



#### CONTACT INFORMATION

Mining Records Curator  
Arizona Geological Survey  
416 W. Congress St., Suite 100  
Tucson, Arizona 85701  
602-771-1601  
<http://www.azgs.az.gov>  
[inquiries@azgs.az.gov](mailto:inquiries@azgs.az.gov)

The following file is part of the Kelsey Boltz Mining Collection

#### ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

#### CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

#### QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

Aug 30, 1968

Year	Tons		oz	oz	Lbs	Lbs
			Av	Ag	Cu	Pb
1919	55	TO SMELTER	14	8,340	472	11,092 -
1919 ←	2,220	265 Conc.	73	33,921	3,399	95,068
1920 ←	311	✓	34	4,829	276	—

~~1920~~

→ Values \$ 1788<sup>00</sup> \$ 47,108<sup>00</sup> \$ 530<sup>00</sup> \$ 5,626<sup>00</sup>

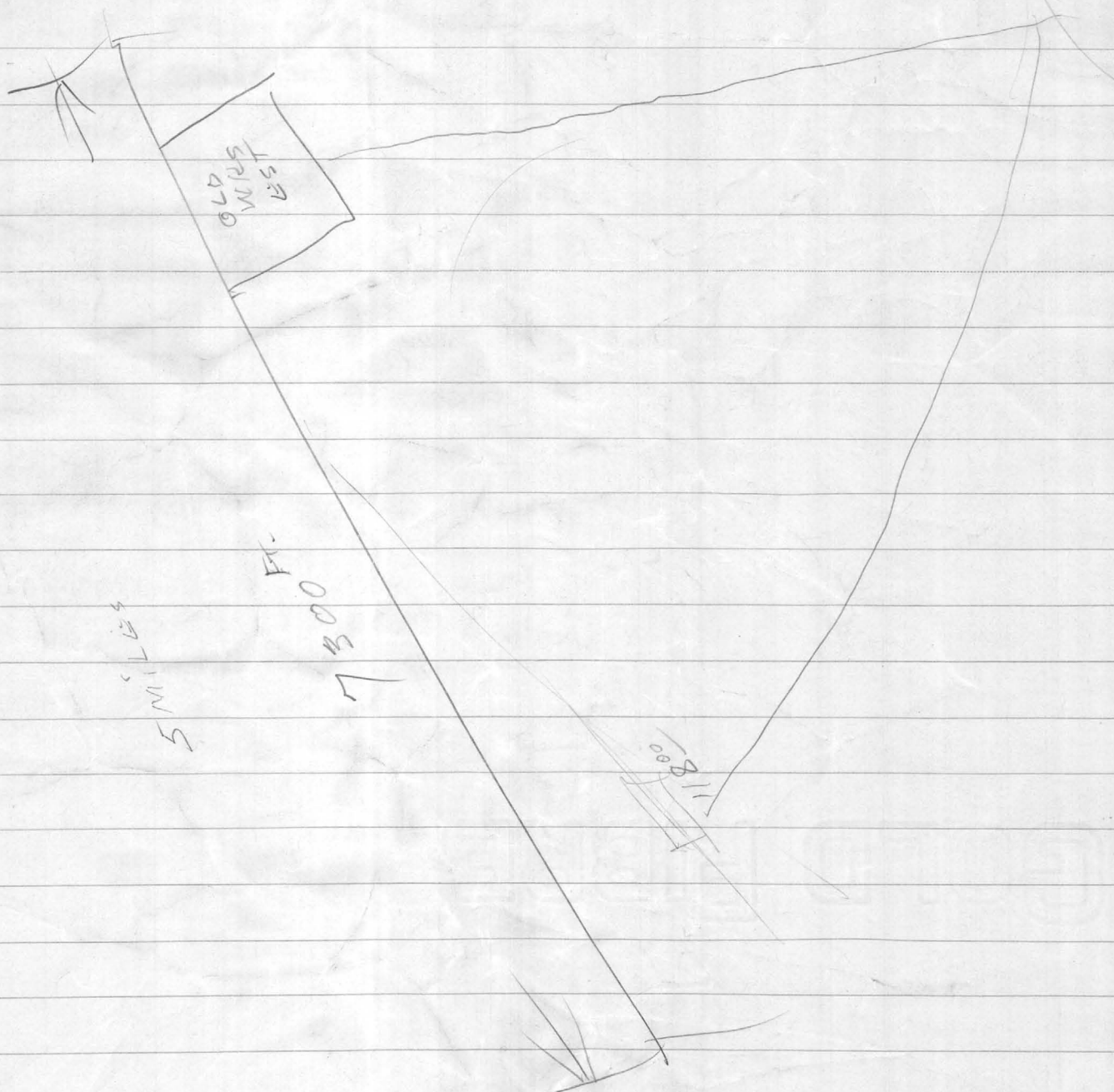
1920

Values

703

5,264

51<sup>00</sup>





Nick Hughes  
Box 480  
Scottsdale Ariz

Plat #1

REPORT ON  
SILVER KING GROUP, IN  
PEACOCK MINING DISTRICT  
HACKBERRY, MOHAVE COUNTY, ARIZONA.

