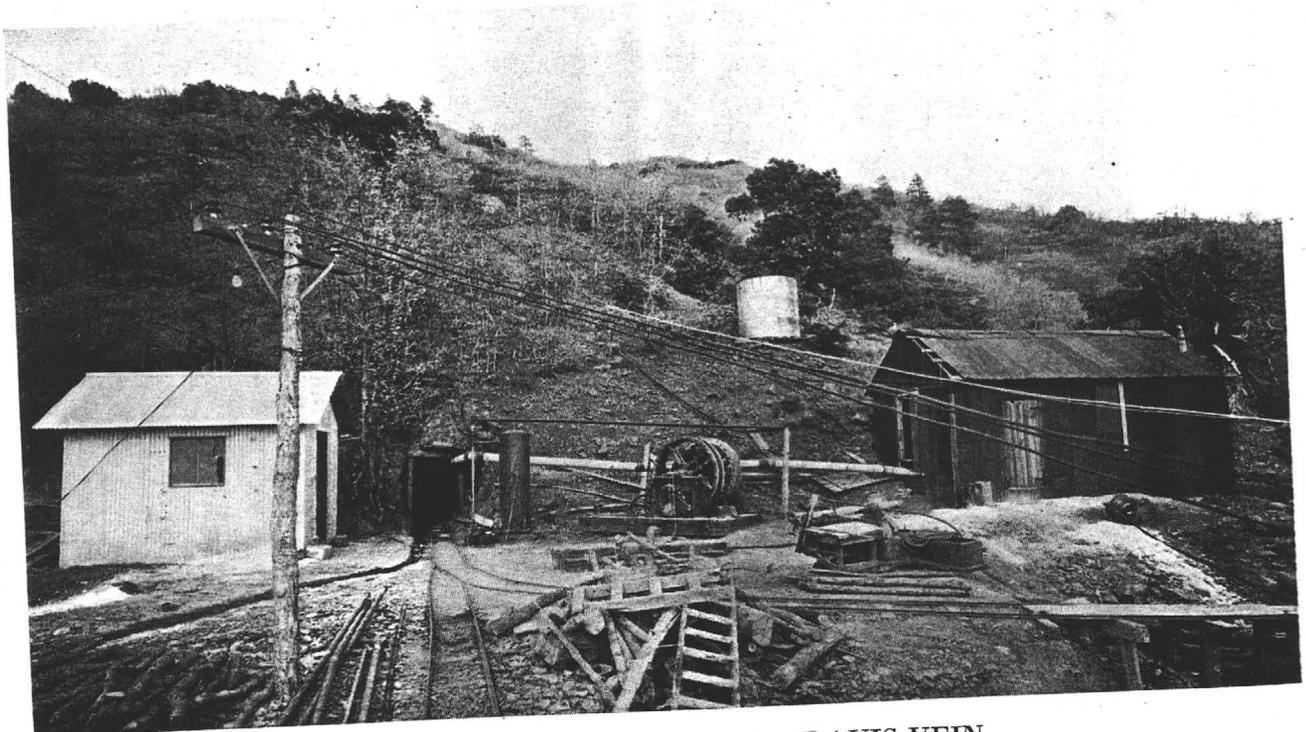
No. 1 tunnel is now being driven ahead with a very favorable showing of ore in the face. The last 90 feet of drifting has been in an ore shoot with the vein averaging four feet in width and running an average of \$20.00 per ton according to Company assays. This recent development on the Dunkirk vein is a strong argument in favor of opening the same block of ground in No. 6 above, which is being planned at present. Nos. 2, 3, 4 and 5 are shallow adits and the development work has been of little importance. No. 6, 160' above No. 1 is connected with No. 1 by an incline shaft or winze which is now serving as a manway and ore pass to the main haulage tunnel. This shaft and the portal of No. 6 are readily accessible from the main haulage road between the mill and the Senator Highway. No. 6 follows the Davis-Dunkirk veins to a point about 500 feet from the portal. Here the Davis vein diverges northerly and the drift follows the Dunkirk alone for about 380'; then, leaving the Dunkirk it cuts north about 80' to strike the Davis vein which it follows for about 450 feet.

Davis No. 8, No. 9 and No. 10 are surface workings on the Davis vein and of importance only as indications of ore to be developed 320' below in No. 6 and 480' below in No. 1. An ore shoot in No. 9 showed an average width of a little over one foot with a value of approximately \$30.00 per ton according to Company assays, and was mined from a fifteen foot winze only to prove its persistence. Davis No. 11 and No. 12 are old shallow workings, for the most part inaccessible. Here the Davis vein splits into two members; on the more southerly branch are Davis No. 1 and No. 2 South—also very old surface workings from which some high grade oxidized ore was taken in the early days. On the northerly branch are located Davis No. 13, No. 14, No. 15, No. 16 and No. 17. Of these, No. 13 is of most importance as regards future development of commercial ore. This tunnel opens the vein for a distance of 1,080' from the portal and its face is only 120' from the cross vein which has been mined from No. 15 and No. 16 above, where the junction of the two veins produced some very high grade ore carrying magascopic free gold on which one assay made by the Company ran over \$86,000 per ton; (this and other extremely high assays but no low assays were eliminated in computing the average of 1,076 assays mentioned above) and from which area one ton of ore was shipped by Bradshaw Mines, Inc. that yielded smelter returns of over \$2,500. A 50' winze 810' from the portal opens an ore shoot averaging one foot in width and averaging about \$20.00 per ton according to Company assays. This same ore shoot is being stoped overhead for a distance of 160' beyond the winze at a height of about 80' above the track. The ore here averages over two feet in width and truck samples as hauled to the mill have run consistently between \$15.00 and \$20.00 per ton according to assays made by the Company. It is planned to open this Block through to No. 15, lying 230' above, from which a considerable block of ore has been mined in what was probably the same ore shoot now being worked in No. 13.

On the Dunkirk vein, a block some 500' in length and about the same in depth, remains to be developed from No. 1 and No. 6. The next available data on this vein is given by Dunkirk No. 1 (Poverty) which is opened by a cross-cut tunnel, (450' above No. 1) driven northwesterly from the haulage road to strike the vein



COMPRESSOR, CHANGE ROOM, AND ENTRANCE
POVERTY TUNNEL DAVIS-DUNKIRK MINE



ENTRANCE NO. 13 TUNNEL—DAVIS VEIN

Tillie Starbuck Mine

This property comprising 12 mining claims including a millsite and certain water rights is held under a lease purchase option granted by Tillie Starbuck Mines Company. The more important provisions are that the purchase price is to be \$140,000 payable in royalties equal to 10% of 7/8ths of the gross value of the metal content of all ores produced from the property; provided, however, that such royalties shall not be less than \$500.00 per month; such minimum to be payable on the 15th day of each month for the preceding calendar month, the first payment being due August 15, 1936.

A 17/100th interest in the original lease option was assigned to Jeanette O. G. Stowell but has since been repurchased under a contract of assignment which provides that the purchase price shall be \$10,000 payable, in royalties equal to 1% of 7/8ths of the gross value of the metal content of all ores produced from the property, on the 15th day of each month for the preceding calendar month or at the option of the seller within a period of six months from June, 1936 she may elect to accept 10,000 shares of Common Stock of the Bradshaw Mines, Inc. less shares at the value of \$1.00 per share for all amounts already paid, on the purchase price, in royalties.

(This summary does not attempt to set forth all of the terms or provisions of the lease purchase option. For such provision you are referred to exhibits filed with the Registration Statement).

The Tillie Starbuck Mine is located near the head of Slate Creek Canyon a little over half a mile southeast of the Davis-Dunkirk mill. It is reached by a fair mountain road from the main haulage road to the Davis-Dunkirk. The property includes a group of twelve patented lode mining claims which cover the vein for about a mile along its strike.

The property was owned by Major A. J. Pickerell, who formed a corporation and proceeded to develop the mine by four main cross-cut tunnels and drifts along the vein. His object was the complete development of the mine and there was no ore extracted other than that removed in drifting along the vein. At the time of his death he was running a long cross-cut tunnel to tap the vein 285' below the lowest workings at that time. Under the present management this tunnel was completed in 1935.

The geology of the mine is well described by Lindgren, as follows: "The country rock of Yavapai schist intruded by dikes of light colored rhyolite-porphry." The footwall is said to be followed by a dike of rhyolite 10 feet wide. The strike of the vein is N 10° W., the dip 80° east, and the width two to seventeen feet. The outcrop is persistent on the high ridge to the south, where the ore is largely oxidized. There are three ore shoots with backs of about 700 feet above the lowest tunnel level. (No. 2 level).

The ore as shown by 74 assays made by the Company of samples taken indiscriminately from various parts of the mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$5.56 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$5.56 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. The ore is rather fine grained, is milky with many small druses, and includes numerous sericitized rock fragments. Larger cavities are coated with a later dolomitic or ankeritic carbonate in small rhombohedrons. The ore minerals are sparse pyrite and sphalerite in small grains and in places specks of pyrargyrite, which appears to be of hypogene origin.

The vein occupies a strong fault-fissure, along which there has been some post mineral movement as indicated by the fractured nature of the ore and the presence of thick clayey gouge on the walls. The ore occurs in lenticular masses irregularly distributed along the vein, and calls for large tonnage operation as extraction is comparatively cheap.

The vein is opened on five levels and according to records of Major Pickerell's operation, total workings amounted to 7,439'—61.8% being accessible at the present time. The lowest, No. 1, is a cross-cut, striking the vein about 1,860' from the portal and again about 2,217' from the portal. From this point the vein is followed by a drift 219' to the face. The ore here is 4' to 8' in width (a Company assay at this face showed \$10.00 per ton values) and has been stoped for about 30' in length and about 30' above the drift floor. The block between this stope and the first intersection with the vein has been explored by, a 30' cross-cut and 20' of drifting on the vein. This level has not been driven in to the best part of the vein as encountered in the levels above. Number 2 level, 285' above, is also a cross-cut, striking the vein 894' from the portal and following the vein about 475'.

This level is open to 1,073' from the portal and the remainder is now being re-opened. Old reports indicating the presence of high values in those ore shoots cut by this level can soon be checked by present operators. No. 3 level, 122' higher is open about 214' from the portal, leaving 1,500' inaccessible. This level can be opened from No. 2 with which it is connected by four raises, to be explored as soon as No. 2 is open. Number 4 level, lying 146' above No. 3 is open 475' from the portal and shows about 80' of ore in the back averaging 4' in width (a Company assay at this face showed \$10.00 per ton values). Number 5 level, about 43' above No. 4 is now caved and inaccessible.

All records and assay data given by old reports show the best ore shoots yet to be opened in levels No. 2 and No. 3 and proof of those values will soon be available. Should the ore in these caved portions prove good values, these ore shoots can then be opened by driving No. 1 level below. An organized mining program by which all faces can be worked simultaneously will allow sufficient tonnage of ore to warrant the construction of a suitable tramway to the Davis-Dunkirk mill prior to the construction of a mill on this property. A half mile aerial tram from the portal of No. 1 tunnel can be installed complete for approximately \$5,000, which will transport ore to the mill at low cost, estimated to be less than 10 cents per ton.

The mine is equipped with track, cars, air and water pipe lines and ventilating blowers in levels No. 1 and No. 2. Power has been provided by the 400 foot air compressor at the Davis-Dunkirk mill and adequate water is supplied by drainage of the cross-cut tunnels. A good haulage provides access to the portal of level No. 2.

