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The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

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03/20/90

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BIG PINE GROUP

ALTERNATE NAMES:

RUBY
GOLD CHARM
ST THERESA
PATENTED CLAIMS MS 1481

YAVAPAI COUNTY MILS NUMBER: 1149B

LOCATION: TOWNSHIP 12.5N RANGE 2 W SECTION 35 QUARTER W2
LATITUDE: N 34DEG 25MIN 38SEC LONGITUDE: W 112DEG 26MIN 43SEC
TOPO MAP NAME: GROOM CREEK - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

GOLD
SILVER

BIBLIOGRAPHY:

USGS GROOM CREEK QUAD
ADMMR BIG PINE GROUP FILE
ADMMR ST THERESA FILE
AZ. MGN. JRNL. JUN. 1919 P 82: AUG. 1919 P 15
YAVAPAI MAGAZINE JUL. 1918 P 4 SHARLOT HALL
MUSEUM PRESCOTT, AZ
LINDGREN, W. ORE DEPTS JREOME & BRADSHAW MTS.
QUADS USGS BULL 782 1926 P 115
WEED, H. W. THE MINES HANDBOOK VOL 13 1918
P 511
ADMMR BIG PINE MINE COLVO FILE

BIG PINE GROUP

REFERENCES

YAVAPAI COUNTY
HASSAYAMPA DIST.
T12.5N R2W Sec. 35 W $\frac{1}{2}$

Yavapai County MILS Index #1149B

AKA: Ruby, Gold Charm, St. Theresa, Patented Claims M S 1481

St. Theresa (file)

AZ Mining Jnl. June 1919, p. 82; August 1919, p. 15

BLM Mining Dist. Sheet 245

USGS Bull. 782, p. 115

The Mines Handbook, Vol. 13, p. 511

ABM Bull. 137, p. 48

Groom Creek, AZ 7.5' Topo (included in file)



P R E S C O T T

A T T I O N A L

Big Pine Group
T1212N R04W Sec. 35

Davis Dunkirk Mine

Mt Tuttle

Tilly Starbuck Mine

Silver Spruce Mine

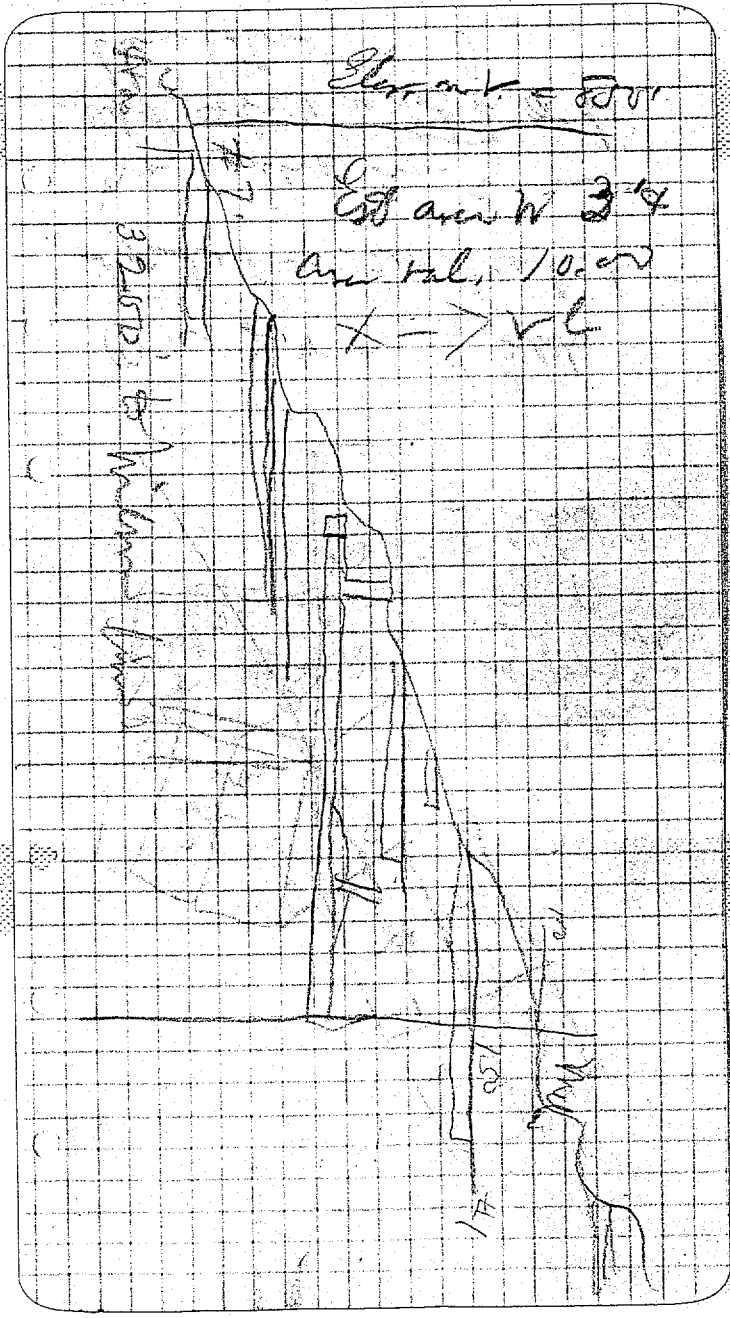
Alligator Mine

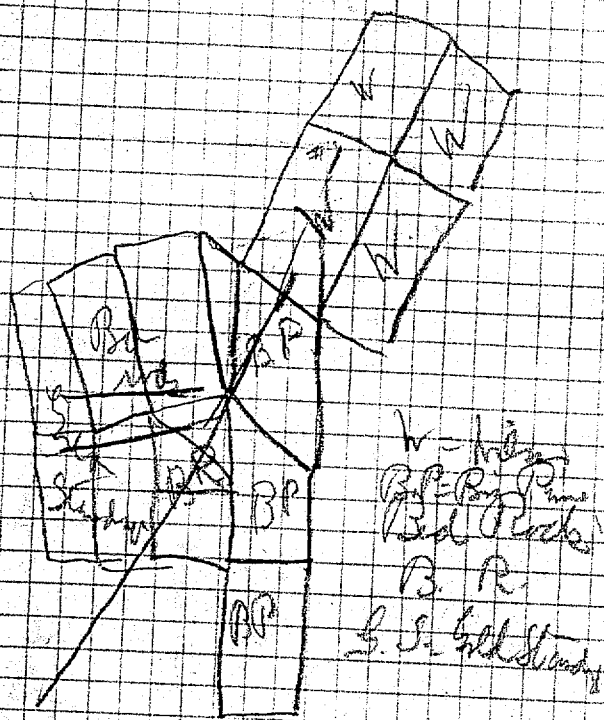
Lookout Mtn

Lookout Mtn Spring

White Well

R O A D O F S E R V I C E





① N & V on 1 side
 Standard of Bed Rock &
 may be used since by now
 with of it & a lot of it
 been shown

Yavapai County Operations

PRESCOTT—

Organize \$10,000,000 Company

Articles of incorporation of the Arizona Minerals Co., with a capitalization of \$10,000,000 and shares of \$1 each, have been recorded in Prescott. Figuring in this big movement as principals are H. N. Coleman and J. E. Russell, of Prescott, and the business stipulated is mining, smelting and kindred industries. Prescott is the principal place of business, while in London, England, will be established a branch agency.

▼ New Mining Company

The Arizona Victory Mining company is the name of a new corporation, announced in Prescott, which has taken over from Mark Bradley his mining property in the Walker district. The same people are operating the Homestead. Mark Bradley secured the new company's ground from Mr. Swiggert, and it was owned and worked in the early days by Wint Rowe, when it attracted attention through its output of high grade gold and silver bearing ore. The property has five hundred feet of development work and has high grade gold, silver and copper ore. An active campaign of development work is to be inaugurated.

▼ Big Pine to Renew Activity

While in Prescott last week from the Big Pine mining camp near Senator, C. H. Dunning, general manager of the Big Pine mine, stated that resumption would take place in a short time, preparatory matters nearing completion. This action was decided upon some time ago by those interested, and it is stated successful mill runs made and new development given since the fire of several months ago demonstrated a desirable proposition. An earlier date was set for this purpose, but deep snow isolating the property for many months and the absence of Mr. Dunning, who was in the engineering corps of the army until recently, deferred resumption until general conditions were desirable to proceed on a basis of permanency. The full mine and mill force will soon again be in full action, and reports from the property are decidedly encouraging for the future.

Old Dolphine to Resume

The old Dolphin silver mine near Prescott, first operated many years ago, later being acquired by Evansville, Indiana, people and worked last year on a limited basis, is to swing into action at once on what is planned to be large and permanent operations. Frank Petzel, manager, is now arranging for operations. A reorganization has been effected and capital subscribed by which no further interruptions will be afforded.

The old workings are to be continued to depth, and known fissures in the group carrying a silver content are to be extensively explored. The belt in which is situated the Dolphin, is distinctly silver bearing, and the mine is located in the Turkey Creek mineral zone, which again is wheeling into line as one of the most active in that region, several old mines near the Dolphin now being in action.

MAYER—

New Hoist Installed

A new hoist, electrically propelled, is being installed in the main tunnel at the Henrietta of the Big Ledge company, and it was reported a vertical shaft at that point will be driven to a depth of 500 feet.

The plan is to carry out a system of extensive exploration which will require many months, and no production is contemplated while this work goes ahead. Since resuming, a short time ago, the company is employing daily more miners and inside of a month it is expected the forces on the Henrietta and Butternut will be bigger than when suspension occurred early in the year.

▼ Good Showing at Big Bug

Reports of the opening of good copper, gold and silver ores at the Big Bug property in Mayer district have been received.

With W. H. Morrison, of Mayer, O. G. Griffin is reported to have taken over all the Big Bug treasury stock and proposes to put the company on its feet financially so that the work of development may be continued with every possible speed.

The company plans to sink to at least the 300 mark before any attempt at drifting is made and believes that it has every chance of opening a big producer. The Big Bug lies on a direct line between the Binghampton and Stoddard mines and the formations encountered in sinking are identical with those found at the Binghampton. The property has been inspected recently by a number of prominent mining experts who are agreed that the showings already made warrant the immediate extension of the company's activities.

Wolf Creek Driving Tunnel

H. W. Armstrong of Cottonwood, secretary of the Wolf Creek Mining company, reports that work on the tunnel is advancing at a good rate of speed and the face is now within thirty feet of the point at which it is expected to reach the ledge. The breast is strongly mineralized and there is reason to suspect that the ledge will be reached a little sooner than the engineers expected.

The surface showings on this property which lies seven miles southwest of Mayer are of a quality to warrant complete exploration at depth and are said to be among the very best ever opened in this district. A number of shallow cuts and test pits have been sunk on the surface outcrops and silver-gold-copper ores with a gross content of better than \$40 per ton have been shipped therefrom. company to prosecute the work of de-

A complete machinery plant has been installed and it is the intention of the company to prosecute the work of development with every possible speed.

James F. Keating is president and general manager and is in personal charge of the operations. J. C. McEwen, of Jerome, is vice president; John Roddan, of Clarkdale, treasurer and H. W. Armstrong, of Cottonwood, secretary.

JEROME—

Shea Copper Installs New Machinery

Development at the Shea Copper property at Jerome has been under way for some time and a great amount of exploration has been done.

The result of the exploration accomplished is to strengthen the belief that the property has every indication of becoming a producer of high grade ores. It has also demonstrated the necessity of sinking deeper, and, to this end, a complete new machinery plant has been purchased and installed, which will enable the prosecution of development to a depth of several hundred feet below the bottom of the present shaft which is down but 330 feet.

On this level there have been developed some of the very richest ores ever extracted in the district, the tetrahedrite showing, in selected specimens, assays in excess of 1500 ounces of silver, a copper content of approximately thirty per cent, and, as is the almost invariable case in this form of ore, heavy values in gold.

Verde Squaw to Diamond Drill

The Verde Squaw at Jerome will resume operations before the close of the month, after a shut-down of more than three months, occasioned by the labor controversy resulting in the suspension of mining operations in the district. This action was decided upon at a recent meeting of the directors.

The resumption of operations will be ushered in with a schedule of diamond drill exploration. Tentative authorization for at least 1800 feet of diamond drilling was given by the directors. The program will be inaugurated as soon as the contracts can be drawn, and the equipment shipped to the property.

Diamond Drilling at Grand Island

Diamond drilling operations at the Grand Island at Jerome have been inaugurated. The contract, which calls for a minimum of 2,000 feet of diamond drilling has been let to the International Diamond Drilling company of San Francisco.

The first test hole is to be sunk from the shaft north toward the adjoining Shea property on the 500-foot level. From the shaft, the company has crosscut for a distance of 220 feet in this direction. The other test hole will go southeast towards the Arizona Girl claim.

At the present time, the drift on the 500-foot level towards the ledge first encountered on the 170-foot level, has preceded about 400 feet. At this point a 12-foot ledge of quartz carrying low grade iron sulphide and some copper sulphide values was encountered. This quartz vein was followed for over 20 feet. The crosscut proved too expensive, however, costing in the neighborhood of \$25 per foot, and it was decided to continue the exploration with a diamond drill.

It is the belief of the officials of the company, that this vein intersects the ledge, the outcroppings of which are found on the Arizona Girl claim. A thousand feet of drilling should establish either the correctness or fallacy of this theory.