The future exploitation of this property will depend on the results of present reconditioning operations. Careful mining methods, large tonnage production of low grade ore and cheap haulage are the important factors for profitable operation.



ARCTIC TUNNEL—TILLIE STARBUCK

Black Diamond and Blue Dick Mines

The Black Diamond Mine is owned in fee by Bradshaw Mines, Inc. and comprises a group of five unpatented claims.

The Blue Dick property is held under a lease purchase option agreement granted by Thomas H. Bushnell. Consists of five patented claims in Yavapai County. Purchase price \$30,000 with 6% interest. \$1,500 principal has been paid, balance payable \$3,500 on October 15, 1936 and \$5,000 on October 15 each year thereafter for five years. Also provides for a 10% royalty which applies on purchase price and the royalty terminates when all of the purchase price has been paid.

(This summary does not attempt to set forth all of the terms or provisions of the lease purchase option. For such provisions you are referred to the exhibits filed with the Registration Statement).

The Black Diamond and Blue Dick Mines which adjoin and are now connected are located about 15 miles south of Prescott on a narrow ridge separating the Slate Creek drainage system from that of the main Hassayampa. By airline these properties are two miles from the Davis-Dunkirk mill.

These mines, which have 3,764' of development work, 98.9% accessible in good working order, are very old properties, worked in the early days for the high grade ores in the oxidized portions of the vein.

The geology of the property has been variously interpreted by different engineers, due probably to the badly distorted condition of the ridge as a whole with heavy mineralization over a considerable area. The country has suffered both vertical and horizontal movements which have interrupted the continuity of the vein.

The country rock is a dense, dull greenstone, in places schistose, evidently an amphibolite of the Yavapai schist. The vein occupies a fissure striking generally NW-SE and dipping to the southwest. The ore consists of coarse sulphide aggregates (pyrite, arsenopyrite, sphalerite, galena and chalcopyrite) in a gangue of massive white quartz. The values are not consistent, indicating mineralization at different dates and necessitating a constant check on the gold and silver content of the ore as mined. The ore in general is in veins from 1' to 8' in width. The ore as shown by 303 assays made by the Company of samples taken indiscriminately from various parts of the Blue Dick Mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$10.96 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$10.96 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. The ore as shown by 246 assays made by the Company of samples taken indiscriminately from various parts of the Black Diamond Mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$9.93 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$9.93 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. Ore from both properties is readily amenable to flotation concentration as proved in the pilot mill at the Davis-Dunkirk.

The Blue Dick has produced a considerable amount of ore of shipping grade; the quality of ore in the dump verifies smelter shipments of sorted high grade ores. Assays made by the Company of samples taken from the dump have shown values up to \$10.00 per ton. The vein above the present levels in the Blue Dick is nearly mined out, but five winzes have been sunk below the lowest level to a maximum depth of 65' in order to prove continuity of the vein. The faulted condition of the ground hindered the former operators from any successful exploration of the lower reaches of the vein. A strong vein such as this should, however, be located by a minimum of diamond drilling. A continuation of development work on this property appears advisable from results of work carried on to date.

The vein on the Black Diamond (westerly) slope of the ridge is opened by three tunnels driven on the vein at depths of 88', 142' and 174' below the crest. The upper tunnel, (Level No. 3 west) follows the vein for

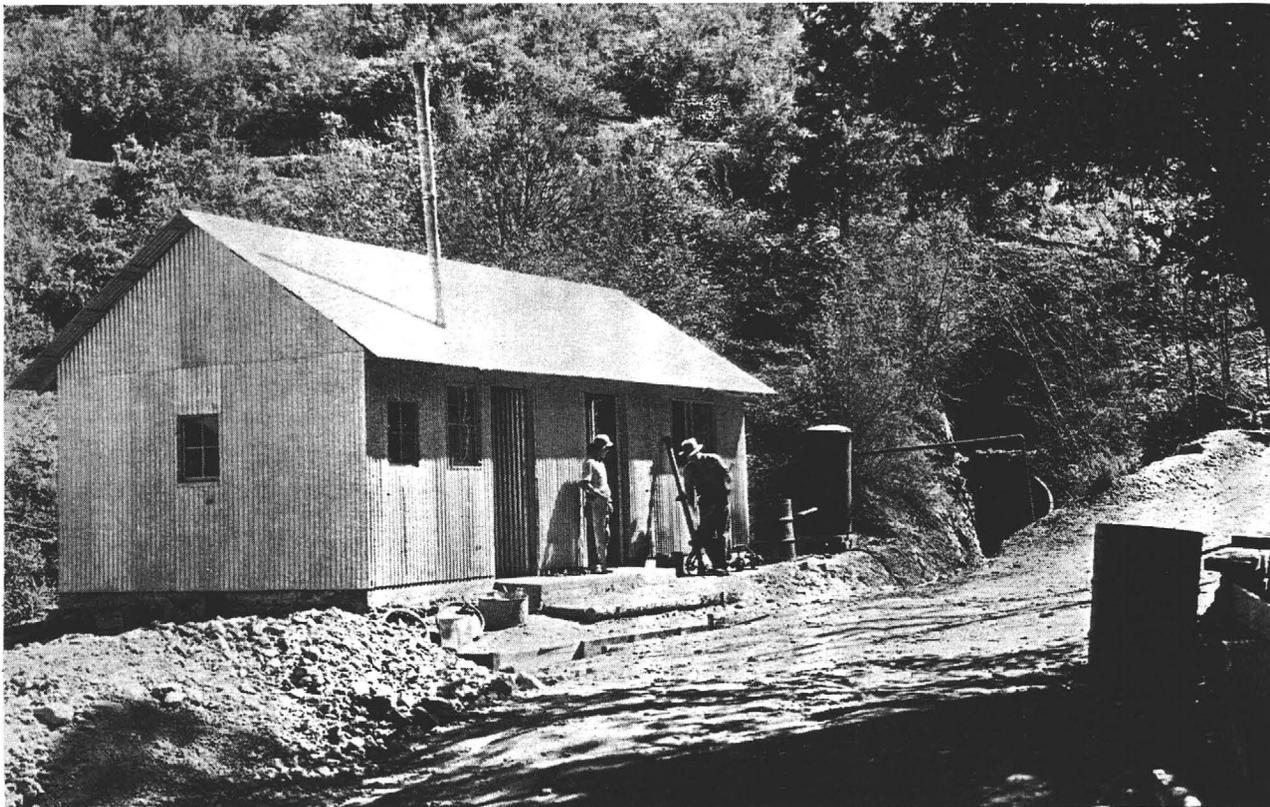
side of the ridge and 20' above. Level No. 2 west follows the vein proper for 155' then bears more southerly for about 100' on a narrow stringer. Number 1 west enters a badly faulted region. A 60' cross-cut to the northwest (near the tunnel portal) strikes a segment of the vein which is followed another 150' until it is again displaced. A cross-cut tunnel has been recently driven to connect with the Blue Dick main level, (No. 1 east) on the other side of the ridge. At present the vein is being worked largely from the Black Diamond side and a winze in the lower tunnel is now being explored for continuation of the vein below. This winze, the deepest point of development in the mine, is in ore 7' wide from which assays have been made by the Company averaging over \$20.00 per ton. The future of the mine depends on continued development below present levels, and such development appears to be justified. Exploratory development work can be most economically accomplished by diamond drilling. About 140' northwest of the portal of level No. 3 west, a 125' cross-cut tunnel opens another displaced segment of the vein on which a raise has been driven to surface, with a winze of unknown depth below it. A little stoping has been done here and some ore is now being removed near the surface.

The main working levels of both mines are equipped with suitable track, tram-cars and pipe lines. A new 300' semi-portable gasoline powered air compressor located on the Black Diamond property serves all drills and pumps. Two new sheet iron bunk houses nearby provides quarters for 16 men.

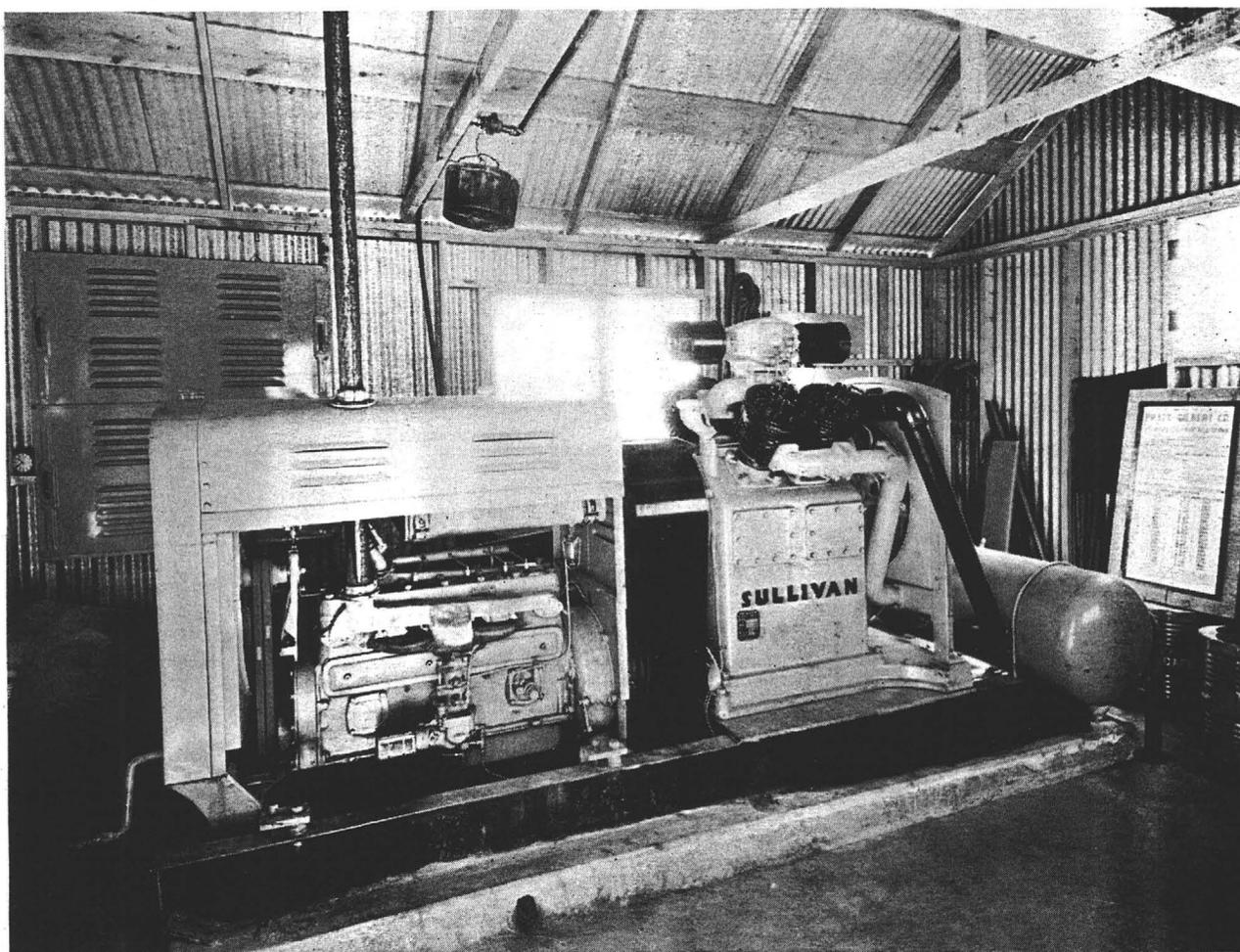
A good haulage road connects the mine with the Groom Creek-White Spar cut-off and affords transportation of ore to the Davis-Dunkirk mill, about 18 miles by road. A more direct road only $3\frac{1}{2}$ miles long should be built in the near future, cutting haulage costs and allowing closer supervision of mining operations. A two-mile aerial tram, which could deliver the ore to the mill for about 10c a ton can be installed complete for approximately \$18,000.