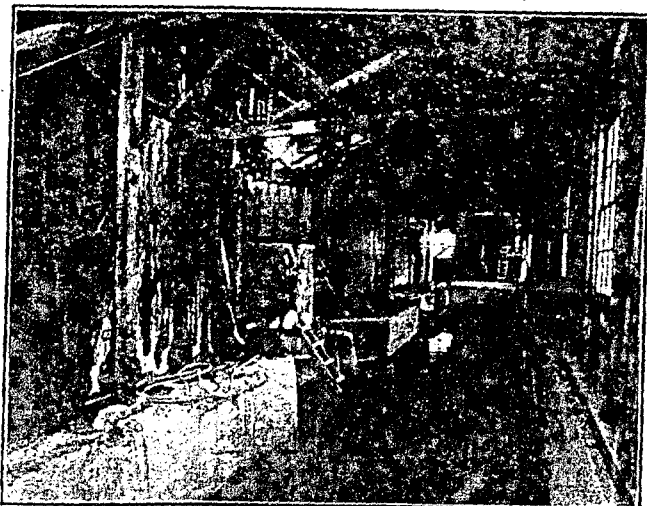
Big Pine Administration Building in the Big Pines

cuts it or is cut by the Emporia about 300 feet down the hill from the head frame. The principal workings consist of two inclined shafts about 100 feet apart and 200 feet deep on the Emporia claim. They are connected at the 75 and 100 foot levels and have several drifts of snort length. All of this development is in ore from 3 to 8 feet wide, all in place except a small surface stope, from which several hundred tons of high grade ore was shipped. Most of the ore so far extracted has been milled.

A small 40-foot shaft has been sunk on the Manhattan vein and shows good ore approximately 2 feet wide. The ore averages \$13, principally

gold, with some silver and copper. With simple amalgamation and concentration there is a 90 per cent extraction, of which \$4 will be recovered on the plates and \$7.20 in the concentrates.

The equipment includes a 40 h. p. boiler and steam hoist with a bucket, skip and small steam pump, a forge and blacksmith shop, assay office and necessary houses. The property is about 1000 feet off the State Highway, about 10 miles from Prescott. There is a large supply of oak and pine on the ground. Water is obtainable from the Emporia workings and also from Wolf Creek, which passes through the property. Engineers ad-



Agitator-Thickener Sets and Dumps, Big Pine Mill

tion work has been done. The property is about one mile west of the Emporia group. The camp is located on Wolf Creek. It is owned by H. Keyes of Prescott.

18—Sunnyside—is a low grade property that has seen many vicissitudes. A vein varying in width from 12 feet to 15 feet outcrops for a depth of from 35 feet to 55 feet, when the sulphide zone is reached. A foot tunnel along the strike of a vein intersected the main Baltimore vein at a depth of 47 feet. Drifts were run north 178 feet and south 100 feet. The workings were in operation, yielding \$9 in gold and silver. Financial troubles resulted in closing down the property. Through careless assessment work was neglected. The property was re-located by parties who dismantled the mill and sold the equipment and sold them. The property is reported to be a desirable one but the old workings are caved and would take much money to put property into shape. H. M. Cole of Prescott controls the property.

20—Big Pine Con. Mining Co. has 14 claims, of which 8 are patented. It is located about 12 miles south of Prescott in a heavily timbered country. It has been opened up with several tunnels, which blocked out 75,000 tons of commercial ore, of which 4000 tons have been broken and are on the surface ready to be milled. This ore runs from \$10 to \$15 a ton, and cost of mining and milling is estimated at less than \$3.

A combination sand leaching and sand decantation plant capable of treating from 3000 to 4000 tons of ore per month has been installed which effects a saving of 99 per cent of the gold values and from 85 to 90 per cent of the silver values. At present, about 100 tons of ore per day are being treated. Two shifts are worked in the mine and in grinding, and three shifts are kept busy in treating the ore.

The first work on the property was in tunnel No. 2, which is in about 600 feet.

The mill is located just below the portal of tunnel No. 6, so that ore can be forced into the bins by a steep drop. Tunnel No. 6 is in about 600 feet. At 600 feet an upraise of

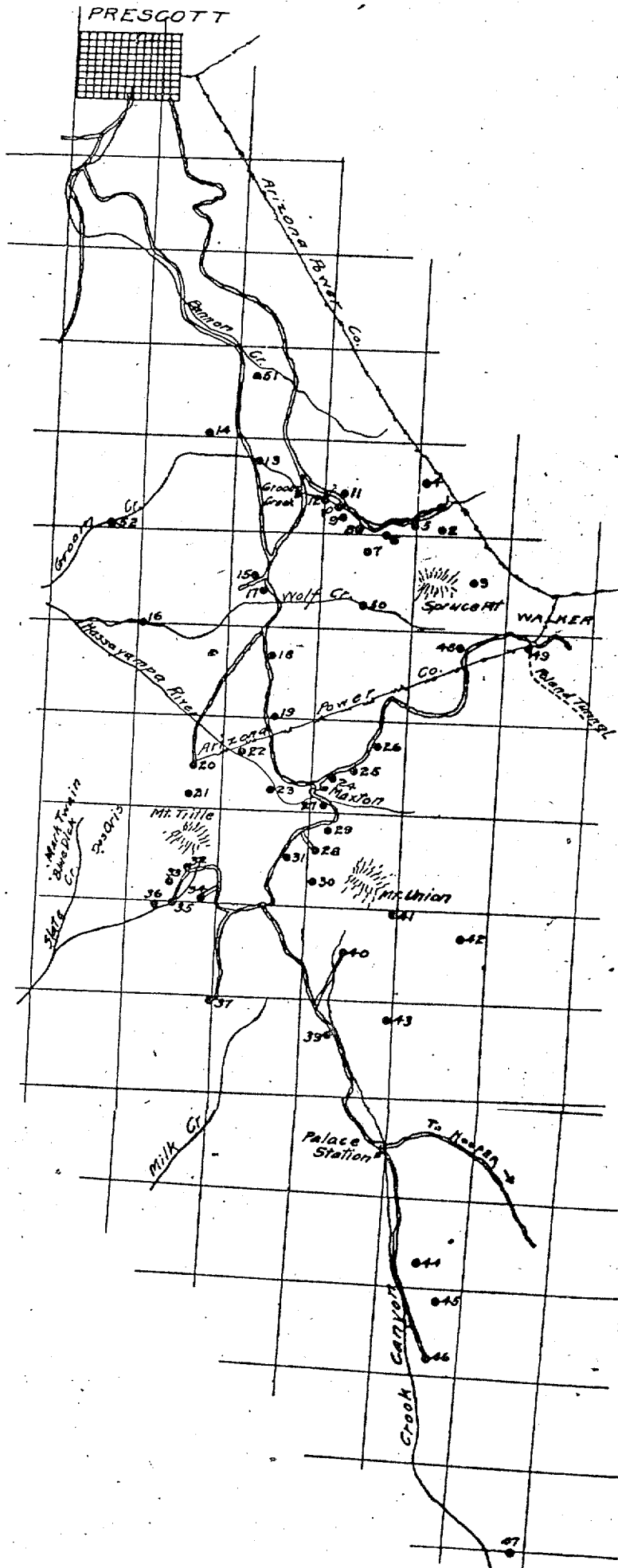
an upraise of 200 feet. No. 7 with the mill will have to be extended to reach this point. This property was originally owned by Major A. J. Pickrell and others. In 1911 it was sold to capitalists owning the Manhattan in the Crown King district. Part of the payment for the construction plant on the Manhattan and enough cash to fully equip the mill. This plant was installed in the summer of 1911. Work had to be discontinued owing to the heavy winter. The mill was well under way when the mill as destroyed by fire and larger plant had to be installed with improved process. This greatly increased the yield of extraction. C. H. Dunning, who has been in charge of the Big Pine, as its general manager the last eight years, resigned this position to enter the service on June 1st, D. R. Dunning, one time manager of the Manhattan at Jerome, has been appointed to his place. August Haglund, Duluth, Minn., is president of the company. Gold Warrior—claims. It adjoins the



Mill and Camp of the Big Pine Consolidated Mining Co.

YAVAPAI

MINES AND ROADS OF SENATOR AND GROOM CREEK SECTION (Each Square Represents One Mile)



connected it with the portal of Tunnel No. 5. Tunnel No. 5 is in 1500 feet, of which 1100 feet is in pay ore. At 1400 feet an upraise of 100 feet connected it with tunnel No. 4. Tunnel No. 4 is in 750 feet, at which point an upraise connects it with Nos. 3, 2 and 1. Tunnel No. 1 is in 300 feet, of which 150 feet is in the ground of Bob Meader, who owns the adjoining property. By the system of upraises the mine is ventilated to advantage. At the same time, the cost of mining and conveying the ore to the mill is reduced to a minimum.

At present the work is concentrated on the higher tunnels, as the ore at these points carries specially high silver values. Tunnel No. 7, the portal of which is about 2000 feet from the mill, is in 350 feet. This work is all more averaging about \$15. It will require an upraise of 200 feet to connect No. 7 with the mill. The tunnel will have to be extended 1700 feet more to reach this point.

This property was originally owned by Major A. J. Pickerell, C. H. Dunning and others. In 1915 Minnesota capitalists owning the Mascot property in the Crown King district, acquired a half interest.

Part of the payment price was the reduction plant on the Mascot property and enough cash to install and fully equip the mill. This plant was installed in the summer of 1916. Work had to be discontinued that winter owing to the heavy snowfall. Work was well under way in 1917 when the mill as destroyed by fire. A new and larger plant has been installed with improved processes that have greatly increased the percentage of extraction.

C. H. Dunning, who has developed the Big Pine, as its general manager during the last eight years, resigned from this position to enter the naval service on June 1st. D. R. Finlayson, one time manager of the Green Monster at Jerome, has been employed in his place. August Hagberg, 208 Exchange Bldg., Duluth, Minn., is secretary of the company.

22—Gold Warrior—consists of 22 claims. It adjoins the Big Pine ledge and continues through the length of the property for 3000 feet. The property was taken over in 1917 by the Gold Warrior Mining Co. This company did some development work, but the property has been idle for some time because of lack of funds. The initial tunnel on this property is near the Massayampa river, and considerable depth can be achieved at a comparatively small expense. The country is well wooded, there is ample water at hand. Mining and milling should be accomplished at a minimum of expense. Some exceedingly high grade ore was taken from the surface of this property. The ledge proper averages \$10 to \$12 per ton.

23—Sundance—belongs to the J. V. Farwell estate. It has been idle for the past 10 years, although a watchman has been maintained as caretaker. It is patented ground and is equipped with a mill and complete camp. R. E. Morrison of Prescott is attorney for the owners.

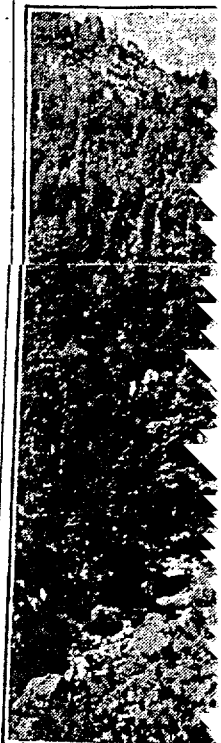
25—Black Mine—adjoins the Storm Cloud and Ratcliffe properties. It has been taken over by F. M. Anderson, who has unwatered it and now has the shaft timbered for almost its entire depth of 400 feet. The shaft is on an ore body running the length of the eastern side of the claim. There are drifts at the first and second level. A 40-foot shaft was sunk on the Black vein, 150 feet further west. Some of the ore taken out in the early days was very high grade. It was shipped to the old Val Verde smelter at Humboldt. The complex character of the ore made the cost of treatment prohibitive and the mine was closed down and allowed to fill with water. It has lain idle for many years.

MINES OF THE SENATOR-GROOM CREEK SECTION

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|----------------------|--------------------------|
| 1. Midnight Test. | 24. Snowclad. |
| 2. Nevada. | 25. Black (Anderson). |
| 3. Chas. Behm. | 26. Ratcliffe Group. |
| 4. Prince Albert. | 27. Senator. |
| 5. Home Run. | 28. Cash. |
| 6. Alma Group. | 29. Stormcloud. |
| 7. Empire. | 30. Snoozer (Senator). |
| 8. Gold Basis. | 31. Treadwell (Senator). |
| 9. Infanta. | 32. Dunkirk. |
| 10. Hidden Treasure. | 33. Poverty. |
| 11. Monte Christo. | 34. Tillie Starbuck. |
| 12. Chicago. | 35. Davis. |
| 13. Silver King. | 36. Esmeralda. |
| 14. Ideal | 37. Lookout. |
| | 38. Venezia. |
| | 39. Crook. |
| | 40. Crook. |

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Big Pine Trees Ba MI

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Big Pine Administration Building in the Big Pines

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The equipment includes a 40 h. p. boiler and steam hoist with a bucket, skip and small steam pump, a forge and blacksmith shop, assay office and necessary houses. The property is about 1000 feet off the State Highway, about 10 miles from Prescott. There is a large supply of oak and pine on the ground. Water is obtainable from the Emporia workings and also from Wolf Creek, which passes through the property. Engineers ad-

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have to be extended to reach this point. This property was originally owned by Major A. J. Pickersell, and others. In 1915 it was sold to capitalists owning the Marquette in the Crown King district. Part of the payment price was a half interest in a production plant on the Marquette and enough cash to partially equip the mill. This plant had to be discontinued owing to the heavy loss when the mill as destroyed by fire and larger plant has been installed with improved prospecting greatly increased than of extraction. H. M. Dunning, who has been the general manager of the Big Pine, as its general manager this position to enter service on June 1st. D. R. Hagon, one time manager of the Marquette at Jerome, has been ordered to his place. August Hagon is in charge of the Duluth, Minn. office of the company. Gold Warrior—claims. It adjoins the