GENERAL VIEW OF BLUE DICK BLACK DIAMOND



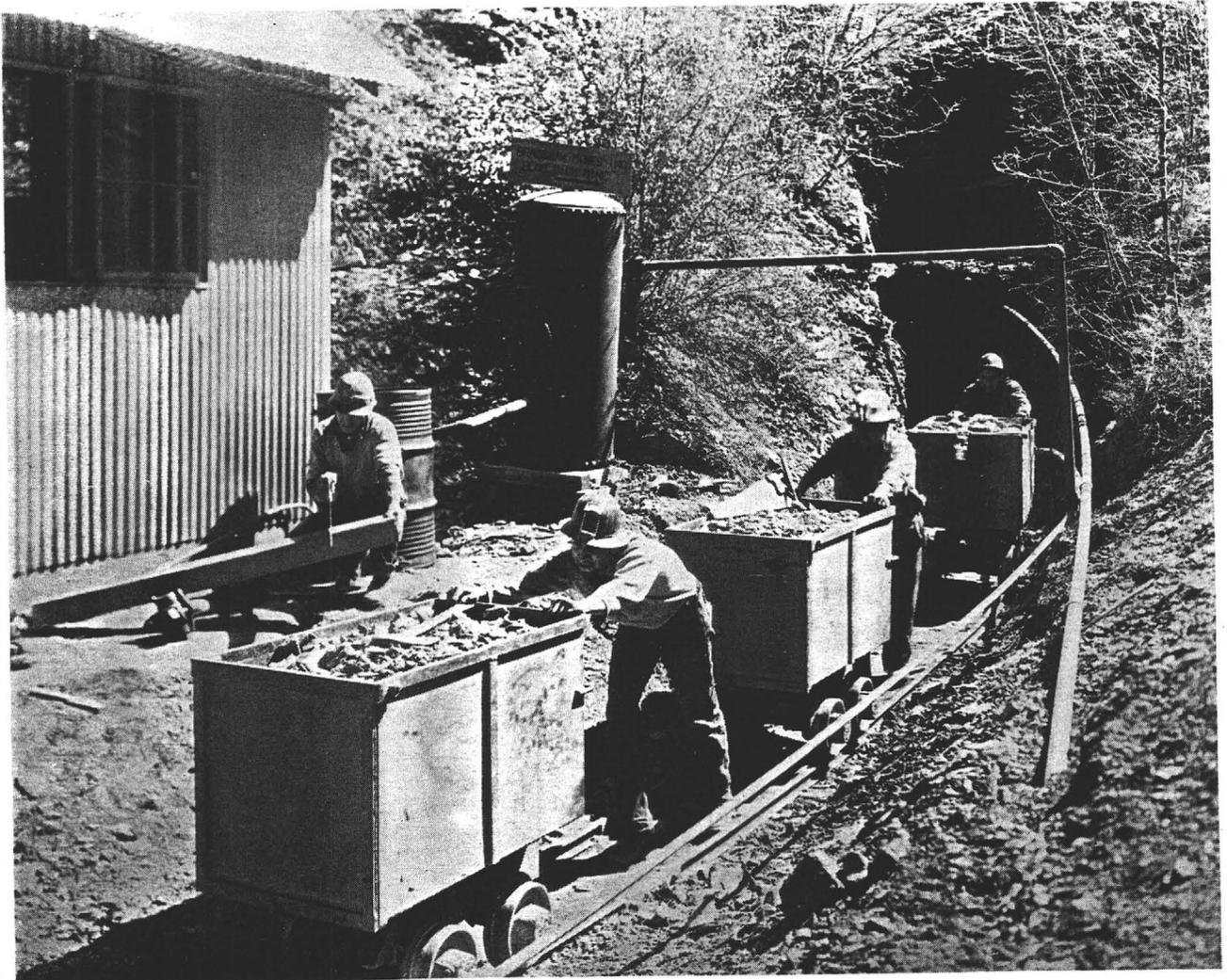
COMPRESSOR ROOM AND NO. 1 TUNNEL—
BLUE DICK-BLACK DIAMOND

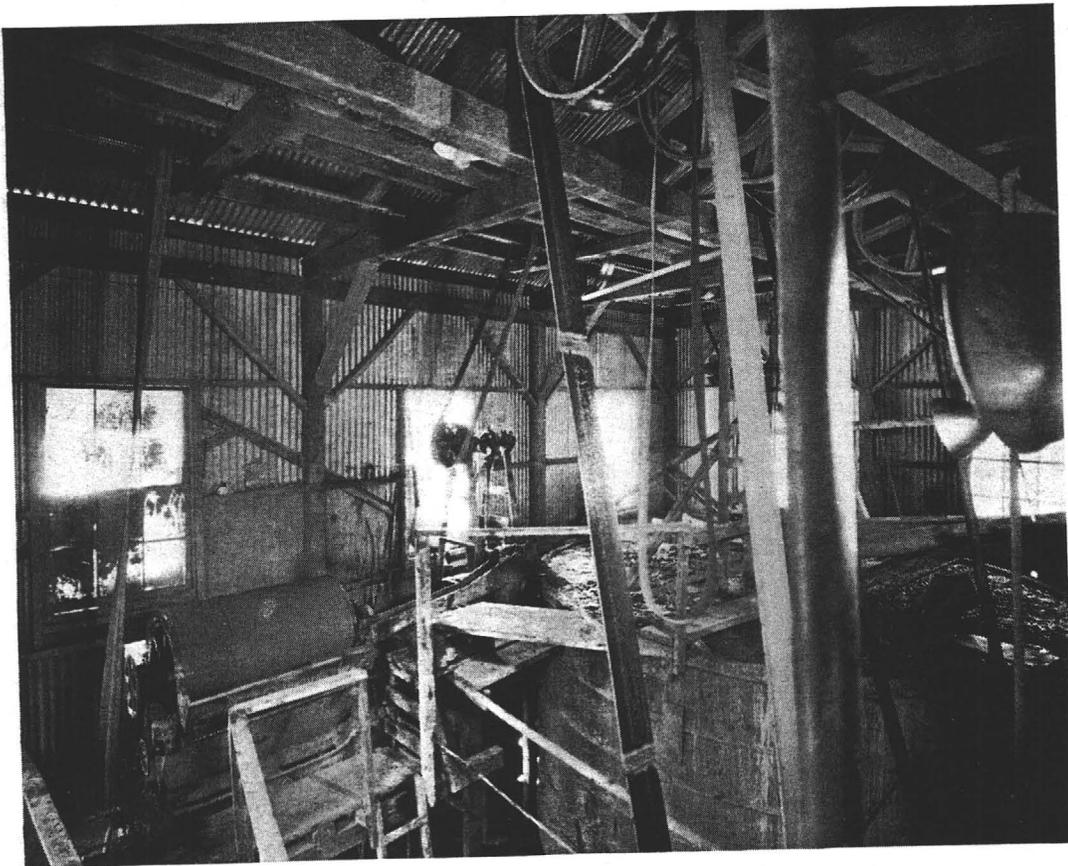


COMPRESSOR—BLACK DIAMOND-BLUE DICK



BLUE DICK DUMP LOOKING TOWARDS DAVIS-
DUNKIRK AND TILLIE STARBUCK

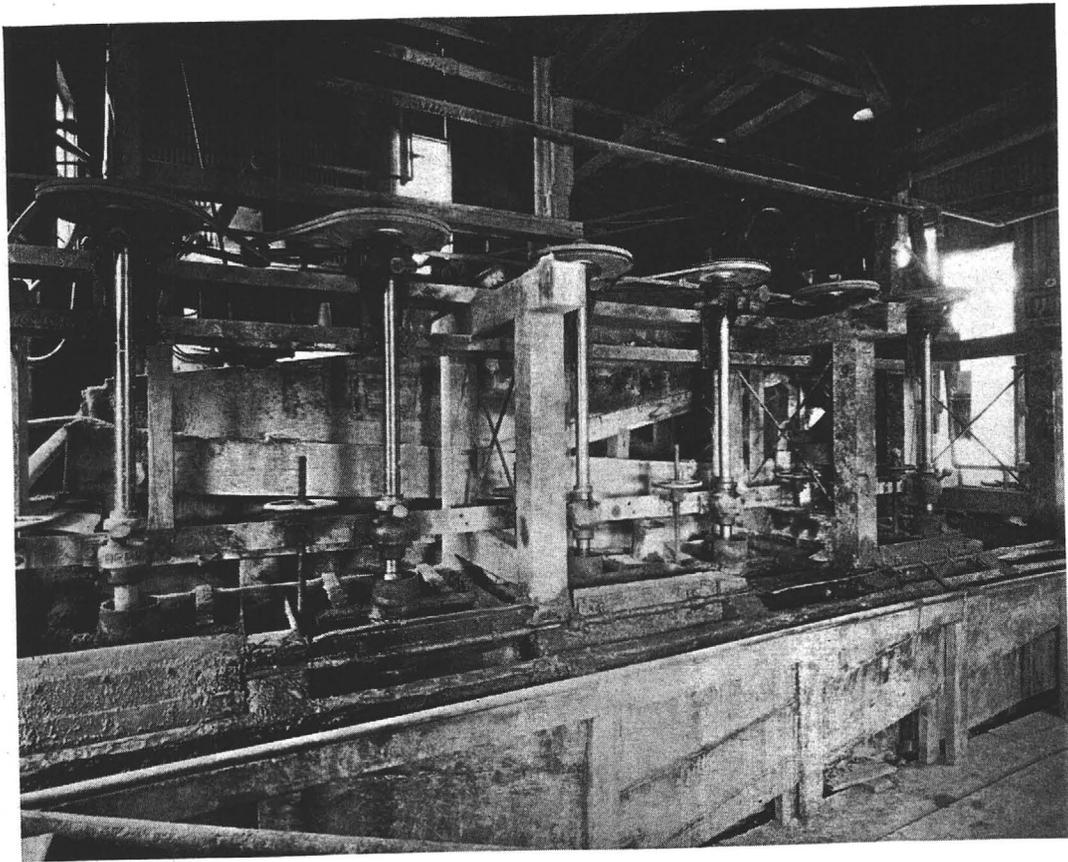




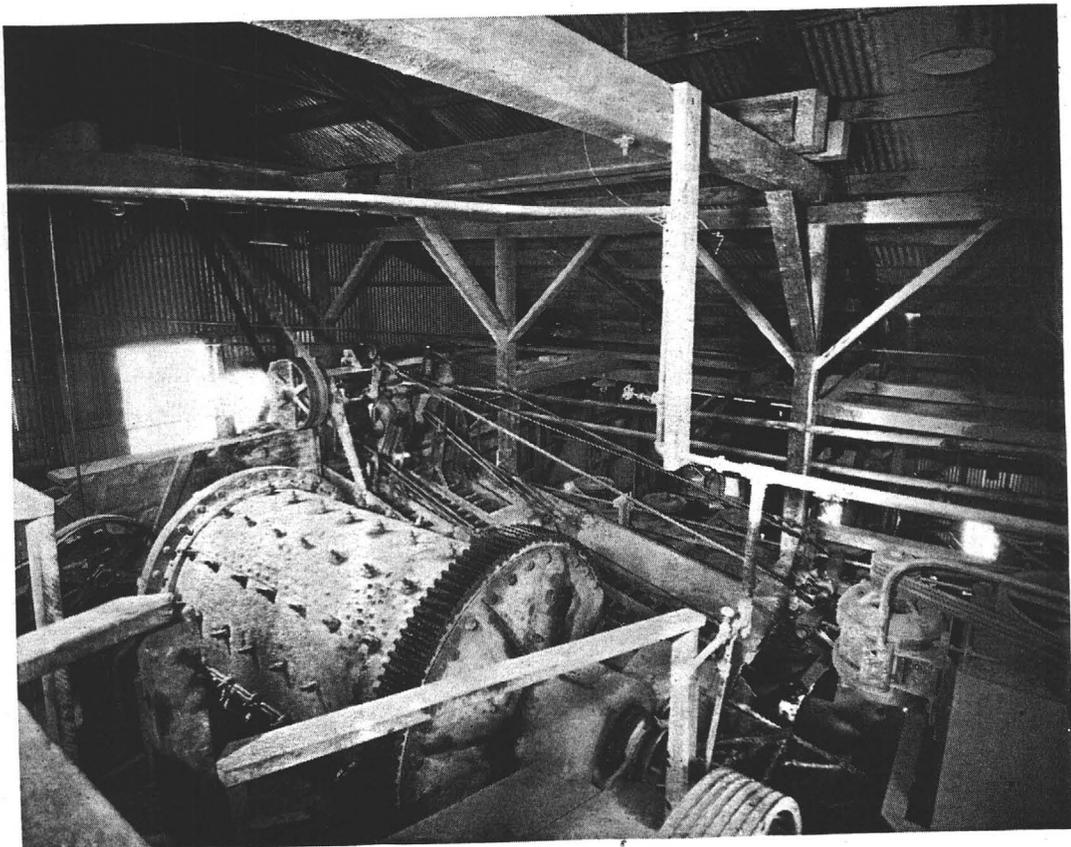
CONCENTRATE THICKENER TANK AND FILTER—
DAVIS-DUNKIRK MINES, INC.



CONCENTRATE FROM PILOT MILL—
DAVIS-DUNKIRK MINES, INC.



FLOTATION COILS IN PRESENT PILOT MILL—
DAVIS-DUNKIRK MINES, INC.



BALL MILL, CLASSIFIER AND UNIT COIL 75 TON
CAPACITY—DAVIS-DUNKIRK MINES, INC.

cut, from which a considerable amount of shipping ore was mined by early owners. To the northeast the Company is now driving in ore about 400' from the cross-cut to develop the ore shoot previously worked from Dunkirk No. 2, No. 3, No. 4 and No. 5 above.

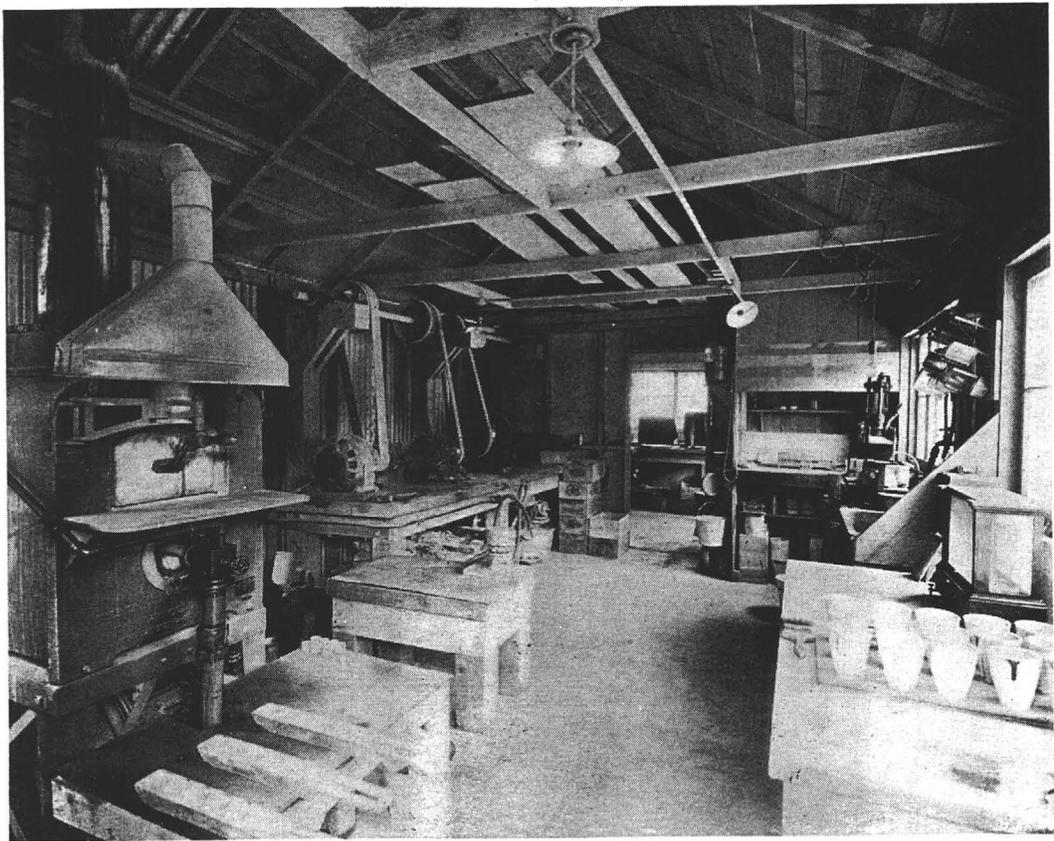
The mine is completely equipped on haulage levels with serviceable track and ore cars and all important levels are readily accessible by good haulage roads to the mill. The winze in No. 1 is equipped with an efficient electric sinking hoist and adequate pumps to facilitate drainage as well as a new air-power ventilating blower with flexible pipe to serve both the winze and the face on the main level. All pneumatic machinery including drills, pumps and blowers are powered by a 400 