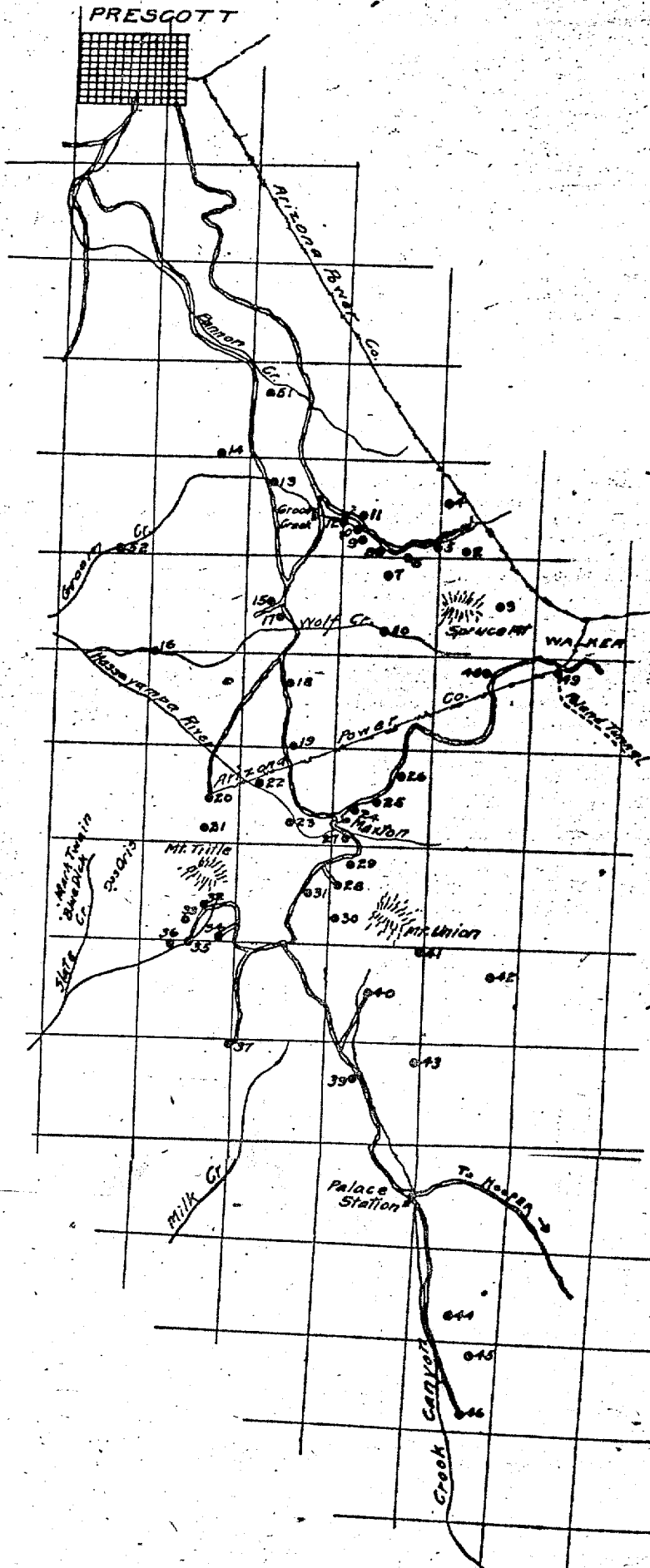
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27—Senator





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r is cut by the Emporia about down the hill from the head. The principal workings consist of two inclined shafts about 100 feet apart and 200 feet deep on the claim. They are connected by 5 and 100 foot levels and have drifts of snort length. All of the ore is in place except a small slope, from which several tons of high grade ore was extracted. Most of the ore so far extracted has been milled. The all 40-foot shaft has been sunk in the Manhattan vein and shows an approximately 2 feet wide. The ore averages \$13, principally

gold, with some silver and copper. With simple amalgamation and concentration there is a 90 per cent extraction, of which \$4 will be recovered on the plates and \$7.20 in the concentrates.

The equipment includes a 40 h. p. boiler and steam hoist with a bucket, skip and small steam pump, a forge and blacksmith shop, assay office and necessary houses. The property is about 1000 feet off the State Highway, about 10 miles from Prescott. There is a large supply of oak and pine on the ground. Water is obtainable from the Emporia workings and also from Wolf Creek, which passes through the property. Engineers ad-

Keyes of Prescott.

18—Sunnyside—is a low grade property that has seen many vicissitudes. A vein varying in width from 12 feet to 15 feet outcrops for 100 feet. It carries free gold values to a depth of from 35 feet to 55 feet, when the sulphide zone is reached. A 40-foot tunnel along the strike of a vein intersected the main Baltimore vein at a depth of 47 feet. Drifts were run north 178 feet and south 100 feet. The workings were in operation for \$9 in gold and silver. Financial troubles resulted in closing down the property. Through careless assessment work was neglected, the property was re-located by the owner who dismantled the mill and sold the equipment and sold them. The property is reported to be a desirable one but the old workings are caved and would take much money to put the property into shape. H. M. Cole of Prescott controls the property.

20—Big Pine Con. Mining Co. has 14 claims, of which 8 are patented. It is located about 12 miles south of Prescott in a heavily timbered country. It has been operated with several tunnels, which have blocked out 75,000 tons of commercial ore, of which 4000 tons have been broken and are on the stamp ready to be milled. This ore runs from \$10 to \$15 a ton, and the cost of mining and milling is estimated at less than \$3.

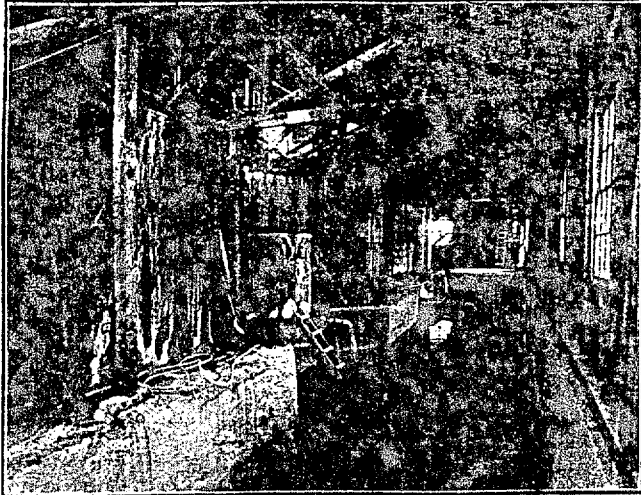
A combination sand leaching and sand decantation plant capable of treating from 3000 to 4000 tons of ore per month has been installed which effects a saving of 99 per cent of the gold values and from 85 to 90 per cent of the silver values. At present, about 100 tons of ore per day are being treated. Two shifts are worked in the mine and in grinding, and three shifts are kept busy in treating the ore.

The first work on the property was done in tunnel No. 2, which is in about 600 feet.

The mill is located just below the portal of tunnel No. 6, so that ore can be forced into the bins by a simple drop. Tunnel No. 6 is in about 600 feet. At 600 feet an upraise of

... have to be extended...
... to reach this point...
... this property was originally owned by H...
... Major A. J. Pickersell, and others. In 1915...
... capitalists owning the Ma...
... in the Crown King du...
... a half interest...
... Part of the payment price...
... a function plant on the Ma...
... and enough cash to a...
... equip the mill. This...
... called in the summer...
... had to be discontinued...
... owing to the heavy...
... was well under way...
... the mill as destroyed...
... and larger plant has...
... with improved proce...
... greatly increased the...
... of extraction...
... H. Dunning, who has...
... Big Pine, as its general...
... the last eight years...
... this position to enter So...
... on June 1st. D. R. ...
... one time manager of ter...
... master at Jerome, has been or...
... his place. August Hagon...
... Bldg., Duluth, Minn. at...
... of the company...
... Gold Warrior—con...
... claims. It adjoins the

Yavapai Magazine June 1918

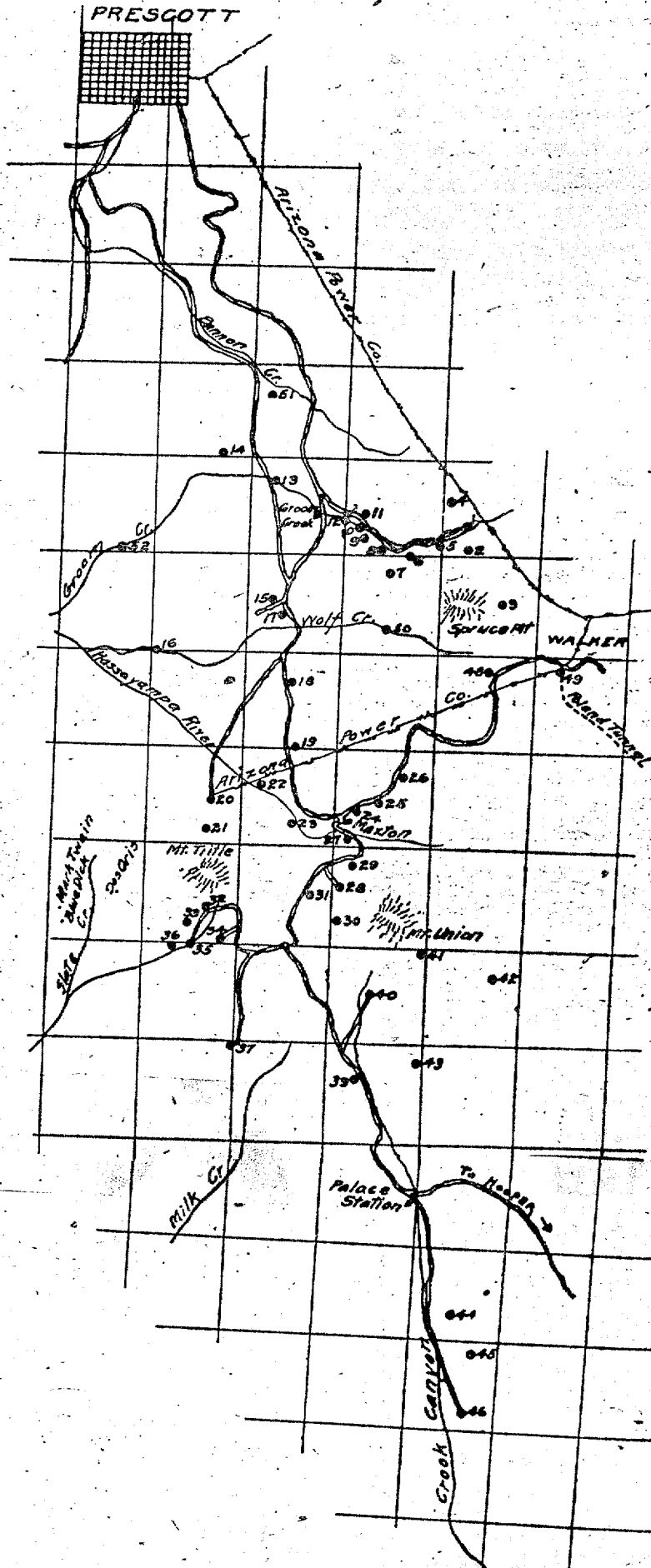


Agitator-Thickener Sets and Dumps, Big Pine Mill



Mill and Camp of the Big Pine Consolidated Mining Co.

MINES AND ROADS OF SENATOR AND GROOM CREEK SECTION
(Each Square Represents One Mile)



onstrated. This is in copper, b lead, and some tation process, ous values is trates so that the returns fr ties for which necessary to c

It is Mr. And up the old wor work in the be at the 400 leve and the values depth. Later s to the Black siderable high have been ship

26—Ratcliff 22 claims. T tory work on claims on out a large ore b claim is a 285- a drift of 50 f all in good ore. been run on th cut tunnel has 165 feet and wi feet more to in a 100-foot sha were shipped ton. the val ounces of silve per. Work h ledge carrying inches of high was leased a Bradshaw Cop was unable to r ments and the the owner, Ale 27—Senator



connected it with the portal of tunnel No. 5. Tunnel No. 5 is in 1500 feet, of which 1100 feet is in pay ore. At 1400 feet an upraise of 100 feet connected with tunnel No. 4. Tunnel No. 4 is in 750 feet, at which point an upraise connects it with Nos. 3, 2 and 1. Tunnel No. 1 is in 300 feet, of which 150 feet is in the ground of Bob Meader, who owns the adjoining property. By the system of upraises the mine is ventilated to advantage. At the same time, the cost of mining and conveying the ore to the mill is reduced to a minimum. At present the work is concentrated on the higher tunnels, as the ore at these points carries specially high silver values. Tunnel No. 7, the portal of which is about 2000 feet from the mill, is in 350 feet. This work is all more averaging about \$15. It will require an upraise of 200 feet to connect No. 7 with the mill. The tunnel will have to be extended 1700 feet more to reach this point.

This property was originally owned by Major A. J. Pickerell, C. H. Dunning and others. In 1915 Minnesota capitalists owning the Mascot property in the Crown King district, acquired a half interest. Part of the payment price was the reduction plant on the Mascot property and enough cash to install and fully equip the mill. This plant was installed in the summer of 1916. Work had to be discontinued that winter owing to the heavy snowfall. Work was well under way in 1917 when the mill as destroyed by fire. A new and larger plant has been installed with improved processes that have greatly increased the percentage of extraction.

C. H. Dunning, who has developed the Big Pine, as its general manager during the last eight years, resigned from this position to enter the naval service on June 1st. D. R. Finlayson, M. Coleman, one time manager of the Green property, and Monster at Jerome, has been employed in his place. August Hagberg, 208 Exchange Bldg., Duluth, Minn., is secretary of the company.