cubic foot air compressor serving No. 1 and No. 6 and a 300 cubic foot compressor serving Dunkirk No. 1 and Davis No. 13 and No. 15. These compressors are both operated by electric power purchased from the Arizona Power Company. A completely equipped blacksmith shop at the portal of Davis No. 1 houses an Ingersoll-Rand steel sharpener, forge, and all tools necessary to maintenance of underground equipment.

A complete camp situated in the valley below No. 1 provides quarters for 80 men, a well equipped cook shack and mess hall, manager's residence and office, assay laboratory and warehouse. Adequate drinking water is piped from Dunkirk No. 2 and a newly installed septic tank provides for sewage disposal of the entire camp.

The present mill of 75 tons capacity is favorably located in camp and fed by tramway from No. 1 and haulage road from all other workings. The building houses complete milling machinery and flotation concentrator and has been successfully operated as a pilot mill in proving the adaptability of this method of recovery to the Davis-Dunkirk, Tillie Starbuck, Blue Dick and Black Diamond ores. There is an adequate water supply from the mine and from Slate Creek, and ample space for tailings is readily available in the valley below the mill and in a nearby box Canyon.



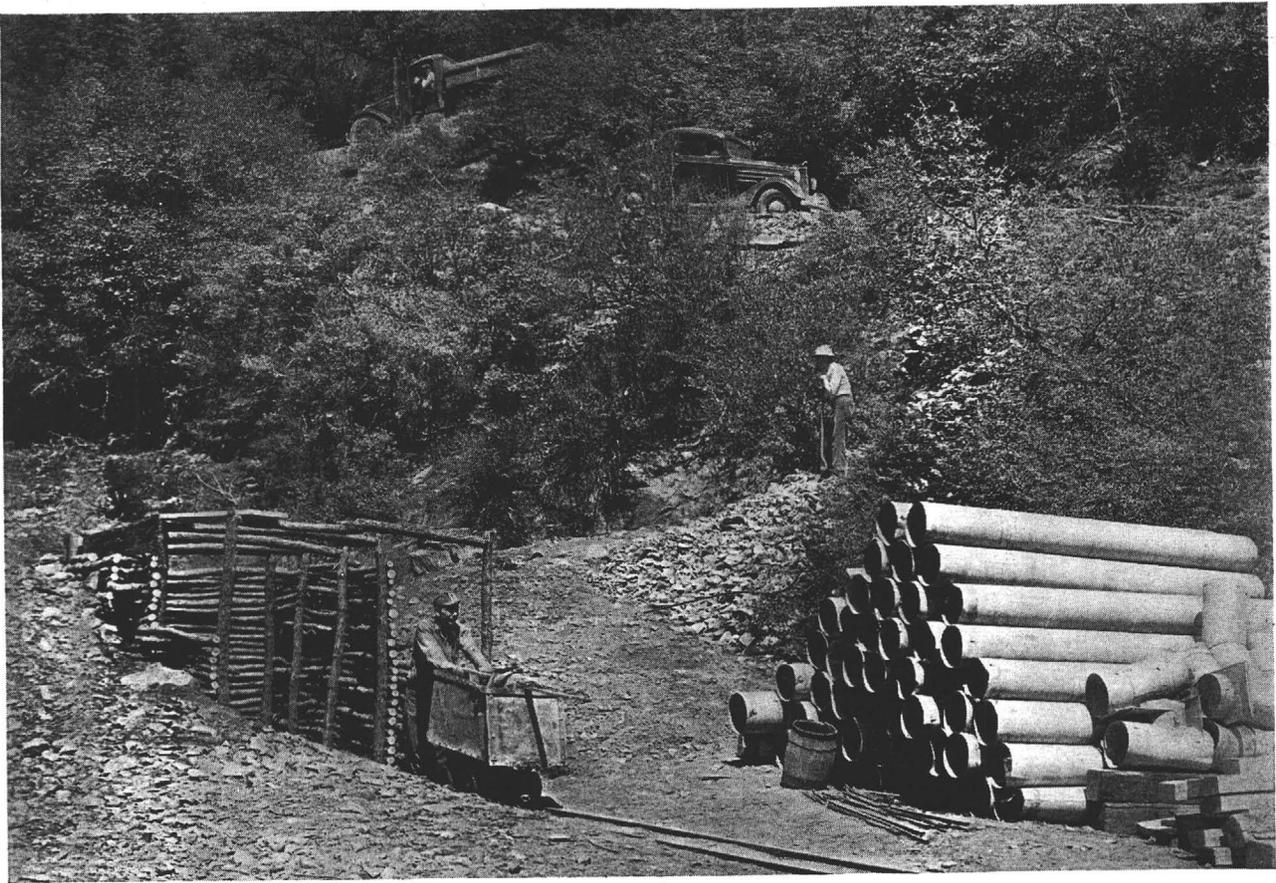
BLACKSMITH SHOP AND CHANGE ROOM AT ENTRANCE OF DAVIS-DUNKIRK MAIN TUNNEL AT MILL LEVEL.