22—Gold Warrior—consists of 22 claims. It adjoins the Big Pine ledge continues through the length of the property for 3000 feet. The property was taken over in 1917 by the Gold Warrior Mining Co. This company did some development work, but the property has been idle for some time because of lack of funds. The initial tunnel on this property is near the Hassayampa river, and considerable depth can be achieved at a comparatively small expense. The country is well wooded, there is ample water at hand. Mining and milling should be accomplished at a minimum of expense. Some exceedingly high grade ore was taken from the surface of this property. The ledge proper averages \$10 to \$12 per ton.

23—Sundance—belongs to the J. V. Farwell estate. It has been idle for the past 10 years, although a

found in the old workings. A station has been cut at the 220-foot level and that as well as the shaft, is in good milling ore. At the 240-foot level the same high grade of ore was struck, averaging 18 per cent copper, that was encountered in the upper levels, which proves the increasing width of the high grade ore with depth. A contract has been let for transportation of the ore to the smelter at Hayden and two motor trucks installed. The ore shipments are averaging from 16 to 22 per cent copper, with three to four ounces in silver per ton, having a value of from \$75 to \$80 per ton. One car or more per week can be shipped of these grades, if to the best interest of the company, mostly from development work, leaving the lower grade of ore on the dump for future concentration.

Magma's Big Tunnel

SUPERIOR—

The great tunnel leading from the surface plant to the 500-foot levels of the three working shafts at the Magma mine will be completed and ready for use about January 1. In other words the work of driving the tunnel will consume approximately six months.

When completed it will greatly facilitate work at the mine and will wonderfully improve the air as the intake will be 500 feet lower than at present. The tunnel will be provided with a railroad track and all shipping ore will be handled directly from the respective shafts to the cars, which will carry it to the smelter. The buildings at the portal of the tunnel will consist in the main of a change room, a carpenter shop and a blacksmith shop.

All supplies for the mine will be taken through the tunnel, which will be 1,800 feet in length when completed. The tunnel is going in at the rate of 300 feet a month or ten feet a day, which means that six months will be consumed in its construction.

Richmond Basin Country

Advices from Globe say the Richmond Basin again is active, with the rise in silver value. Nearly 40 years ago the basin was even more noted for silver production than was the Silver King. Several hundreds of thousands of dollars' worth of native silver was taken from the surface of the Silver Nugget claims—simply loaded into wagons and hauled away. The Mack Morris was a large producer and rich leads were worked on a number of other mines. Two of the old mines (the Emmaline and Blue Bird), lately have been taken under lease by a Colorado company, represented by George Dunlap, of Denver, who is bringing in new machinery, necessary for development of the long abandoned properties. In the same locality a 20-ton cyanide mill has been started on the Jumbo property by Charles Bessonette for the handling of a large dump of low grade ore.

Big Mining Deal Near Superior

PHOENIX—

One of the largest mining deals completed in Arizona since the war broke out was consummated here yesterday, thirty-two claims of the "Daggs group" about a mile from Superior, Arizona, being sold to a syndicate of about forty New York and Philadelphia men, headed by C. C. Steinbrenner of New York. The consideration was announced by Hugh R. Daggs, who, with P. H. Hayes, negotiated the deal for \$450,000. The claims are the prop-

erty of the Consolidated Holding company and were located in 1899 by A. J. Daggs, and Hugh R. Daggs. J. C. Denton, general manager of the Grand Pacific company represented the purchasers in the deal. The claims are adjacent to the Grand Pacific group. Mr. Daggs said the sellers were to receive a stock interest in the company formed by the syndicate.

Shamrock Cuts High Grade

According to General Manager Bernard McEntee, upon a recent visit to Phoenix, a good strike has just been made in the Shamrock Mining company's property in the Polosa district near Vicksburg, Yuma county.

The find occurred at the 160-foot level, where a two-foot vein of high grade copper-silver rock was encountered on the cross-cut, the extent of the deposit being at the present moment undetermined because of the fact that not enough work has been done to expose the dimensions. The ore will run about five per cent copper and probably 20 ounces in silver, according to McEntee.

The Shamrock, while a comparatively new property, has already shipped out about \$12,000 worth of ore, the values being principally in copper. The owners of the group, who are residents of Boston, are planning considerable development in the near future and the recent find will in all probability hasten the work, as the values exposed would seem to indicate that the property can soon be placed in the column of "mines".

PRESCOTT—

From the Blue Bell and De Soto mines a total of 11,400 tons of ore was shipped to the Humboldt reduction plant in July. The concentrator handled 7,150 tons, while the smelter proper treated 7,100 tons of new metal bearing material.

During the month of July there was shipped to the east 650,000 pounds of fine copper in bullion, the majority of which was derived from domestic material.

Big Pine Active

C. H. Dunning, manager of the Big Pine, near Senator, stated yesterday that since resuming, development was centered to driving the main tunnel, and a distance of 700 feet had been negotiated. Before the mill starts this work is to continue until 1000 feet has been accomplished. The ore showing is satisfactory, he says.

New Company Moving

John Slak, manager of the Good Hope Mining company, which has interests in Turkey Creek district, visited the city recently and stated operations would be under headway in a short time, on a basis of permanency. Eastern stockholders are interested who had advised Mr. Slak recently to this effect. The Good Hope is a gold and copper proposition practically determined as desirable.

Mining Man Returns

Captain W. V. DeCamp, well known in mining circles, has returned from New York City and again is with the Consolidated Arizona Smelting company as field engineer with headquarters at Humboldt. Formerly he was superintendent of the Blue Bell, but resigned to enter the army, serving until the armistice. Since resigning his commission he has been taking a post graduate course in mine engineering at the Columbia School of Mines, New York City.

P. D. Co. May Buy Duquesne

PATAGONIA—

It has been stated on authority which can not be doubted that the Phelps Dodge interests of Bisbee are making examinations of the properties owned by the Duquesne Mining and Reduction company at Duquesne and Washington Camp.

Some years ago the Copper Queen people made an effort to buy the Duquesne mines and offered a substantial figure for them, which was refused by the owners. After the death of Mr. Westinghouse, Sr., his heirs decided to give up mining, and the property, it is understood, has been offered for sale at a price of \$150,000. The equipment alone is worth this money, to say nothing about the valuable ore bodies which have been developed during the past few years.

Should the Copper Queen interests take over this property it is more than likely that the El Paso and Southwestern railway will be extended from Fort Huachuca to Duquesne, giving the company a direct all rail haul from the mines to the smelters at Douglas, thus obviating the handling of ore with teams, the method formerly employed. This road was surveyed several years ago through the Canille mountains and San Rafael valley to Duquesne.

Curry & Pannick, who have a temporary lease on the Duquesne mines, have been shipping about 400 tons of high grade ore monthly through Mexico to the Douglas smelters.

Examining Three R

W. C. Browning, manager of the Magma Copper company at Superior, Arizona, and T. A. Etlinger, mining engineer, arrived in Patagonia recently and made a thorough examination of the Three R mine for the Magma company, and if the report of these gentlemen to the officials of the corporation is satisfactory no doubt the property will be taken over by this concern, one of the strong mining organizations of the state. Mr. Browning and Mr. Etlinger came from Superior, a distance of 200 miles, by auto.

American Boy Working

Work at the American Boy mine, interrupted as a result of the recent heavy rains, is now expected to go forward without further interference. New machinery is being installed at this property. The American Boy is being developed by A. F. Gross of Duluth, Minn., under a bond and lease. Harry Armstrong is superintendent at the mine.

More Men at El Paso

Superintendent W. J. Mitchell of the El Paso mine at Mowry is authority for the statement that a good body of copper ore has been uncovered in the shaft at a depth of 300 feet. A station is being cut on that level and it is stated that next week an additional force of 25 men will be employed at this property.

Activity at Greaterville

Dave David returned recently from the Greaterville district and reports considerable activity in that section.

The Cottrell Engineering company of Los Angeles is erecting a dry concentrating plant near Greaterville, which is nearing completion. This mill will be used to handle the ore from this company's property and will also do custom work.

Interest in the placer fields of this district is being increased, as is evidenced by the recent bonding of 150 acres of placer ground to a Colorado concern by Col. R. R. Richardson.

AZTEC MINES CO.

ARIZONA

Apparently dead. If so, R. I. P., as it is ill form to criticize the defunct. See Vol. X of the Copper Handbook.

BEEMER CONSOLIDATED GOLD & COPPER CO.

ARIZONA

Owns the Stormcloud Mine at Mt. Union, 12 miles south of Prescott, Yavapai Co., Ariz. Idle.

BIG BUTTE COPPER CO.

ARIZONA

Address: H. E. Shumate, sec., Prescott, Ariz.

Officers: Geo. L. Reed, pres.; Ed. Shumate, v. p.; Geo. C. Ruffner, treas. Inc. April, 1917, in Montana. Cap., \$1,500,000; shares \$1 par.

Property: 43 claims in Copper Basin district, near Prescott, developed by tunnel, shafts and open cuts.

BIG PINE CONSOLIDATED MINING CO.

ARIZONA

Prescott, Ariz.

Officers: A. Bjorkman, pres.; Richard Lamson, sec.; A. Bergquist, treas.; with Felix Durocher and C. H. Dunning, directors. C. H. Dunning, supt.

Inc. April 30, 1915, in Arizona. Cap., \$500,000; shares \$1 par; outstanding, \$400,000. Annual meeting 1st Monday in April. Commercial Trust & Savings Bank, Prescott, registrar. Is a consolidation of the Big Pine Mng. Co. and the Lake Superior & Western Mng. Co.

Property: 14 claims in Senator district, 12 miles south of Prescott. Ore: gold occurs in 3 parallel veins, which cross the claims.

Development: by 7 tunnels, principally on a vein claimed to show ore for 700' in one tunnel, 1,100' in a second, 1,600' in a third, and 400' in a fourth. Company claims ore reserves of 70,000 tons, average grade \$9 per ton.

Mill: the 100-ton cyanide plant of the Mascot mine, Lake Sup. & Western Co. was moved to the Big Pine property and erected near portal of tunnel No. 6. Electric power is obtained from the Arizona Power Co. H. C. Shotwell, who sampled the mine and assisted in the promotion of the company, reports that there is ample ore of milling grade to keep the mill supplied, but mill returns from two months' run were apparently unsatisfactory and mine was shut down for a while. Reported to have started again in Oct., 1917.

BLOCK MINES CO.

ARIZONA

Address: Prescott, Ariz.

Officers: A. J. Head, pres.; E. Block, v. p., treas.-mgr., with H. Brinkmeyer and M. Goldwater, directors.

Inc. August, 1913, in Arizona. Cap., \$1,000,000; shares \$1 par; 500,000 shares in treasury.

Property: owns the Billy Boy and Christmas group of mines on the Hassayampa river, Yavapai county. Billy Boy mine developed by 225' tunnel showing 14" paystreak carrying gold, silver, lead and copper ore, said to assay \$70 per ton.

Is a prospect with some merit but needs financing and competent management to prove its possibilities.

BONNIE MINING CO.

ARIZONA

Address: R. M. Garrett, Prescott, Ariz. Mine on upper Lynx creek, Yavapai Co., Ariz., is an old one reopened in 1916. The shaft, 123' deep, at last accounts, will be carried down to 250', when drifting, to cut the face of the main tunnel 500' distant, will begin. The ores, formerly gold-silver, are now high-grade copper, in a vein 26" wide at 123' in depth.

CASH MINE

ARIZONA

Prescott, Ariz.

Property: leased to N. E. Getchell, Maxton, Yavapai Co., Ariz., shows

BIG PINE GROUP

YAVAPAI COUNTY

KAP WR 3/11/88: George A. Williams, Apex West, 6428 W. Orangewood, Glendale, Arizona, phone 931-7250 was in to research file information on his St. Theresa claim in Sec 35, T12N R2W of Yavapai County. Information was contained in the Big Pine Group (file) for which St. Theresa was listed as an aka. He sketched in the location of the claim on a copy of the BLM Mining District Sheet #245 for the file.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

✓
Mine BIG PINE GROUP

Date April 20, 1955

District HASSAYAMPA DISTRICT, YAVAPAI COUNTY

Engineer Mark Gemmill

Subject:

↙
Mr. Lawe died a year or two back. The attorney for the estate has been trying to sell the property, but so far without success. It has been idle for several years past.

POCAND
BLUE DICK
BLACK DIAMOND
STEARL OGD
BIG PINE
DAVIS PUNKIRK
TILLIE STARBUCK

REPORT ON THE PROPERTY
OF
BRADSHAW MINES, INC.

YAVAPAI COUNTY, ARIZONA

JULY 17-25, 1936

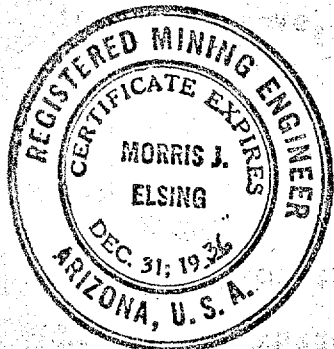
BY

Morris J. Elsing, E. M.

The report of the property of the Bradshaw Mines, Inc., in the
Yavapai County, Arizona, is as follows:

REPORT ON THE PROPERTY OF BRADSHAW MINES, INC.

YAVAPAI COUNTY, ARIZONA



JULY 17-25, 1936

BY

Morris J. Elsing, E. M.

INTRODUCTION

The Bradshaw Mines, Inc., is engaged in a general mining business in Yavapai County, Arizona. The company's methods and policies are different from the usual mining company in that it does not confine itself to the operation of only one property. Briefly stated, the policy of the Bradshaw Mines is to acquire by lease and option, a large number of formerly productive mines, re-open them, sample the orebodies, and where advisable, extend workings and do further exploratory work with a view to proving the worth of the mine.