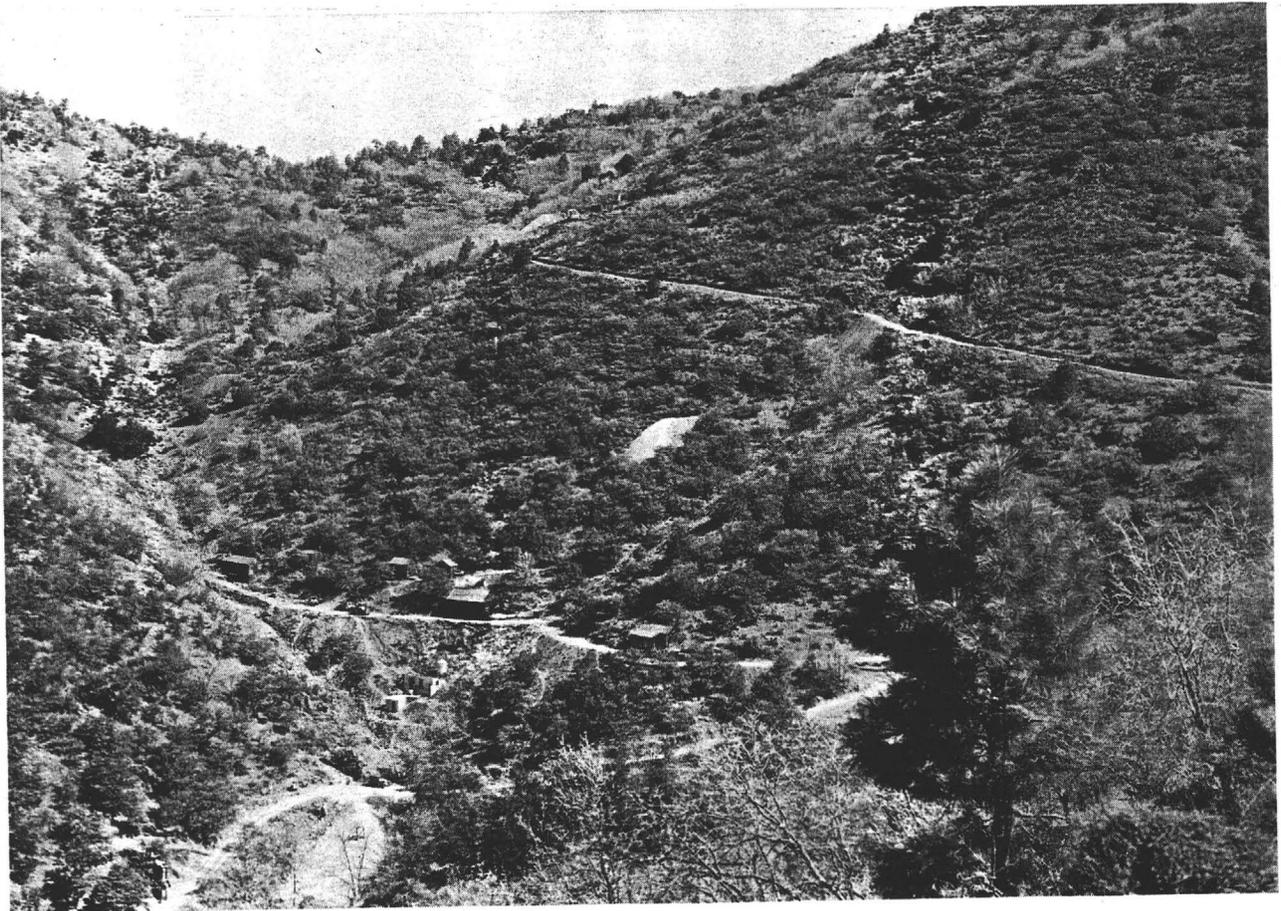
ASSAY OFFICE



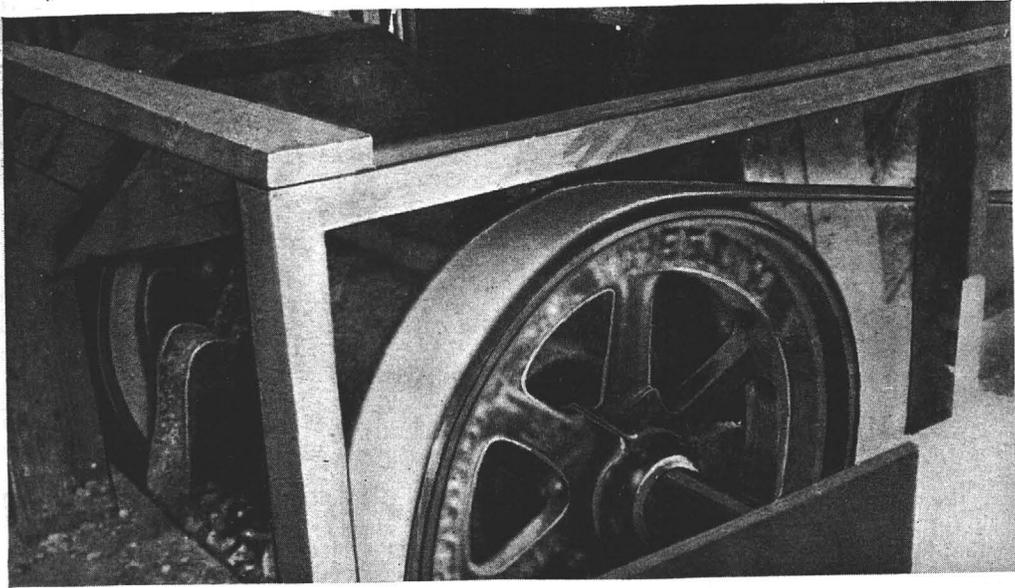
FACE OF DRIFT ON DUNKIRK VEIN
(DUNKIRK NO. 1)



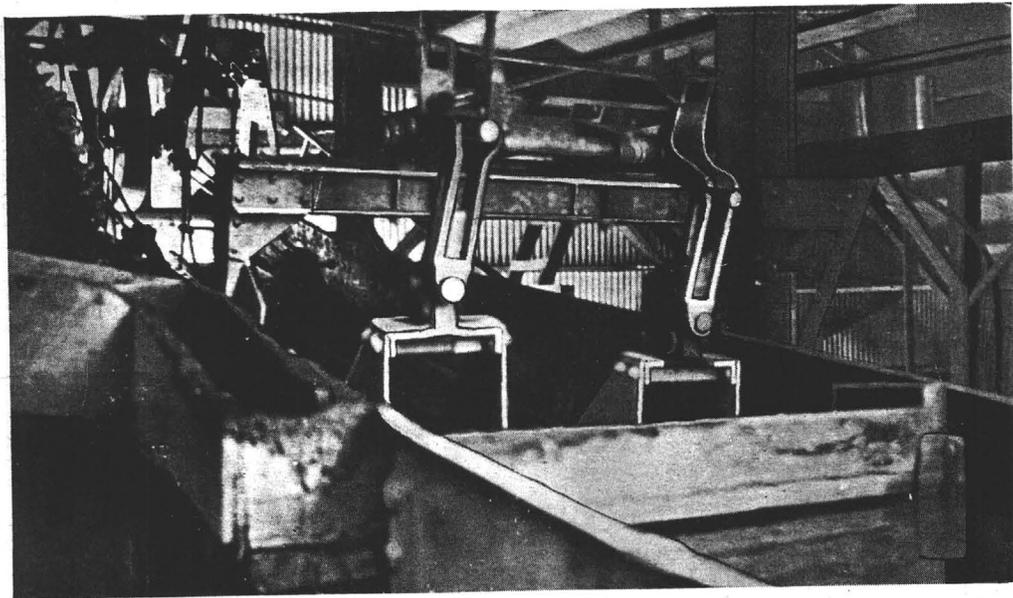
ENTRANCE NO. 6 TUNNEL WHICH MINES ORE
FROM BOTH THE DAVIS VEIN AND THE DUNKIRK
VEIN



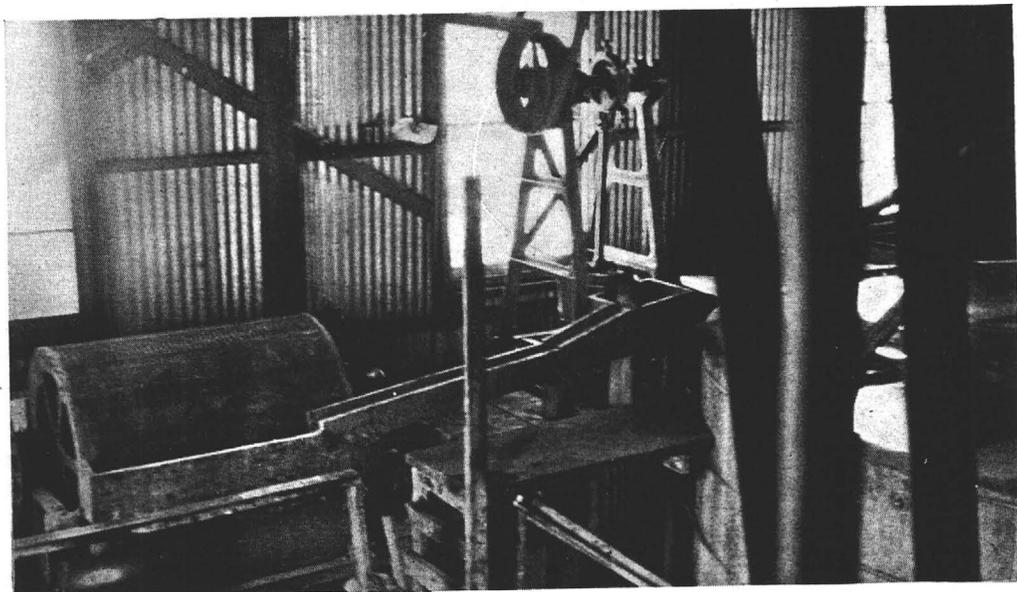
SHOWING SURFACE WORKINGS OF UPPER POR-
TIONS OF DAVIS-DUNKIRK MINES



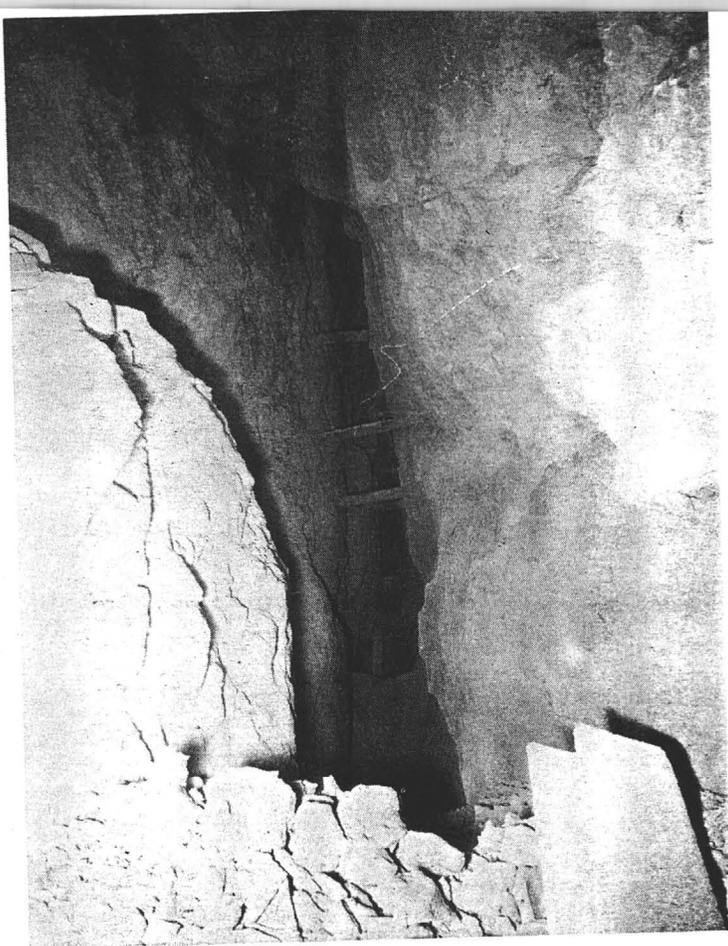
CRUSHER



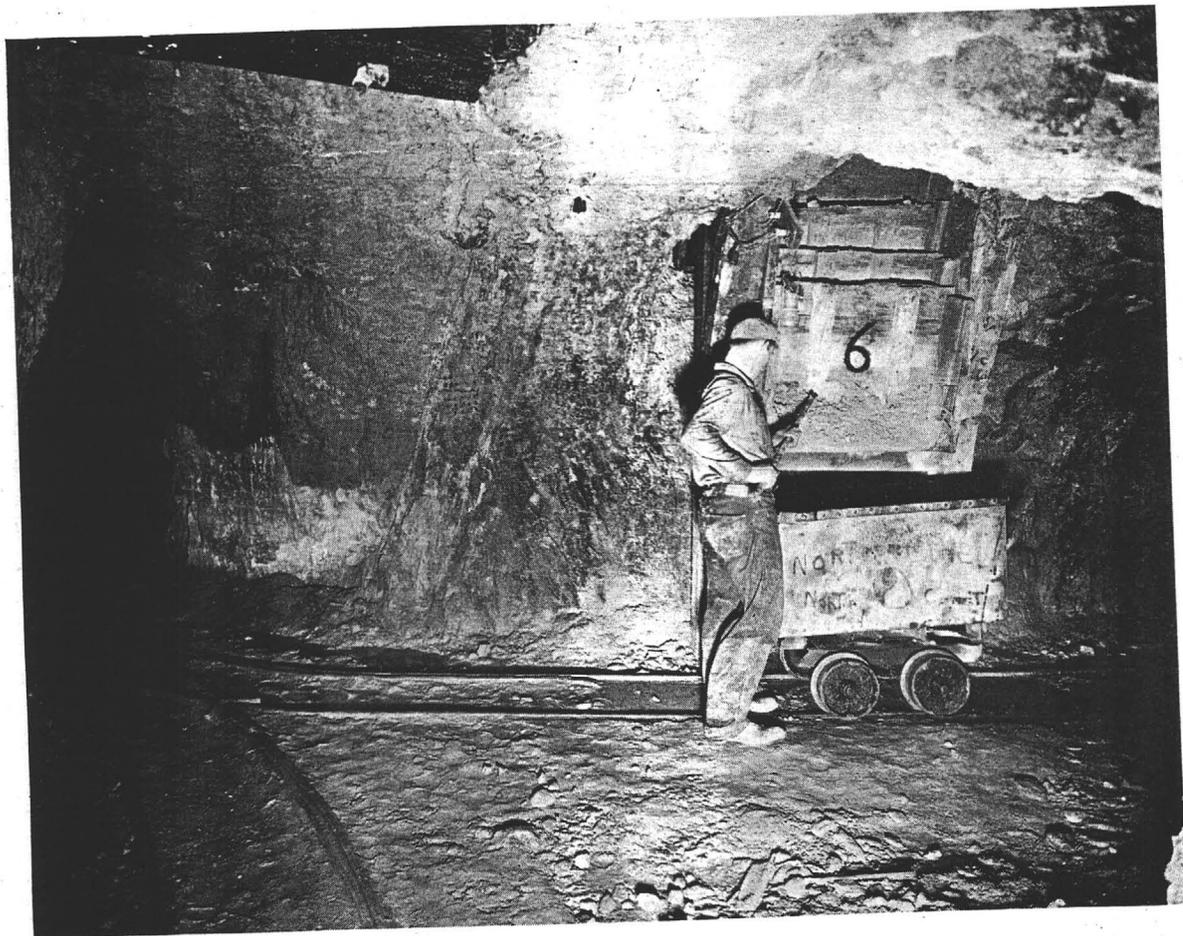
CLASSIFIER



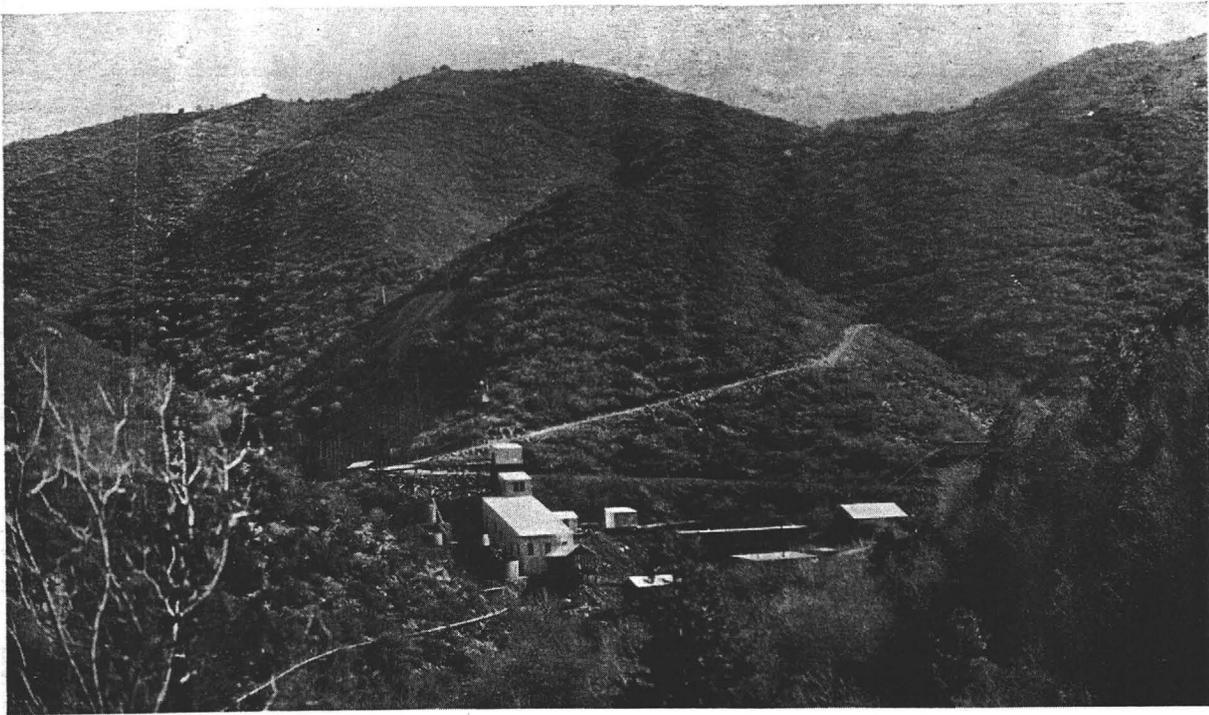
CONCENTRATE DRYER



SHOWING PORTION VEIN
STOPPED BY PREVIOUS
OPERATORS—DAVIS-
DUNKIRK MINE



DAVIS-DUNKIRK MAIN TUNNEL CHUTE RECEIV-
ING ORE FROM NO. 6 LEVEL



PANORAMA OF DAVIS-DUNKIRK
MINE AND CLAIMS



FACE OF DAVIS-DUNKIRK MAIN TUNNEL IN ORE
FULL WIDTH OF TUNNEL ASSAYING OVER \$20

DAVIS-DUNKIRK MINES, Inc.

"Extract from report of Bradshaw Mines Inc. made in 1936 presumably by Morris Elsing."

* * * * *

The Davis-Dunkirk Mines are located about 14 miles south of Prescott in the Hassayampa Mining District, Yavapai County, Arizona, in Sections 34 and 35, T12½ N, R 2 W and Section 3 and 4, T12 N, R 2 W. The property includes a group of nine patented and 14 unpatented claims located in a general northeasterly and southwesterly direction along the strike of the Davis-Dunkirk vein system at an elevation between 6,400' and 7,000' above sea level, and a 75 ton mill.

These veins were located in the early sixties of the past century and have been worked intermittently by various parties until 1925 when the Davis-Dunkirk Mines, Inc. took over the entire property.

The Davis-Dunkirk vein occupies a strong fault fissure, striking northeastward with a nearly vertical dip to the southeast, in a country rock of hard medium grained diorite. The main vein is distinctly of the deep seated type with a filling for the most part a coarse-grained, grayish white quartz with abundant pyrite and chalcopyrite. At about the middle of the property the vein sends off a branch on a more northerly course into the diorite footwall. This branch, known as the Davis vein, is considered by Lindgren of the shallow-seated type. The management, judging from the respective dips of the two members as so far developed, believe it is reasonable to suppose that they converge at depth with probable concentration of values.

The ore in both veins occurs in lenticular bodies somewhat irregular in form and distribution along the veins which vary in width from a few inches to over four feet; the ore, as shown by 1,076 assays made by the Company of samples taken indiscriminately from various parts of the mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$13.45 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$13.45 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. From these assays and from

results obtained by milling ore taken from various portions of the mine and from knowledge gained from extensive development work to date, it is the opinion of the management that a large scale operation of this property is justified.

The claims cover about 13,000 feet on the veins and reference to the longitudinal section shows the various openings tapping the vein. According to the reports and records of former owners the workings consist of a total of 7,660' of drifts, 1,655' of cross-cut, and about 1,500' of raises and winzes. This gives a total of 10,815' of development work to date, of which 90.8% is accessible. No. 1 tunnel, the lowest main haulage level, opens the vein for a distance of 2,000 feet from the portal giving 460' depth on the Dunkirk vein at this point. A winze below No. 1, from which 135' drifts were run both ways along the vein, gives 82' additional depth. This No. 1 tunnel is a vital part of the mine at present. The next 500' of drifting will open up a hitherto untouched block of ground with an average depth of 500' from surface. Aside from its development value, this tunnel delivers ore directly to the mill at its portal, and by suitable connections with above workings may serve as a main haulage tunnel for the entire mine.

No. 1 tunnel is now being driven ahead with a very favorable showing of ore in the face. The last 90 feet of drifting has been in an ore shoot with the vein averaging four feet in width and running an average of \$20.00 per ton according to Company assays. This recent development on the Dunkirk vein is a strong argument in favor of opening the same block of ground in No. 6 above, which is being planned at present. Nos. 2, 3, 4 and 5 are shallow adits and the development work has been of little importance. No. 6, 160' above No. 1 is connected with No. 1 by an incline shaft or winze which is now serving as a manway and ore pass to the main haulage tunnel. This shaft and the portal of No. 6 are readily accessible from the main haulage road between the mill and the Senator Highway. No. 6 follows the Davis-Dunkirk veins to a point about 500 feet from the portal. Here the Davis vein diverges northerly and the drift follows

the Dunkirk alone for about 380'; then, leaving the Dunkirk it cuts north about 80' to strike the Davis vein which it follows for about 450 feet.