The company has a splendid 75-ton flotation mill to which ore is trucked from the different units. In this way, almost immediate returns from ore are obtained from any single operation, which largely defray the operating expenses, besides, giving valuable information relative to amenability of the ore to treatment.

The present center of the company's operations is in the Haasayampa mining district, about 15 miles south of Prescott. One of its properties is in the Big Bug mining district and another in the Walker district. Other districts close by are the Pine Grove, Tiger, Peck, Black Canyon, and Green Creek districts.

DISTRICT PRODUCTION

The production of these districts as shown in Bulletin

140 of the Arizona Bureau of Mines is as follows:

District	Lead (pounds)	Gold (value)	Silver (value)	Total (value)	
Big Bug	4,650,000	\$6,565,000	\$2,930,000	\$21,920,000	(1)
Haasayampa	1,500,000	1,620,000	705,000	2,600,000	
Pine Grove	1,515,000	165,000		1,739,000	(2)
Tiger	100,000	690,000	\$1,955,000	1,745,000	(3)
Peck	250,000	250,000	2,075,000	5,190,000	(4)
Black Canyon	175,000	235,000	80,000	280,000	
Green Creek		75,000	65,000	140,000	

- (1) Includes 70,000,000 pounds of copper.
- (2) Includes 400,000 pounds of copper.
- (3) Includes 200,000 pounds of copper.
- (4) Includes 18,800,000 pounds of copper.

Each of these districts had from three to twenty or more mines, which were productive twenty to fifty years ago on a fairly large scale. Only a few of these mines showed any important profits due to a score of reasons which do not obtain today.

The favorable factors which make gold and silver mining so attractive at present, are, first, an increase of 100% in the value of gold and the stabilization of the price of silver at a very satisfactory level. The cost of mine operations today has been materially reduced by good roads and motor



truck transportation. The improvement and development of the gas engine and other mining machinery have been material factors in reducing costs. Metallurgical processes as respect to the treatment of gold and silver ores have been greatly improved, resulting in higher recoveries at reduced costs of milling. Combine these favorable conditions with the operation of several properties under one management and the treatment of the ores in one efficient mill, the possibility for profit becomes considerably enhanced.

The various mines of the district are connected with each other and with Prescott by good mountain roads. Contract trucking is in vogue, and under ordinary conditions, 10¢ per ton-mile can be considered the basis for estimating haulage costs. At a transportation cost of \$1.00 per ton, the production of all mines within a radius of 10 miles is available to an operating mill.

MINES OF THE COMPANY

	Gold	Silver	Total
With this in mind, Bradshaw Mines, Inc., first, acquired the Davis-Dunkirk property with its 75-ton flotation mill, recently erected by E. L. Sweeney, engineer and contractor, who has constructed a large number of flotation mills in Arizona, California, and Nevada.			
The Tillie Starbuck property was acquired under lease and option. The portal of the main tunnel of this mine is about 1,000 feet from the Davis-Dunkirk mill.			

The Big Pine property nearly adjoins the Davis-Dunkirk

but lies over the mountain from it. The property is now eight to ten miles by road from the mill, but by constructing a little over a half mile of road, connection could be made with the Davis-Dunkirk road at Tun, No. 15, thereby, reducing the distance to between two and three miles.

The company's Storm Cloud mine is located on the Senator Highway, five or six miles from the mill.

The Blue Dick and Black Diamond mines are located about two miles from the Davis-Dunkirk mill. The present road is about 18 miles long. A new road would bring the property within three and one-half miles of the mill.

The Poland and the Bannic mines are outside of Hassayampa mining district.

PRODUCTION OF MINES

According to the Arizona Bureau of Mines, Bulletin No. 140, the production of the different properties of the Bradshaw company is as shown below:

	Gold	Silver	Total
Davis-Dunkirk 1874-1930	\$150,000	\$50,000	\$200,000
Blue Dick	25,000	175,000	200,000
Storm Cloud	75,000	25,000	100,000
Poland 1900-1912	<u>300,000</u>	<u>400,000</u>	<u>700,000</u>
	\$550,000	\$650,000	\$1,250,000

In addition to this, recent production of the Davis-Dunkirk has been about \$130,000, and the Big Fine has produced something over \$100,000, making the former production of these properties well over \$1,500,000.

The F class mine, consisting of 21,000 feet of
mining claims, is located in the Walker mining district,
about 20 miles northwest of Butte and about 7 miles
from the town of Fiddler's Neck.

The property was purchased by more than 18,000
feet of development, a transportation tunnel, 11,000
feet long, runs through the mountain and connects with
the railroad. This tunnel is owned by the Bradshaw mine
company.

The Bradshaw company has been operating since
since May 1936. From June 17, 1936 to June 16,
1938, twenty thousand, nine hundred and twenty-
seven tons of ore have been milled, yielding
gross smelter returns of \$130,653.68 or \$6.25
per ton.

A brief description of the company's mine, the
various mines is herewith given.

The mine is 1,000 feet long and 100 feet wide.

The F class vein is typical of many veins which
occur in the Bradshaw district. The vein material is
quartz, containing pyrite, galena, silver, and
copper.

As a general rule, the mine has produced about
\$130,000, which more or less equally divided gold and
silver. The bulk of the production has been from stages

at levels above the main current tunnel level. These
veins are not shown on the information regarding
the character of the POLAND VEIN below.

The Poland mine, consisting of 21 patented lode
mining claims, is located in the Walker mining district,
about 2 1/2 miles by road from Prescott and about 7 miles

The property has been opened by more than 16,000
feet of development. A transportation tunnel, 11,000
feet long, cuts through the mountain and connects Walker
and Poland. This tunnel was used by the Sheldon mine
for the transportation of its concentrates to the rail-
road.

In the course of its 11,000-foot length, this tun-
nel has intersected a number of veins, the most impor-
tant of which is the Poland, located at a point 800
feet from the south portal. Some 3,000 feet of work has
been done at the tunnel level. At the present time, the
workings along the vein have been re-opened for some
1,600 feet, of which 1,400 feet is to the north and 200
feet is to the south.

The Poland vein is typical of many others which
occur in the Bradshaw Mountains. The vein material is
quartz, containing pyrite, chalcopyrite, galena, and
sphalerite.

According to Lindgren, the mine has produced about
\$750,000, divided more or less equally between gold and
silver. The bulk of the production has come from stopes

at levels above the main crosscut tunnel level. These workings are now inaccessible, and information concerning the character of the productive portions of the vein is unattainable. In the latter mining district, about 1900. On the tunnel level, the vein is rather tight and hard but exceedingly persistent, although the sulphide values and presumably the pay values are not regular. It is reported that the Occidental vein, a vein parallel to the Poland, has also been productive. In view of the fact that the company owns the Poland property in fee, speed in its development is not essential. The property is worthy of careful geological investigation and extensive sampling, but until such time as this has been done, conclusion relative to the merits of the property cannot be drawn. ~~quality of any of the company's holdings.~~

The mine is well equipped with a complete black collar, hoist, compressor, air blower, etc.

BANNER MINE

The Banner mine consisting of 16 unpatented mining claims is located in the Walker mining district, about three miles from the Sheldon Copper Company.

Development work consists of a vertical shaft 325 feet deep with levels at the following points: 100 feet below the collar; 185 feet, and 325 feet below the collar. Approximately 500 feet of drifting has been done on each of these levels. Two adit tunnels also follow the vein for several hundred feet.

The shaft is full of water to within a few feet of the surface, but I learned that the ore showings in the shaft were not particularly encouraging.

I consider this the least promising of any of the company's holdings.

The mine is well equipped with a complete steam boiler, hoist, compressor, and blacksmith shop.

The deposit appears to be a fissure vein striking north and dipping east.

The company has cleared out the old workings in this mine, of which there are now 4,000 feet. About 5,000 tons of ore have been shipped to the Lewis-Dun-kin mill. This ore came from rejected dump material, old open pit stopes, and partly broken ore. The vein

varies from 1 to 7 feet in width and are composed of
quartz, calcopyrite, pyrite, and arsenopyrite is located

BLUE DICK AND BLACK DIAMOND MINES

There is some coal about but further development.
The Blue Dick and Black Diamond are adjoining
properties, situated on a ridge between Slate Creek
and the Ha ssayampa River. These properties comprise
five unpatented lode claims. The Blue Dick is held
under option to purchase, and the Black Diamond is
owned by the company in fee. They are located about
8 miles in an air line from the Davis-Dunkirk mill,
and could be connected with it by an aerial tram or
by a truck road about 3½ miles long. The present
road is about 18 miles to the mill.

The Blue Dick is an old mine, which according
to Waldemar Lindgren of the United States Geological
Survey, has produced about \$200,000 in gold and silver,
most of which was sufficiently high grade to be shipped
to smelters. He states the "country rock is a dense
dull greenstone. The deposit appears to be a fissure
vein striking north and dipping east."

The company has cleaned out the old workings in
this mine, of which there are some 4,000 feet. About
5,000 tons of ore have been shipped to the Davis-Dun-
kirk mill. This ore came from rejected dump material,
gob from old stopes, and newly broken ore. The vein

varies from 1 to 7 feet in width and the ore contains galena, chalcopyrite, pyrite, and arsenopyrite in quartz galena.

There is some ore in sight but further development awaits a more careful geological study, preliminary to a possible campaign of diamond drilling with a view of determining values at greater depth.

The Storm Cloud mine is east of the Cash mine, in a gulch on the northwestern slope of Mount Union, at an altitude of about 7,500 feet. The main tunnel with the ore body is about three-quarters of a mile from the main road above the Cash mine. The mine is 100 feet above the tunnel. The property seems to belong to the Betty O'Hara Mining Co., which also controls the Cash mine. The report could not be examined in fact, it has not been opened since 1910. A considerable amount of gold-silver shipments are (profitable limit, \$20 a ton) has been produced, and it is said there is also a vein containing free-milling gold. This ore was first used to make and then to the Cash mine. Below said.

The country rock is a diabolitic basalt, though to granite east of the mine by slope to the west. The ore contains pyrite, specularite, chalcopyrite, galena, and sphalerite in a quartz gangue.

It is of interest to note that the Storm Cloud lies between the Cash mine and the Cash mine. The Senator is owned by Phelps Dodge Corporation interests, the year

has produced 2500,000 from the Cash vein. The Cash
mine has had a production of 125,000 since the storm
cloud was produced.

STORM CLOUD MINE

The country rock is amphibolitic schist, though
Waldemar Lindgren (Bulletin U. S. G. S. Bull. 782)
gives the following information about the Storm Cloud
mine:

"The Storm Cloud mine is east of the Cash, in a
gulch on the northwestern slope of Mount Union, at an
altitude of about 7,200 feet. The main tunnel with the
ore bodies is about three-quarters of a mile from the
main road above the Cash mine. The shaft is 200 feet
above the tunnel. The property appears to belong to
the Betty O'Neal Mining Co., which also controls the
Cash mine. The deposit could not be examined--in
fact, it has not been worked since 1910. A consid-
erable amount of gold-silver shipping ore (profitable
limit, \$30 a ton) has been produced, and it is said
there is also a vein containing free-milling gold.
This ore was freighted to Walker and then to the Hum-
boldt smelter.

The country rock is amphibolitic schist, though
the granite contact should be close by toward the east.
The ore contains pyrite, specularite, chalcopyrite, galena,
and sphalerite in a quartz gangue."

It is of interest to note that the Storm Cloud lies
between the Senator mine and the Cash mine. The Senator
is owned by Phelps Dodge Corporation interests, who years

ago produced \$530,000 from the Senator vein. The Cash mine has had a production of \$200,000 while the Storm Cloud has produced about \$100,000.

The company has only recently acquired the Storm Cloud, and there has not yet been sufficient time to clean out the old workings, of which there are many. Some ore has already been exposed and stoping has been started and several shipments have been sent to the mill.

Work on this vein and several veins from these tunnels. Approximately 2,000 feet of development work has been done.

Former production amount to about \$100,000. It is reported that a few years ago, 30 cars of ore, averaging about \$11.00 per ton, were shipped to a smelter. There is an air shaft on the property and some tailing houses in the creek.

The old workings are being cleaned out and sampled. Results of this sampling indicate that some good mill grade can be produced from veins of 3 to 4 feet.

No important tonnage has been located but sufficient work has been done to warrant the belief that the mine will be able to contribute a portion of the ore feed for the Davis-Dunham mill.

Some rather extensive quartz outcrops are being exposed by diamond drilling.

DAVIS BIG PINE MINE

The Big Pine mine includes eight patented and two unpatented lode claims, which are located a short distance from the Davis-Dunkirk No. 15 tunnel. There are at least six veins on the property of which the Big Pine Vein is the most important. There are three tunnels on this vein and several raises from these tunnels. Approximately 2,000 feet of development work has been done. Former production amounts to about \$100,000. It is reported that a few years ago, 30 cars of ore, averaging about \$30.00 per ton, were shipped to a smelter. There is an old mill on the property and some tailing remains in the creek. The old workings are being cleaned out and sampled. Results of this sampling indicate that some good mill ore can be produced from widths of 2 to 4 feet. No important tonnage has been blocked out but sufficient work has been done to warrant the belief that the mine will be able to contribute a portion of the ore feed for the Davis-Dunkirk mill.

Some rather extensive quartz outcrops are being explored by diamond drilling. The country rock is dioritic. The vein strikes N. 60 degrees E. and is said to be continuous for a mile to the east of the tunnel. The ore

DAVIS-DUNKIRK MINE

Lindgren gives the following information relative to the Davis and Dunkirk mines.