Davis No. 8, No. 9 and No. 10 are surface workings on the Davis vein and of importance only as indications of ore to be developed 320' below in No. 6 and 480' below in No. 1. An ore shoot in No. 9 showed an average width of a little over one foot with a value of approximately \$30.00 per ton according to Company assays, and was mined from a fifteen foot winze only to prove its persistence. Davis No. 11 and No. 12 are old shallow workings, for the most part inaccessible. Here the Davis vein splits into two members; on the more southerly branch are Davis No. 1 and No. 2 South -- also very old surface workings from which some high grade oxidized ore was taken in the early days. On the northerly branch are located Davis No. 13, No. 14, No. 15, No. 16 and No. 17. Of these, No. 13 is of most importance as regards future development of commercial ore. This tunnel opens the vein for a distance of 1,080' from the portal and its face is only 120' from the cross vein which has been mined from No. 15 and No. 16 above, where the junction of the two veins produced some very high grade ore carrying magascopic free gold on which one assay made by the Company ran over \$86,000 per ton; (this and other extremely high assays but no low assays were eliminated in computing the average of 1,076 assays mentioned above) and from which area one ton of ore was shipped by Bradshaw Mines, Inc. that yielded smelter returns of over \$2,500. A 50' winze 810' from the portal opens an ore shoot averaging one foot in width and averaging about \$20.00 per ton according to Company assays. This same ore shoot is being stoped overhead for a distance of 160' beyond the winze at a height of about 80' above the track. The ore here averages over two feet in width and truck samples as hauled to the mill have run consistently between \$15.00 and \$20.00 per ton according to assays made by the Company. It is planned to open this Block through to No. 15, lying 230' above, from which a considerable block of ore has been mined in what was probably the same ore shoot now being worked in No. 13.

On the Dunkirk vein, a block some 500' in length and about the same in depth, remains to be developed from No. 1 and No. 6. The next available data on this vein is given by Dunkirk No. 1 (Poverty) which is opened by a cross-cut tunnel, (450' above No. 1) driven northwesterly from the haulage road to strike the vein about 230' from the portal. The vein to the southwest has been developed by a drift some 210' from the cross-cut, from which a considerable amount of shipping ore was mined by early owners. To the northeast the Company is now driving in ore about 400' from the cross-cut to develop the ore shoot previously worked from Dunkirk No. 2, No. 3, No. 4 and No. 5 above.

The mine is completely equipped on haulage levels with serviceable track and ore cars and all important levels are readily accessible by good haulage roads to the mill. The winze in No. 1 is equipped with an efficient electric sinking hoist and adequate pumps to facilitate drainage as well as a new air-power ventilating blower with flexible pipe to serve both the winze and the face on the main level. All pneumatic machinery including drills, pumps and blowers are powered by a 400 cubic foot air compressor serving No. 1 and No. 6 and a 300 cubic foot compressor serving Dunkirk No. 1 and Davis No. 13 and No. 15. These compressors are both operated by electric power purchased from the Arizona Power Company. A completely equipped blacksmith shop at the portal of Davis No. 1 houses an Ingersoll-Rand steel sharpener, forge, and all tools necessary to maintenance of underground equipment.

A complete camp situated in the valley below No. 1 provides quarters for 80 men, a well equipped cook shack and mess hall, manager's residence and office, assay laboratory and warehouse. Adequate drinking water is piped from Dunkirk No. 2 and a newly installed septic tank provides for sewage disposal of the entire camp.

REPORT ON THE DAVIS GROUP OF MINES IN THE
HASSAYAMPA DISTRICT, YAVAPAI COUNTY, ARIZONA

by

R. N. Dickman
August 4th, 1906.

* * * * *

Location.

As above indicated the group is located in the Hassayampa mining district about 14 miles by wagon road easterly from Prescott Arizona and about seven miles from Mount Union Station on the Poland Branch of the S. F. P. & P. R. R. a branch of the Santa Fe System. The location consisting of the Azurite, New Era, Davis No. 1, New Era No. 2 and Davis No. 3, all patented, run in a northeasterly and southwesterly direction and cover a total length of 6474.7 feet on the vein courses.

GEOLOGICAL.

The country rock in which the mineralized zones occur is porphyritic. To the northwest and not far from the main trend of mineralization the country rock is granitic, but no discovery has been made of any contact deposits. It may be surmised that at great depths the mineralization courses may run to this contact but the porphyry which is open and shattered locally, evidently offered less resistance to intrusions than the contact plane, so that the mineral trends are in porphyry at present known depths.

If we understand by "fissure veins" those enclosed by two well defined walls, the Davis mineralization would not come under such a head. The porphyry presents rather wide belts of permeable rock which have been mineralized by replacement along natural fractures in a general northeasterly and southwesterly direction, sometimes following a well defined "slip on one or both walls (so called) but often departing abruptly from true course. Constant crosscutting is hence essential to following the ore bodies, and most apt to succeed toward the softer ground away from the granitic contact at present known zones. The writer has illustrated his idea of the ore occurrence in a general way on the map submitted. A magnified instance is the departure of the "dunkirk Vein" as well as the "South Vein" from the main trend.

Historical

The properties have been intermittently worked since discovery in the early 60's. The surface ores are oxidized to but shallow depths and must have been free milling but to a small extent. Ore under \$50.00 gross value could not have been shipped under these old conditions.

Examination by Writer.

Explanatory.

In April 1905 a very complete examination was made by Mr. Wm. A. Farish assisted by Mr. Campbell. This examination covered all the accessible surface work. Accurate maps were made and the sampling was of a thorough nature. The writer is well acquainted with the methods used by Mr. Farish and is absolutely content to take this data as beyond criticism or appeal on the ground which has remained unworked in the interval. In the meantime however much work has been done. This has been sampled by the writer, as well as the old work within the area comprised within these limits new and old. On the remainder the writer simply summarizes Mr. Farish's results. On tunnel No. 1 the results will not agree at all, since this tunnel has been raised and the bottom filled for a long distance, exposing new faces along the entire old roof, so that the vein matter is higher than that sampled by Mr. Farish. The old tunnel numbers are retained and should be retained in all future engineering work for convenience of reference.

Details of Examination

New Era Shaft.

This shaft had reached a depth of 50 feet showing a streak of ore varying from .5 to 1.0 foot of sulphide ore. The bottom showed .5 ft. to the S. W. and .9 ft. to the N. E. Sample No. 44 shows,

Gold	.30 oz.	per ton) value \$16.90 Per T.
Silver	12.22	do	
Copper	2.99	per cent	

Taking gold at \$20.00 per oz. silver at \$.60 per oz. and copper at \$15 per lb. net or \$3.00 per unit or % of 20 lbs. the Value is \$16.90 per ton. This will be the basis used in this report.

Tunnel No. 1

This tunnel for its entire length is in porphyritic rock

as described in geological paragraph.

0' to 120 ft. For this distance the ore is continuous. The average width shows 2.44 ft. and an average money value of \$35.17 per ton.

120' to 180'. No ore. Occasional gouge easily followed.

180' Four (4) feet of ore, Sample 12 Value \$35.85 per ton.

184' to 216' No ore.

216' Streak for a few feet averaging 1.0 ft. width. Sample 13 shows \$5.84. Possible concentrating ore.

219' - 327' No ore.

327' A few feet of ore 1.0 ft. wide. Sample 14 shows \$52.73

340' - 440' Continuous ore averaging .6 ft. in width and showing a value of \$32.38 per ton. The streak is narrow but well defined.

440' - 490 feet. Continuous ore averaging .6 ft. in width and showing a value of \$32.38 per ton. The streak is narrow but well defined.

440' - 490 feet. No ore except occasional very small bunches.

490' - 650 feet. 160 feet length averaging 2.02 ft. width and \$14.24 value per ton. With selection of the shipping ore which will run about 10% the balance is concentrating ore.

650' - 740' No ore.

740 feet Very narrow streak .2 ft. showing \$15.20 value.

740' - 912' (7/4'06) No ore. It appears as if possibly the narrow streak at 740 may run behind the shaft and the crosscut at 860 feet was intended to cut and intercept. At 66 feet N. W. no ore had been met. The writer is not inclined to look for ore to the northwest in the harder closer granitic ground.

Summarized we have in this tunnel 513 feet out of 912 showing ore in four chutes averaging about 122 feet each in length with about 110 feet between them on the average. This is very satisfactory ore occurrence and the indication is that another ore chute will soon be encountered beneath tunnels 6 and 7.

As shown the ore averages about 1.8 foot and about \$25.11 per ton. taken as it runs. This average will be reduced by the exemption of shipping ores, but lack of upraises forbids any accurate tests on this subject since enough faces to get at three sides cannot be found. The data gained is however satisfactory as far as it goes.

Samples 43 and 45 show the dumps to sample 1. higher grade \$26.35 per ton. Milling Grade 2. \$13.35 per ton. The latter contains a good deal of waste, but the mill will easiest separate such material.

Tunnel No. 2.

This tunnel is 140 feet in length. At the mouth 80 feet has been stoped. The faces show as per sample No. 49 a value of \$108.59 per ton.

From 80 to 120 feet the hanging wall is followed and the average width was 1.5 feet. Sample taken along the 40 feet at 5 foot intervals shows (46) a value of \$43.91 per ton.

From 120 to 180 feet the foot wall is followed, the ore having been recovered by a short crosscut. This 60 feet sampled in 5 foot intervals shows (47) \$24.50 per ton value. Width Average 1.0 ft.

The face shows a width of 1.2 feet value (48) \$5.38/

The dump was much mixed and would probably have to be sorted about 50% would be ore and a sample of this showed (50) a value of \$31.61 per ton.

At the mouth of the tunnel a shaft 40 feet in depth was sunk and the ground stoped both ways. The northeast drift shows from .4 to .8 feet of ore of value (51) \$83.37 per ton. The southwest drift shows 3.0 ft. width of ore giving (51.B.) \$22.10 per ton.

While impossible to accurately figure tonnage it will be seen that there is a strong probability, indeed a certainty of considerable tonnage in this ground. It will naturally be obtained by stoping from No. 1 tunnel.

Tunnel No. 3.

The face of this 50 foot tunnel shows 2.5 feet of ore of value (52.A.) \$36.32 per ton. The bottom of the winze shows 3.7 feet width and a value (52) \$61.48 per ton. The showing on bottom is extremely good being clean shipping sulphide ore. This area from No. 3 through No. 2 to No. 1 augurs exceedingly well.

No. 4 Tunnel

This tunnel 100 feet in length show a vein almost continuous for 100 feet averaging 2.0 feet in width and still 1.0 foot at the face. Mr. Farish's sample was taken for this tunnel showing trace of gold, 6.20

oz., Silver and 3.70T copper which would now be valued at \$14.82 per ton.

No. 5 tunnel.

This tunnel is 200 feet in length. The ore streak is intermittent and very variable, giving appearance of little value in the main. Mr. Farish's samples showed no commercial value and the work was not resampled. Tunnel No. 1 below showed its poorest ore below this point, though of milling grade and the fact that underhand stopes (now filled) were carried on would indicate that some pay ore was extracted. It will require work from below to determine the value of the ground.

No. 6 Tunnel

This tunnel had reached 410 feet on 7/5/'06. Up to 300 feet little ore was found beyond occasional bunches following the fractures. Some crosscutting is to be recommended. From 300 to 370 feet the ore is more or less continuous either on top or bottom, but is frequently found in several streaks in the porphyry. The samples taken showed as follows (See map table.)

Number	Description	Width	Value
54	Winze 4' at 370 feet	5.0	\$20.57
56	Cut at 355 ft.	5.0	7.18
57	Cut at 340 ft.	5.0	10.16
58	Cut at 320 ft.	2.0	24.74
59	Winze 4' at 305 ft.	0.6	42.76
60	Selected at 300' .5 ft.	0.5	86.10
55	Dump outside tunnel	---	15.19

The ore chute in No. 6 promises well for tunnel No. 1. in a short distance farther, in itself the ground is satisfactory.

Tunnel No. 7

This tunnel shows what is apparently milling material near its mouth. For the remainder of the distance the ore is intermittent. No sampling was done as the ore was much scattered and the tunnel not in shape for proper sampling. In this tunnel however may be seen an interesting instance of the change of the ore from one plane of the porphyry to another. This occurs near the end in a crosscut to the southeast. Work on this tunnel is scarcely to be advised as the stoping from No. 6 will naturally take the ore.

Ground to Northeast.

On this ground the writer did no sampling, but made a

Careful examination of the ground with the report of Wm. A. Farrish, Esq., in hand. The reason for this was primarily the opinion that it would be upon the deeper work and its results that the decision would rest, and the writer regards the ore now shown in the northeasterly work as only economically available when there shall be justification for the sinking of a shaft at or near Tunnel No. 9 with a tunnel similar to No. 1 run northeast to get under the higher ground. This will probably be some years distant. It will be well to summarize Mr. Farrish's results which is done herewith.

Tunnel No. 8.

Length 60 feet. Winze 15 feet deep now water filled. Vein from .2 ft. to 2.0 ft. width. Sample by writer showed: Gold trace. Silver 1.22 oz. Copper trace.

Tunnel No. 9.

Length 70 feet. Vein 2 ft. for 30 feet. Balance of distance mere seam in very hard porphyry. Shaft full of water. Dump sample by Farrish:

Gold	2.42	oz. per ton
Silver	30.00	do
Copper	8.20	per cent
Value	\$91.00	per ton

Open cut No. 10

Decomposed honeycombed material. No value

Open Cut No. 11

Open cut and short tunnel showing a few inches of ore matter. Formation greenstone evidently either pushed up or an overflow.

From this point the vein "splits" or rather let it be said that the porphyry has two open zones permeable to mineral. At depth there is no doubt that the porphyry will be re-encountered as in the lower ground.

Tunnel No. 12.

On north vein, caved and inaccessible.

Tunnel No. 13.

Length 100 feet. Vein distorted. At face one foot of material white quartz. Dump assay.

Gold	Trace
Silver	8.30 oz. per ton

Copper 1.50 per cent
Value \$9.48 per ton

Tunnel No. 14.

Length 100 feet. Run in country rock. No ore. Crosscutting would look promising at least.

Tunnel No. 15.

Length 247 feet. Average width vein 1.0 ft. walls greenstone.

Samples:

	Oz. per ton		%	\$
	Gold	Silver	Copper	Value
50 to 220 feet	Tr.	5.80	2.60	\$10.28
Face	2.00	8.40	2.40	52.24

Tunnel No. 16.

Length 116 feet. Vein badly broken up showing width of about 2.5 feet of which a part by sorting might be milled. Sample 1.8 ft. face.:

oz. Gold	Oz. Silver	%Copper	Value
Tr.	5.30	6.20	\$21.78

Tunnel No. 17.

Length 40 ft. cut and 20 ft. tunnel. Old stopes. Shaft (?) 40 feet with stope. Water filled. Vein 3.8 ft. wide in tunnel. One half talc, balance quartz with iron and copper pyrites.

Samples from dumps,

	Oz. per ton		%	\$
	Gold	Silver	Copper	Value
First Class	.18	28.10	.40	\$22.60
Second "	.12	26.30	.40	\$19.98

Tunnel No. 18. South Vein.

Open cut about 100 feet long along crest of the mountain. Vein from 0.1 to #.0 ft.

Decomposed ore. Sample as follows:

Oz. per ton	%	\$
Gold Silver	Copper	Value
3.40 37.80	Trace	\$90.68

Tunnel No. 19.

Length 120 feet. Width 1.0 to 4.0 feet. About one half is ore. Winze 15 ft. full of water. Shaft at mouth also full of water.

Samples as follows:

Description	Oz. per ton		%	\$
	Gold	Silver		
1.0 ft. tunnel face	Tr.	4.80	3.30	\$12.78
1.0 ft. Talc streak	Tr.	Tr.	Tr.	-----
2.0 ft. east end stope	.38	7.04	3.30	\$21.72

Tunnel No. 20.

Caved in. Access impossible.

Tunnel No. 21.

Open cut and tunnel 150 feet long, stoped out and filled.

Shaft 40 feet full of water. Dip to north about 800 from horizontal.

In the north and south veins it is to be noticed that they dip toward each other, indicating the correctness of the surmise on the sketch that they may have common origin at depth.

General Matter of Presumable tonnage.

As previously stated there is no place on the property where three sides of an ore body are exposed and hence no accurate figures can possibly be offered. The various dumps contain between 3000 and 4000 tons of ore of various grades, presumably of the character shown by the cut samples. In a general way it is safe to assume about 8000 tons in the area about No. 1 and No. 6 tunnels, though it will require raises to prove the matter.

The chief feature is that despite the lack of mathematical proof of tonnage, the ore is recurrent under ground and at depth and the chutes have been encountered without passing through any excessive amount of barren ground. The depth reached is relatively small and the depth gained, is rapid as the tunnels move northeast. It is reasonable to expect a substantial multiplication of the tonnage (estimated on a very conservative basis with continuance of work).

Tunnels 1 and 6 should both be driven and connected by raises as soon as practicable both for ventilation as well as cheapness of ultimate ore delivery. At a later date the shaft should be sunk as recommended near Tunnel No. 9.

Mining Method

Mr. Farrish covers this point amply. Shipping or will be separated in stoping of grade compatible with cost of mining, freight

and treatment. The quality will depend on the transportation ultimately available. The low grade ore apparently will concentrate, though the writer would advise exhaustive tests prior to adopting any set type of mill arrangement. I suspect that with the hard gauge and the soft mineral, sliming will be the problem to be met.

Mining Cost.

The vein as shown will average about two feet in width. While this will economize in timbering, it reduces the output per man.

Present wages per 8 hour shaft are:

Sinking	\$4.00
Drifting	3.50
Trammers	3.00
Common Labor	2.50
Engineers	4.00

Including management I am of the opinion that the ore will cost all of \$4.00 per ton delivered at any ordinary millsite.

Freight. Should the proposed narrow gauge railroad be built, we may assume a haul of not over $1\frac{1}{2}$ miles according to authorities at the mine. This should cost about \$.50 per ton.

Rail Freight to Smelter.

This is an open question but should not exceed \$1.50 per ton.

Milling Cost.

The mine will not probably with a 2 ft. vein stand a mill of over 75 tons daily capacity, leaving a balance for shipping ore. On this basis I should estimate about \$1.25 as milling cost.

Smelting Charge.

The shipping ore will naturally be of high iron content and would take the neutral charge plus a maximum roasting charge. This should permit an estimate of about \$7.00 per ton based on a \$5.00 neutral charge.

Approximate estimate of Yield.

The writer thinks it will be perfectly safe to assume that the selected shipping ore will run gross \$50.00 per ton, as shipped. This of course cannot be accurately foretold at present, but the cut samples seem to indicate it. Thirteen of the 51 cut samples taken by

the writer exceed this figure or approximately 25% of the samples. If this be the case we can with conservatism adopt the hypothesis that out of 6 tons mined 1 ton will be shipped or 16 2/3%. Assuming then 90 tons mined of which 75 are concentrated we may calculate as follows:

Shipping ore.

Mining 15 tons shipping ore @ \$4.00	\$60.00
Delivery to cars @ \$.50	7.50
Rail Freight @ \$1.25	18.75
Smelting @ \$7.00	105.00
15 tons @ \$12.73 costs	<u>\$191.25</u>

Concentrating Ore

Arbitrarily assumed at \$20.00 per ton average indicated safely.

Mining 75 tons milling ore @ \$4.00	\$300.00
Milling 75 tons @ 1.25	93.75
Freight on 13 tons concentr. @ .50	6.50
Rail on same based on \$90 value @ 2.00	26.00
Smelting charge @ 10.00	130.00
Cost per ton @ \$7.41	<u>\$556.25</u>

Based on 80% saving of 20:00 ore and 35% return on \$92.30 concentrates the yield of 13 tons will be

	1140.00	
	<u>556.25</u>	
Profit on 75 tons @ \$9.11	683.85	\$683.85

On a cost of \$7.41 per ton and 80% yield it takes an average \$9.26 ore to keep even.

Summary 90 tons output at \$12.97 profit - \$1167.50

Taking the lowest presumable figure of 8000 tons, (leaving the 3000 to 4000 tons on dumps as a factor of safety,) and the writers average of \$30.93 on 51 cut samples, reducing this even to the profit of \$12.93 per ton, we have a calculated profit of \$103,760.00 which though not proven seem safely presumable.

More ore must be developed, and that already "presumed" must be proven, before any mill construction is contemplated. At least 50,000 tons should be assured, so as to keep a mill in steady operation. Dependent upon good fortune or bad, from \$50,000 to \$100,000 will be needed for this purpose.

Fuel and Water and Millsite.

Ample water is present on the Ni Wot mill site for all contemplated operations. Considerable wood is also available in the district and would cost about \$3.50 per cord delivered. At a later date the use of oil either at the mine or at a power station on the railroad should be

considered. The millsite is all that could be desired.

Other Property.

The extension of the Davis lodes to the northeast brings into line some desirable ground which offers good opportunity to work the east end of the ground from other tunnel site. It is stated that three claims or extensions can be gotten from \$7,000 to \$10,000 and if this be the case, purchasers of the Davis should include the ground. It is also an open question as to whether the "Dunkirk" ground should not be taken in, if a long bond on reasonable terms could be obtained. This would give the purchasers a large mineralized area, workable through No. 1 tunnel on its deep levels and additional openings now showing excellent ore in the initial stages.

Conclusions.

With the above data, the writer felt warranted in advising purchases speculatively inclined and able to expend from \$200,000 to \$250,000 on purchase and equipment of a property, to purchase the Davis at \$100,000 in four months instead of \$175,000 in deferred payments. It should be borne in mind that purchase and equipment are not now net in sight, but that there is a probability that the price can be put net in sight including development fund and equipment with a reasonable amount of intelligent development. The writer most strongly recommends the installation of an assay office and daily data on the work if for no other reason to check up the above data and make any doubt, which is now unavoidable, into a certainty. The ground should be blocked out by upraises at frequent intervals.

Submitted,

R. N. Dickman

Chicago, Ills.
Aug. 4th, 1906.

Elmer Humboldt

Copied

See Dickman's Report in
Drawer File

Burdette

DAVIS GROUP

Slate Creek, near Prescott.

1906. Report by R. N. Dickman; estimates over
8,000 tons probable ore. 300 samples average

width	2.06 feet
Au.	1.073 oz. per T.
Ag.	5.86 oz.
Cu.	2.12 %

Geo. Morris says: "This is a sulphide ore and should be
rather basic. Indications of a large body of low-grade
ore that might be concentrated."

1912. J. A. Twiggs, leaser, shipped 7 cars of
ore to Humboldt.

Au.	0.5	oz.
Ag.	20.0	oz.
Cu.	9.0	%
Insol.	47.0	
Fe.	18.0	
CaO	4.0	
S	14.0	

1915-1916. Two pairs of leasers, Caspari & Bloom;
Vierthaler & Johnson, shipping a car or two a month,
to Hayden. One car received at Humboldt, April 1916 ran

Au.	0.125	oz.
Ag.	77.17	oz.
Cu.	4.43	%
Insol.	52.0	
Fe.	16.2	
CaO	1.7	
S.	16.2	

*V. Elmer Humboldt &
Burdette*

See Burdette