"The Davis property is about half a mile east of the Dos Oris and at a somewhat higher altitude. The production is said to have been about \$200,000. The Davis mine is first mentioned in Raymond's report for 1874. It is stated there that 35 tons of ore when shipped from this mine to San Francisco brought \$18,458 for the silver contained. The Davis is working on a wide vein with several streaks of ruby silver ore. It is now owned by Mr. Caspari, a well-known mining man of Prescott.

The ore consists of fine-grained quartz with many small druses and included greenish fragments of sericitic country rock. The ore minerals are sparse pyrite and yellow spalarite in small aggregates. There are many grains of arsenical ruby silver (proustite) and a black mineral identified as polybasite. The silver minerals appear to be primary. The vein is distinctly of the shallow type usually associated with volcanic rocks."

Dunkirk Mine

"The Dunkirk mine is in the same gulch as the Davis, at the end of the wagon road from Mount Union pass, at an altitude of about 7,200 feet. The country rock is diorite. The vein strikes N. 60 degrees E. and is said to be continuous for a mile to the west of the tunnel. The ore

consists of quartz with much pyrite and chalcopyrite, and it carries some gold and silver. It is the property of the Murphy estate." The Davis and Dunkirk veins are among the longest and most persistent in the Kaseyampa district. Claims of the company cover the veins for about 13,000 feet in length. For approximately half of this distance, the veins unite and form one vein. The approximately 11,000 feet of work develops these veins. The longest tunnel is located at the top of the hill and delivers ore to it. This tunnel is approximately 2,400 feet in length and has developed several ore shoots. The width of the vein varies from a few inches to over four feet. Various other tunnels develop these veins at considerably higher elevations.

Some years ago, the property was worked by lessees. The Caspari lease produced 1048.9 tons of ore valued at \$84,975. The gold contained, ranged between 0.1 and 1.0 ounces per ton; the silver from 50-70 ounces; the copper from 3 to 10 per cent; with an average of 4 or 5 per cent.

The Twiggs lease produced 948 tons, valued \$75,046, with gold at \$20.00 per ounce, silver at \$1.00, and copper at 20¢ per pound.

These two leases showed a production of 2,100 tons with an average of better than \$60.00 per ton. Recent work has opened these older workings and has exposed ore similar to that mined. The high grade portion of the vein varies in width from a few inches up to 18 inches.

During the past year the company has mined several ore shoots but with only fair results due to the method of mining. Dilution has unnecessarily lowered the grade. There is no question that high grade ore can be produced from this property, which should be profitable. The veins are nearly vertical, and the ore shoots are scattered, but when encountered, they are high grade. The operation of a leasing system should result in a very profitable tonnage.

No tonnage can be claimed as blocked out, but good ore exists in a score of places. Transportation facilities have been provided for each of the numerous workings, so that ore can now be cheaply delivered to the mill.

A completely equipped camp, with quarters for 80 men, is located near the mill. The company has taken great precautions to insure adequate drinking water and sanitary sewage disposal. A very complete assay laboratory has been installed, and little in the way of equipment seems to be lacking.

Water for the operation of the mill is obtained by gravity from the different tunnels, and there seems to be an ample supply, in spite of the fact that it has been an exceptionally dry year.

It is worthy of mention that nearly all of the company's claims, except the Blue Dick and Black Diamond, are covered with pine and oak, which are extensively used in the different workings.

GEOLOGY

Waldemar Lindgren, in the U. S. Geological Survey Bulletin 782, entitled "Ore Deposits of the Jerome and Bradshaw Mountains Quadangles, Arizona," has described the Tillie Starbuck mine. This description is herewith given verbatim and in full.

"The Tillie Starbuck Mine is on the south slope of Mount Trittle, at the headwaters of Slate Creek at the Hassayampa drainage system, at an altitude of about 7,000 feet."

The country rock is Yavapai schist intruded by dikes of light colored rhyolite porphyry. The footwall is said to be followed by a dike of light-colored rhyolite porphyry 10 feet wide, in which few quartz grains are visible. The strike of the vein is N10 degrees W, the dip 80 degrees E, the width 2 to 17 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. This lowest tunnel is first a crosscut Southeast to the vein for 840 feet and continues on the vein for 1,000 feet. It is claimed that 100,000 tons of \$10.00 ore has been developed in the vein."

The ore which is mainly quartzose, contains from \$10.00 to \$17.00 to the ton of which two-fifths is gold and three-fifths silver. The ore carries free gold and pans colors. The quartz is rather fine grained, is milky with many small druses, and includes numerous

sericitized rock fragments. Larger cavities are coated with a later dolomite or arkenitic carbonate in small rhombohedrons. The ore minerals are sparse pyrite and sphalerite in small grains and in places specks of pyrrargyrite which appears to be of hydrogene origin."

Time did not permit me to make a detailed geological examination which might or might not contribute in an important way to the general conclusions. The most obvious geological fact about this vein is that it is unlike most of the hundreds of veins in the Bradshaw Mountains. The majority of the veins in the Yavapai schist are narrow, hard, tight, fissure veins with hard tight walls. The Tillie Starbuck vein is quite different. It occurs in a broad shear zone, accompanied by an intrusive porphyry dike. The original vein has been brecciated and recemented with silica and calcite. Sericitization of included wall rock is common. Oxidation is seldom complete. Vein quartz near the surface may contain pyrite but in the open parts of the vein at the greatest depths oxidation is locally complete.

The values are usually confined to quartz which contains minor amounts of pyrite, sphalerite and sometimes a little galena. The values are gold and silver, and at present prices the ratio is approximately 55 per cent gold and 45 per cent silver. There is, however, one stringer where the gold is only 30 per cent of the total value of the ore, the balance being silver.

In places, the quartz ore occurs as a typical bre-

associated vein, while in other places, it occurs in irregular masses in a wide zone of ledge matter. In places there are mineable widths of somewhat more than seven or eight feet. The walls are usually not definitely marked. A slickensided slip may seem to limit the ore, but back of it there may be another such slip with ore between. Gouge and talc and soft decomposed country rock may form the boundaries of the ore.

The ore zone has a dip of about 80 degrees which is ideal for economical mining.

METHOD OF MINING

There are only two methods of mining to be considered, shrinkage and cut-and-fill. Shrinkage would show the lowest cost but sloughing and caving of the walls would cause so much dilution that this method is ruled out. The cut-and-fill method of mining is ideally suited for mining this vein. This method will allow selective mining and will permit the prospecting of the walls. Two stopes already started indicate the success of this method of mining. In most stopes, a minimum amount of drilling and blasting will be required, and yet even in the widest sections to be mined, it is doubtful that there will be such caving of the roof if it is properly arched. An occasional stull may be required, but other than this, the timber requirements will be only for chutes and manways.

GRADE OF TILLIE STARBUCK OREBODY

During Major Pickerell's ownership, an assay map was made of the mine. A copy of this map has been made, and a few of the Bradshaw company's assays have been added. This map is included in this report.

Major Pickerell was firmly convinced that he had partially developed in the Tillie Starbuck mine, 100,000 tons of ore that would run \$10.00 per ton in gold and silver, with gold at \$20.67 per ounce and silver at \$1.00 per ounce.

I have roughly divided the area that has been sampled into nine sections and have calculated average values for each section. I have not included all samples because in certain sections, part of the vein, where it is low grade or waste can be left as pillars.

My calculations show that the ore should run approximately 0.16 ounces gold and 5.8 ounces of silver. This average entirely disregards the existence of a 10-inch stringer, which has been opened for about 100 feet in length in a raise in section No. 6. I know of no way to satisfactorily allow credit in the final average for this occurrence because so little is known of the extent of this streak. It is likely to be important in maintaining the grade. Without including the value of this rich stringer, with gold at \$35.00 per ounce and silver at 77¢ per ounce, the value of the ore is \$10.22 per ton, of which gold is \$6.74 and silver is \$4.47 per ton.

In order to show definitely how I have arrived at this average, I am herewith including the calculations made.

The Bradshaw company started stoping operations in the Artie tunnel during the middle of June at the two points indicated on the map. The ore is hauled by auto truck from the portal of the tunnel to the mill. A sample is taken from each truck load, as it is weighed at the mill and a composite sample is taken of the day's total output. From the company's mill records, I have taken the following assays of composite truck samples.

DAILY OUTPUT OF TILLIE STARBUCK MINE, 1936

Date	Tons	Grade per ton	Date	Tons	Grade per ton
June 17	23	\$9.35	July 1	25	\$11.77
18	24	4.52	2	26	11.24
19	28	7.02	3	26	4.13
20	24	6.74	6	23	
21	24	15.01	8	9	
22	7	6.12	9	37	8.86
23	5	10.63	10	35	7.64
24	19	7.51	11	37	
25	8	5.84	12	34	7.59
26	5	4.00	14	24	8.51
28	13	12.11	15	71	13.64
29	4	13.47	16		
<u>Total 183</u>		<u>\$9.35</u>	<u>Total 377</u>		<u>\$10.40</u>

From June 17 to July 20 inclusive, a total of 752 tons with an average value of \$9.35 have been produced from the Tillie Starbuck. The result of this preliminary stoping operation confirms the belief that an average grade of \$10.00 per ton can be maintained, when the miners become a little more familiar with the ore.

Section Number One

Section Number Two

Gold (ounces) Silver (ounces)

Gold (ounces) Silver (ounces)

TILLIE STARBUCK ORE CALCULATIONS

Reference should be made to the accompanying assay

map of the mine. The assays shown in the different work-

ings have been divided into nine sections, and the average

value for each has been obtained. Gold is valued at

\$35.00 per ounce and silver at 77¢ per ounce.

Section Number One

Section Number Two

	Gold (ounces)	Silver (ounces)
	.10	
	.12	6.7
	.18	8.8
	.22	8.9
	.24	5.8
	.10	1.9
	.64	7.0
Total	1.60	31.1
Average	.25	5.2
Value	\$8.75	\$4.00

	Gold (ounces)	Silver (ounces)
	.15	5.0
	.10	4.9
	.10	1.4
	.10	3.2
	.18	2.1
Total	.63	15.6
Average	.13	3.1
Value	\$4.55	\$2.39

Total value per ton \$12.75

Total value per ton \$8.34

Total	.25	7.5
Average	.19	7.5
Value	\$6.25	\$3.50

Total	.63	15.6
Average	.13	3.1
Value	\$4.55	\$2.39

Total value per ton \$13.12

Total	.63	15.6
Average	.13	3.1
Value	\$4.55	\$2.39

Total value per ton \$13.00

Section Number Three

	Gold (ounces)	Silver (ounces)
	.10	3.9
	.30	9.7
	.30	5.2
	.60	2.0
	.20	4.6
	.30	14.5
	tr.	1.6
	tr.	2.6
	.12	4.8
	.20	5.2
	.20	2.0
	.10	1.4
	.30	1.7
	.20	5.2
	.25	5.7
	.20	3.4
	.10	2.9
	.10	2.9
	.15	5.5
Total	3.72	84.8
Average	.20	4.5
Value	\$7.00	\$3.47
Total value per ton \$10.47		

Section Number Four

	Gold (ounces)	Silver (ounces)
	.10	
	.10	5.5
	.10	3.5
	.25	8.0
	.20	2.5
	.25	7.3
	.40	10.8
	.20	5.2
	.10	5.7
	.20	5.2
	.10	2.9
	.10	2.9
	.10	0.1
	.20	6.8
	.20	9.0
	tr.	2.0
	.20	3.2
	.15	7.1
	.15	3.0
	.15	4.0
	.20	7.0
	.20	3.4
Total	3.55	104.1
Average	.17	5.0
Value	\$5.95	\$3.85
Total value per ton \$9.80		

Section Number Five

	Gold (ounces)	Silver (ounces)
	.20	12.5
	.10	4.5
	.20	10.2
	.22	1.8
	.20	9.0
Total	.92	38.0
Average	.18	7.6
Value	\$6.30	\$5.85
Total value per ton \$12.15		

Section Number Six

	Gold (ounces)	Silver (ounces)
	.16	2.20
	.10	
	2.60	18.80
	3.00	127.20
	.10	7.10
	.20	111.00
	.20	21.40
	.20	99.00
	.50	124.50
	.25	29.60
Total	6.31	540.80
Average	.63	54.00
Value	\$22.00	\$40.00
Total value per ton \$62.00		

Section Number Seven

	Gold (ounces)	Silver (ounces)
	.10	3.1
	.12	2.9
	.10	2.9
	.15	2.1
	.02	2.6
	.08	2.0
	.10	2.5
	.15	3.5
	.10	2.9
	.40	6.4
	.10	1.9
Total	.05	4.1
Average	.10	4.8
Value	.05	4.1
	.10	7.7
Total	1.75	53.7
Average	.12	3.6
Value	\$4.20	\$2.77

Total value per ton \$6.97

Section Number Eight

	Gold (ounces)	Silver (ounces)
	.10	9.9
	.20	4.0
	.20	5.8
	.10	25.2
	.10	11.1
	.03	12.8
	.10	3.9
	.08	8.1
	.10	10.2
	.10	4.5
	.10	6.1
	.12	15.0
	.10	19.1
	.10	2.9
	.18	4.0
	.16	16.7
	.18	7.8
	.22	10.4
	.15	1.8
	.15	10.3
	.10	4.7
	.22	11.4
	.16	12.6
Total	3.11	219.7
Average	.14	9.5
Value	\$4.90	\$7.32

Total value per ton \$12.22

Section Number Nine

	Gold (ounces)	Silver (ounces)
	.08	1.36
	.14	4.02
	.36	4.84
	.20	2.17
Total	.84	10.96
Average	.14	5.10
Value	1.16	28.45
	.19	4.74
	\$6.65	\$3.65

Total value per ton \$10.30

SUMMARY

Section Numbers	No. of Samples	Total Gold (ounces)	Total Silver (ounces)	Total Value
1	6	1.50	31.1	
2	5	.63	15.6	
3	19	3.73	84.8	
4	21	3.55	104.1	
5	5	.92	39.0	
6				
7	15	1.75	55.7	
8	23	3.13	219.7	
9	6	1.16	38.5	
Total	100	16.38	575.5	
Average		0.164	5.8	
Value		\$5.74	\$4.47	\$10.21

The following table shows the distribution of the total amount of gold and silver found in the various sections of the mine. The total amount of gold found is 16.38 ounces, and the total amount of silver found is 575.5 ounces. The average amount of gold found per sample is 0.164 ounces, and the average amount of silver found per sample is 5.8 ounces. The total value of the gold and silver found is \$10.21.

The following table shows the distribution of the total amount of gold and silver found in the various sections of the mine. The total amount of gold found is 16.38 ounces, and the total amount of silver found is 575.5 ounces. The average amount of gold found per sample is 0.164 ounces, and the average amount of silver found per sample is 5.8 ounces. The total value of the gold and silver found is \$10.21.

There is one other thing to be noted for the last of the sections mentioned. It should be remembered that all of the gold and silver found was found in the same vein, which was found in section 9.

The company has taken a total of 220 samples from various parts of the mine. The average of these samples is \$6.58 per ton. The highest sample in this average is \$58.26 and the next is \$35.33. Specimen samples have been eliminated but all low grade, including those running a trace, have been included in the final average.

In concluding a discussion of the grade of the Tillie Starbuck ore, I can state that it is my opinion that with the employment of the cut-and-fill method of mining and with reasonable precautions to prevent dilution, an average grade of \$10.00 can be maintained.

TONNAGE OF TILLIE STARBUCK OREBODY

The present stage of development of the Tillie Starbuck mine does not permit an estimate of tonnage positively in sight. On the Artic tunnel level from stope No. 1 to the breast of the tunnel is about 300 feet. Practically no samples have been taken in this entire length of tunnel. About two-thirds of this distance has not yet been opened up. Four raises have been driven from this level to the tunnel above, and in each of these raises, ore starts immediately above the drift as indicated by samples but without any information as to widths.

There is one explanation for the lack of samples on the level. It should be remembered that all of the development was hand work, which was done on contract. In

the 300 feet of the ore zone that is open, it is plainly evident that the tunnel was most often driven in the soft waste wall of the vein rather than in the hard vein itself. It is quite likely that the next 600 feet of the tunnel follows alongside of the vein. Such a method of development can be justified on the basis of getting the greatest footage for the least money, but it does not give the required information for estimating tonnage blocked out.

From the characteristics of this vein, as evidenced by the stoping already done, I am of the opinion that it would be wise to eliminate prospect work by the tunnel itself and consider the necessities for transportation. In other words, if the tunnel attempted to follow the ore, it would have to jump from hanging to footwall of a rather wide zone and it could not be kept straight. An intermediate level should be started, say, about 12 feet above the rail and carried through on the ore and connections made with the tunnel every 40 or 50 feet. This sub-level would later become the bottom of the stopes. Perhaps, such a method of prospecting and stope development was intended.

Any estimate on probable tonnages of ore must necessarily be a guess. There are, however, certain facts on which to base an estimate of this kind. Ore has been proven to occur along 300 feet of the Artic tunnel, and three raises have shown that it extends to the level

above, or for a distance of 122 feet above the Artic tunnel. It is not possible to state that the whole of the area, 900 feet by 122 feet, is stoping ground, but there is reasonable evidence that a large part of this area will be ore. The width of this ore determines the tonnage and, here again, there is not sufficient evidence to warrant positive statements. Widths in the stopes started are as much as 8 feet. If it is assumed that the average width is 6 feet and all of the area 900 feet long by 122 feet ^{is ore,} high, there would be approximately 50,000 tons of ore between the Artic and No. 3 tunnel levels.

There is sufficient evidence to warrant the belief that there will be an important tonnage between Level No. 3 and Levels No. 4 and an additional amount above Tunnel No. 4.

The vein has been cut in two places on the Slate Creek, or No. 1 tunnel, but it is far too early to attempt to say much about its amount and grade. The vein is strong and it contains fair values. The best and biggest possibilities lie ahead of the present breast. There is little doubt that an important tonnage exists between the Artic and Slate Creek tunnel.

Concluding a discussion of possible tonnage that can be mined from the Tillie Starbuck, I do not hesitate to state that I believe there is sufficient evidence to warrant the belief that, at least 100,000 tons of \$10.00 can be produced and probably considerably more. This includes ore from the area already partially developed, but does not include the possible extension of this vein

to the north and to the south.

The above estimate of tonnage is based on an assumed width of five feet. There is evidence that in the present workings that widths reach more than eight feet. Information obtained by Mr. Lindgren was to the effect that the vein in places was 17 feet wide. If such a condition continued over any great distance along the vein, the tonnage would mount rapidly. It is easily possible that several times this amount of ore may eventually be developed.

COSTS OF TREATMENT

I have made an approximate estimate of costs which is set down as follows:

	Per Ton
Mining	\$3.00
Milling	2.00
Miscellaneous	1.00
Mill losses	1.00
Smelter deductions	1.00
Total	<u>\$8.00</u>

I believe that a material reduction can be made in each of these items when operations become normal. For one thing, it may be possible to cyanide the concentrates and, thereby, eliminate the smelter deduction at a small cost. Mill recovery has been estimated at 90 per cent, a figure which ordinarily can be improved upon. Some reduction is possible in both the mining and milling. The history of gold mining shows many instances where \$10.00 ore has been very profitable, and it is believed that this

will be the case with the Tillie Starbuck mine.

CONCLUSION

The present examination was made with the idea of determining whether or not a further investment of \$300,000 to \$400,000 in exploration, development, and equipment of the properties now owned or under option by the Bradshaw Mines, Inc., was warranted. For such an investment to be justifiable, the possible profits must be sufficiently large to warrant the return of this sum, and in addition, the original capital investment; and besides this, the balance still due on the purchase price of the properties held under option.

The profitable operation of some of the company's mines is speculative. This, however, is not so with respect to the Tillie Starbuck mine. In this mine, there is an unknown but undoubtedly a large tonnage of ore that will run \$10.00 per ton in gold and silver. In general, \$10.00 gold-silver ore, in widths of five feet and more, should be profitable under rather adverse conditions. When the general conditions are favorable, profits on \$10.00 ore are almost certain to result. The favorable and unfavorable conditions are listed below:

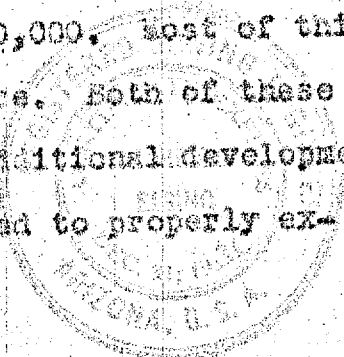
1. The ore is easily broken and will require a minimum of drilling and blasting.
2. Native timber can be cut on the property for all underground needs.
3. For years to come all ore will be dropped to a haulage tunnel, and hoisting and pumping are eliminated.

4. The portal of the tunnel is only about 1,000 feet from the mill, and transportation of ore can be accomplished by an aerial tramway for a few cents per ton.
5. The sulphide minerals are not abundant and the ratio of concentration should be high.

This orebody does not permit the use of the shrinkage method of mining because of the character of the wall rock. The cut-and-fill method can be effectively employed but care must be exercised in order to prevent dilution.

I believe that an investment of \$100,000 in the development, exploration, and equipment of the Tillie Starbuck mine is absolutely justifiable. It is possible that changes in the flow sheet of the mill will be necessary. It may be necessary to add cyanide equipment for treatment of the tailing and later additional mill capacity may be needed. Such additions will require substantial investments.

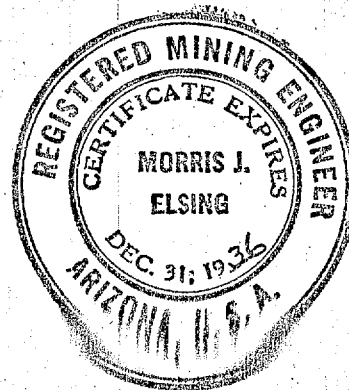
I believe that the Tillie Starbuck is the most valuable of the company's mines and that for the time being, efforts should be concentrated on bringing it into production. The Davis-Dunkirk has produced nearly \$500,000 and the Big Pine about \$100,000. Most of this has come from high-grade shipping ore. Both of these mines and the Storm Cloud warrant additional development. As much as \$100,000 might be required to properly explore and equip them.



If the Bradshaw Mines, Inc., is to become a successful enterprise, it will need ample capital. I do not believe that a big campaign of development should be started, other than in the Tillie Starbuck. It is certainly advisable to continue operations in the other mines mentioned in a small and conservative way. High grade ore has been produced from them and new development will repeat this production. I believe that Tillie Starbuck offers a real chance of becoming a profitable producer. It is because of the showings at this mine that I believe the company is justified in making the proposed investment.

Respectfully submitted,

Morris J. Elsing



THE BIG PINE MINE.

Prescott, Arizona.
October 30, 1922.

LOCATION and TITLE:

The property of the Big Pine Consolidated Mining Company consists of eight patented mining claims and six unpatented locations. It is situated twelve miles south of Prescott, Arizona in the Hassayampa Mining District. Title to the group is vested in the Big Pine Consolidated Mining Company by purchase. All deeds are of record and the title has been recently searched and found in excellent shape.

GEOLOGY:

All the vein mines in this section of this county occur at or near quartz-diorite contacts, and usually in the marginal phases of the quartz-diorite itself.

The Big Pine Mine consists of a parallel series of mineralized fault fractures in the quartz-diorite, between contacts of Yavapai schist and diorite. Only one of these fractures or veins has been extensively developed, but at least three other parallel and similar fractures are known to exist.

The vein matter consists of brecciated and ground up quartz-diorite material, the particles of which have been attacked by the mineralizing solutions and altered and replaced so that their original condition is seldom visible. In places the fault plane has opened and has been filled by mineralizing solutions, resembling in these spots an ordinary fissure vein.

This type of fault vein forms, from a geological standpoint, one of the very best formations for a permanent mine. Such extensive movement in the quartz-diorite mass shows that the fracture must extend to very great depth,

having been sawed on the ground. There is an abundance of wood for heating purposes. Power is obtained from the Arizona Power Company over our own four miles of line. Power rates are reasonable. An excellent road leads from Prescott to within two miles of the mine, and our own road to the mine itself. The climate is very agreeable especially in summer and the best class of labor is always anxious to settle down in the camp.

ORE TREATMENT & EXTRACTION:

The mine is equipped with a cyanide mill which will be described in more detail under the heading of equipment. The cyanide method of treatment has been found very successful on both the oxidized and sulphide ore. The consumption of chemicals is about 1.0 lb of cyanide, 1.0 lb of zinc, and 3.0 lbs of lime per ton of ore. Extraction is almost perfect on the gold, the tails seldom showing more than a trace, and sometimes nothing visible at all. The extraction on the silver was about 85.0 per cent. The above results are the average obtained from the milling of approximately 4000 tons of ore, are absolutely reliable and can be substantiated by office records.

EQUIPMENT ON HAND & REQUIRED:

Mine: The mine is equipped with the usual line of tools, track, cars etc., The equipment is insufficient and particularly needs standardization. More cars of a standard type, heavier rails on the lower tunnels, machine drills of a standard type, a power drill sharpener, and a few miscellaneous tools, etc, are necessary for economical operation.

Camp: There are a total of five small dwelling houses, a bunk house and boarding house, an office and warehouse in the camp. Additional small dwellings are necessary, especially that men with families may make their homes at the camp. A total of about fifty men are required to run the mine at full capacity.

Mill: The mill was never quite completed when it was rebuilt after the fire in 1918. An ore conveyor in the bins and two additional agitators are necessary for full capacity. There will also have to be some little expenditure for repairs necessitated largely by the shut down, consisting of new bottoms in the wood tanks, considerable new piping, new covering on the filter, new linings in the ball mills, etc.

instead of consisting of a mere surface crack or opening, as are some of the fissure veins of the district. Development in length and depth has well proven the above theory, there being no sign of diminution in vein matter or in mineralization, for long distances laterally and vertically.

Mineralization in the vein consists of iron, gold and silver. No copper, lead or zinc are apparant to the depth of over five hundred feet so far obtained. Oxidation is very deep, extending to nearly five hundred feet in places but permanent sulphides have been entered in the deeper development and found to contain slightly more gold values than the oxidized zone. The sulphide ore encountered is amenable to exactly the same treatment as the oxidized ore.

From a theoretical point of view I believe that the mine will develop a zinc lead zone at some future depth and a copper zone below that. While ore of this character would require considerable change in milling treatment, we would be more than compensated by the by-products obtained. Furthermore the present mill would be worn out long before the supply of overiding ore was exhausted, as the probabilities are that there will be at least a million tons of this character of ore.

Owing to the manner in which the veins were formed, and the physical character of the faulted quartz-diorite, they are subject to frequent, and often sudden changes in the character of vein material and mineral content. However the orebodies are persistent and reliable when considered in a broad way over a long length, forming long ore shoots of average high quality, although there may be many short lean or barren spots within the shoot.

OPERATING FACILITIES:

The Big Pine is ideally situated for economical operation. The mine furnishes plenty of water for all purposes, which flows out of the tunnels above the mill level. The veins can be developed to great depth entirely by tunnels thus eliminating the expense of hoisting, pumping etc., Furthermore the tunnel work can most all be done on the veins themselves, very little dead work being required. The claims are all well timbered, all the lumber for mill and buildings

feet and it is somewhat wider on the lower levels than on the upper. The average value is \$9.00 per ton. The proportion of gold and silver is about two-thirds silver to one-third gold in the upper levels and one-quarter silver to three-quarters gold in the lower levels, silver considered at \$.70 per oz. The silver value decreases with depth but the gold increases so that the value decreases with depth but the gold increases so that the value is practically constant throughout. There is not a great variation in the values either laterally or vertically, that is, there are few very high or very low assays, but the values may change very quickly within comparatively narrow margins so that it is difficult to check samples. However averages over a reasonable distance will check. The mine has been sampled many times both during development and afterward and the averages have always been found to check.

Ore considered in sight or developed can be estimated between 50,000 and 60,000 tons, with possible ore of almost unlimited quantities. With an average value of \$9.00 per ton the value in sight is approximately \$500,000.00. The above values are based on a price of \$.70 per oz. for silver.

The above development is confined to only one of the veins on the property. At least three other parallel veins are known to exist and while they have only been prospected with shallow shafts and cuts they give every indication of developing as much or more ore than the one vein developed. One of these veins in particular has a wider and stronger cropping than the vein on which the work has been confined.

COST TO RESUME OPERATIONS:

Before resuming operations everything must be put in shape to economically mine and mill one hundred tons per day. The following work in the mine is necessary; Retimbering and cleaning out tunnels, raises and stopes; retracking, enlarging and straightening #6 tunnel; driving #6, one thousand feet and raising to #4. Total cost of this work \$20,000.

The cost of the additional equipment and repairs in the mill will be about \$5,000. The additional buildings etc, required in the camp will cost \$3,000. The repair of the power line and the purchase of the additional equipment necessary will cost about \$7,000. Supplies to the extent of \$5,000 should be on hand and about \$20,000 in cash to finance operations until the returns come in and allow for unforeseen necessities. The above totals \$50,000 and success could not be assured without that amount of financing. An itemized list of the above can be furnished if desired.

As it stands at present the mill is equipped with a 9 x 14 crusher, bins, feeders, a 4½ x 4½ ball mill and 5 x 4 ball mill, Abbey Frenier sand pump, Dorr Duplex Classifier, (has been removed) Deveraux agitator in 12 x 12 steel tank, two small Dorr agitators (unsatisfactory) three 24 ft Dorr Thickeners in steel tanks, an 11 ft Oliver Filter, four redwood sand leaching tanks, redwood precipitation boxes, (in bad order) 20 ft steel solution tank, concrete water tank, solution pumps etc. The mill is run by electric power and is equipped with a 100 H. P. motor on the ball mills, a 15 H. P. motor on the crusher, and a 25 H. P. motor on the agitators, thickeners and filter. The solution pumps are direct driven by motors. During former operations the Arizona Power Company furnished transformers but they no longer do so, and transformers and lightning arrestors will have to be purchased.

A very well equipped assay office and bullion furnace is included in the general equipment.

CAPACITY & COSTS:

The mill is designed to handle 100 tons of ore per day. While it has never been run at that capacity it would handle that amount very easily if equipped and fitted up in good shape as per above. The handicap on capacity has always been in getting the ore from the stopes in the mine to the mill. A very large amount of stoping ground has been opened up and the above quantity of ore can easily be broken per day but altogether too much handling is necessary in order to get it to the mill. To eliminate this difficulty it is necessary to drive the #6 tunnel 1000 feet further on the vein which will carry it below the stopes in the upper levels, and run a raise to these upper levels. The raise should be large enough to form a storage for considerable ore, and as it will be run in ore it would be in the form of a short stope

On a basis of 100 tons per day, and at the present prices of labor and supplies, the costs of operating would be as follows: Mining \$1.50; Development .50; transportation .50; milling \$1.50; overhead and general .50; total \$4.50. The above estimate has been made from the results of actual operations and a liberal allowance made for unforeseen contingences.

During the latter part of 1917 when the mine was being operated under the management of the writer, we were mining and milling approximately fifty tons per day. Even considering this low tonnage, and the fact that the cost and efficiency of labor and the cost of supplies was considerably higher than at present, our total costs did not exceed \$6.00 per ton. There were a few unsatisfactory features about the mill, and it was a continual fight to get that amount of ore from the stopes to the mill. However we were making a very nice profit and would soon have had the mine in shape for additional capacity. Then the mill burned down in December 1917. Rebuilding of the mill during that war period was difficult and very expensive, and it was necessary to resort to several make-shifts and leave out some of the less essential equipment. Some of these things were later taken care of and others should be before resuming operations. They are included in the list of equipment necessary.

The mill was rebuilt and started operating again in July 1918. I was not there during that time but have since made a thorough study of the records of the results of operations during that period. I have found that the average quantity of ore run per day during that period was 22 tons. This low tonnage was brought about by the difficulty in getting ore to the mill, the efficiency of labor being very low during that war period, and by the difficulty in obtaining labor and supplies. In fact at one time it was quite impossible to obtain cyanide except for large properties operating on long standing contracts. The normal price of cyanide is 25¢ to 30¢ per lb. At one time during this period it cost the company over \$2.00 per lb.

All these facts contributed to a very high cost per ton and we find that the costs per ton averaged during that period approximately \$11.00. A very good average value of the heads at the mill was maintained, being only a few cents less than \$10.00, and the extraction was excellent, but operations were not profitable on that basis and the mine was closed down until the costs of labor and supplies resumed a more normal basis.

DEVELOPMENT:

The mine is developed by a system of seven tunnels on the vein, with connecting raises. A map of the property shows this more clearly than it can be described. The ore is continuous through nearly all of the tunneling, except for short lean or narrow spots. The average width of the ore is three

In conclusion I can say that with the property put in the shape that the above expenditures will permit, that profitable operations are assured. A minimum profit of \$125,000 per year should be made, with an ever increasing possibility of additional capacity and profit.

Respectfully submitted,

Mining Engineer.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date April 1944

Mine Big Pine Group

District Hassayampa District of Yavapai Co. Location On the northwest slope of Mt. Trittle on the upper drainage of the Hassayampa R. about 8 mi. south of Prescott

Former name Included are the Ruby and Gold Charm

Owner A. W. Lawe Address Box 1401 Prescott

Operator Same Address Same

President --- Gen. Mgr. ---

Mine Supt. --- Mill Supt. ---

Principal Metals GOLD Men Employed None

Production Rate None Mill: Type & Cap. Millsite only. 14,000 gallon tank (estimated) and water delivered to it by gravity flow at an estimated rate of 30 gallons per min.

Power: Amt. & Type Electricity available at property. Wires and poles in. Operations: Present

None due to L-208 Gold closing order.

Operations Planned

Owner interested in dealing with responsible operators.

Number Claims, Title, etc.

Eight patented claims. Four full unpatented claims adjoining, and five fractions (unpatented) to round out the group of holdings. Owner asserts title is good and holdings create ample room for mill operations and tailings disposal.

Description: Topog. & Geog.

The property lies against the steep western slope of Mt. Trittle in a heavily timbered region of large oak and pine. The property barely reaches the summit of the mountain and here the slopes are steepest, ranging around twenty-five degrees. The altitude is around 7,000 ft and the climate is montaine and moderate.

Mine Workings: Amt. & Condition

Considerable development work has been done in the form of tunnels and shafts. One shaft is said to be 200 ft deep with several hundred feet of drifting. On the Golden Eagle Claim (Gold Charm) there are two tunnels, partly accessible, though beginning to sluff and cave which aggregate close to 1,000 ft of workings

(over)

Geology & Mineralization The ore which occurs as rhyolitic and quartzose lenticular bodies in fractures found in a Diorite groundmass carries some iron sulphides and some free gold can be found in pannings of the quartz. The vein structure strikes Northwest

Ore: Positive & Probable, Ore Dumps, Tailings

No estimate was made of probable ore or dumps.

Mine, Mill Equipment & Flow Sheet

At one time there was reported to be a cyanide plant on the property but it is said that the mill had little record of production. Only the tank and millsite remains

Road Conditions, Route

The road is very good to the camp (eight large cabins) and connects with the Senator Highway about two miles south of Groom Creek.

Water Supply

There is ample water to run a small mill and for normal mining operations. Domestic water is supplied by springs.

Brief History

None

Special Problems, Reports Filed

Lindgren speaks briefly of the property

Remarks

The owner reports \$18 ore with values in gold and silver
There are eight large camp cabins at the millsite which are in serviceable condition

If property for sale: Price, terms and address to negotiate.

Owner will negotiate.

Signed..... B. W. Brown, Field.....

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date April 1944

Mine BIG PINE GROUP

District Haasayampa District of Yavapai Co.

Location On the northwest slope of Mt. Trittle on the upper drainage of the Haasayampa R. about 8 mi. South of Prescott.

Former name Included are the Ruby and the Gold Charm.

Owner A. W. Lawe

Address Box 1401 Prescott

Operator Same

Address Same

President -----

Gen. Mgr. -----

Mine Supt. -----

Mill Supt. -----

Principal Metals GOLD

Men Employed None

Production Rate None

Mill: Type & Cap. Millsite only. 14,000 gallon tank (estimated) and water delivered to it by gravity flow at an estimated rate of 30 gallons per min.

Power: Amt. & Type Electricity available at property. Wires and poles in.

Operations: Present

None due to L-308 Gold closing order.

Operations Planned Owner interested in dealing with responsible operators.

Number Claims, Title, etc. Eight patented claims. Four full unpatented claims adjoining, and five fractions (unpatented) to round out the group of holdings. Owner asserts title is good and holdings create ample room for mill operations and tailings disposal.

Description: Topog. & Geog. The property lies against the steep western slope of Mt. Trittle in a heavily timbered region of large oak and pine. The property barely reaches the summit of the mountain and here the slopes are steepest, ranging around twenty-five degrees. The altitude is around 7,000 ft and the climate is montaine and moderate.

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Geology & Mineralization The ore which occurs as rhyolitic and quartzose lenticular bodies in fractures found in a Diorite ground mass carries some iron sulphides and some free gold can be found in pannings of the quartz. The vein structure strikes Northwest.

Ore: Positive & Probable, Ore Dumps, Tailings No estimate was made of probable ore or dumps.

Mine, Mill Equipment & Flow Sheet At one time there was reported to be a cyanide plant on the property but it is said that the mill had little record of production. Only the tank and millsite remains.

Road Conditions, Route The road is very good to the camp (eight large cabins) and connects with the Senator Highway about two miles south of Grock Creek.

Water Supply There is ample water to run a small mill and for normal mining operations. Domestic water is supplied by springs.

Brief History None

Special Problems, Reports Filed Lindgren speaks briefly of the property.

Remarks The owner reports 410 ore with values in gold and silver. There are eight large camp cabins at the millsite which are in serviceable condition.

If property for sale: Price, terms and address to negotiate.

Owner will negotiate.

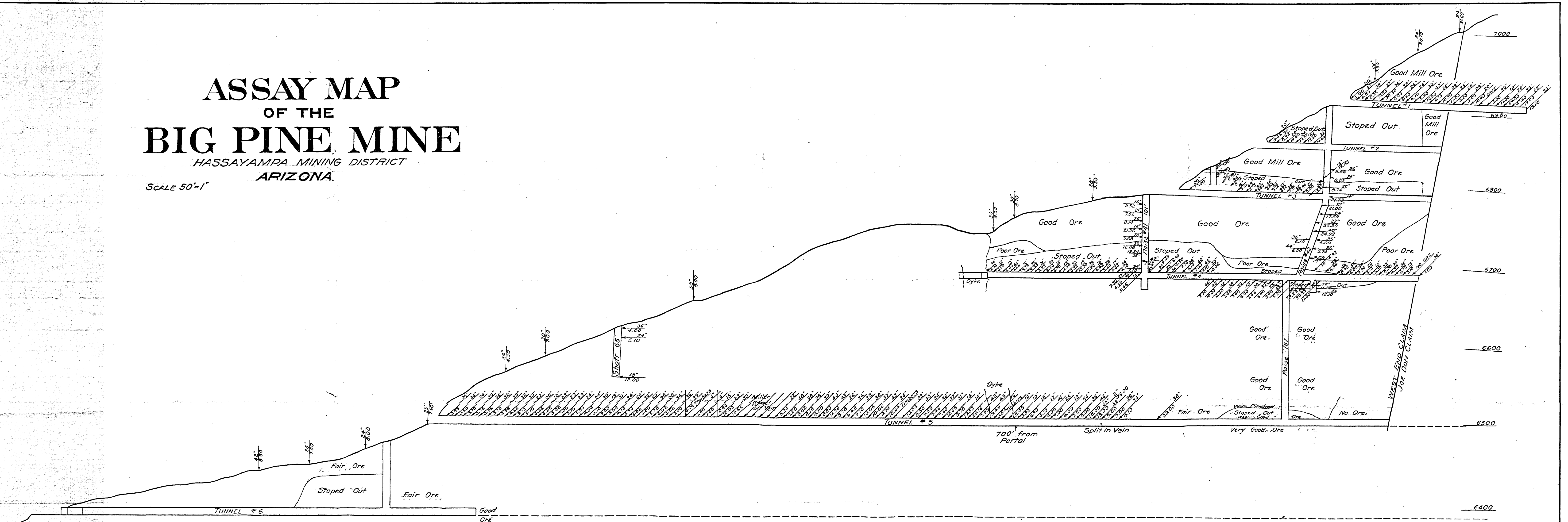
Signed E. W. Brown, Field

Use additional sheets if necessary.

ASSAY MAP OF THE BIG PINE MINE

HASSAYAMPA MINING DISTRICT
ARIZONA.

SCALE 50' = 1"



ASSAY MAP OF CHASE TUNNEL

Queen Claim in Bed Rock Group