By  
A. L. JOHNS

I N D E X

DATA ON HACKBERRY MINE:

Location and History  
Hackberry Ore Body  
Geology

Page

1  
2  
3 - 4

SILVER KING GROUP:

Location and Extent  
Early History  
Geology  
Sampling  
Recommendations  
Conclusion

5  
6  
7 - 8  
9  
9

REPORT ON  
SILVER KING GROUP,  
PEACOCK MINING DISTRICT,  
HACKBERRY, MOHAVE COUNTY, ARIZONA.

The Silver King Group adjoins the property of the Hackberry Consolidated Mining Company, which bids fair to develop into the largest silver mine in the Southwest. On account of the highly favorable developments of the Hackberry Mine during the past year, some data from a personal inspection of this property is given. For this the writer is indebted to Mr. William Neagle, Superintendent of the Hackberry Mine, who succeeded in getting the present owners to take over the property, and under whose direction the recent ore developments have been obtained.

DATA ON HACKBERRY MINE

LOCATION AND HISTORY:

The Hackberry Mine lies three miles west of Hackberry, Arizona, which is on the main line of the Santa Fe Railway, and about thirty miles northeast of Kingman, Arizona. It was originally discovered about 1879, and is reported to have produced about \$3,000,000. in high grade silver ore from one ore shoot which outcropped on the surface and was mined down to a depth of 600 feet. This ore shoot had a length of some 500 feet, and usually ranged from two to four feet in width. The property was active between 1879 and 1884, after which it was closed down for some thirty years.

In recent years several strong mining companies have attempted to re-open the mine, but never got further than unwatering and doing some prospecting work in and around the old stopes on the lower levels. In the fall

of 1916 the United Eastern crowd abandoned the property after doing considerable work south of the old shaft.

HACKBERRY ORE BODY:

In January, 1917, James Murray, a wealthy mining man of Butte, Montana, and associates, took over the property and started driving north of the shaft on the 600 ft. level. After following a narrow seam of ore for some distance it widened out into an ore body varying from 5 ft. to 22 ft. in width, and has so far shown a length of about 600 feet on this level, and extends to within 200 feet of the surface. Previous companies had refrained from prospecting this portion of the vein on account of poor outcrop conditions. Between the 200 feet and 600 ft. levels the ore tonnage is estimated at 150,000 tons, with gross value in excess of \$4,000,000. The average value is about 25 ounces in silver, \$2.00 in gold, and 8 per cent lead, which on a \$1.00 silver and five cent lead market shows a value of \$35.00 per ton. In the narrower portions of the vein silver contents often rise to above 100 ounces silver per ton.

Recently in crosscutting the vein from the main incline shaft at depth of 750 feet the ore body proved to be 22 ft. wide, three feet in width of which is reported to assay around 100 ounces per ton, and the balance of 19 feet about 25 ounces. The character of the ore on the 600 ft. level and the more recent developments on the 750 ft. level indicate that the present ore body has an excellent chance to continue to 1,000 feet in depth, which would double the present ore reserves. Also development southward under the old ore body may add an equal amount of additional ore so as to increase the ore reserves to around \$10,000,000.00. This is mentioned as a reasonable

possibility.

The Hackberry Company is now preparing to build a 200 ton flotation plant, which they expect to have in operation by fall. With this size mill, treating 25 oz. ore, they should earn in the neighborhood of \$1,000,000.00 net a year, which is quite exceptional for any silver property.

GEOLOGY:

The country rock in the Hackberry section is an old granite porphyry which, as is shown by the attached map, has been intruded by two principal, hard, silicious porphyritic dykes, with strike of N. 40°, W., and dip of about 40° to the southwest. One of these dykes, with which the principal ore showings of the district are associated, extends from the Hackberry Mine northwestward through the Silver King Group, and beyond for several miles. The intrusion of this dyke evidently crushed and fractured the softer adjoining country rock and made conditions favorable for ore deposition in the crushed zones. A good illustration is shown on the 600 ft. level where the hard dyke forms the foot wall of the ore body, and the hanging wall is soft, crushed, granite porphyry. (See cross section of the Hackberry Vein on attached map.)

Because of this crushed and highly fractured zone in which the ore bodies formed alongside the dyke, there is less danger of the ore bodies pinching out from tight country rock conditions. The dyke itself is unmineralized except where the mineralizing solutions which formed the ore bodies penetrated into the dyke along narrow fracture seams.

A number of mines in and around the Kingman-Chloride section produced high grade silver-gold ores near surface from tight fissure veins in granite. On reaching water level at around 100 feet to 200 feet in



depth, these ore bodies often pinch out or change to very low grade primary ores, carrying small amounts of copper and iron sulphides.

A notable exception to this is the Tennessee Mine at Chloride, which under operation by the U. S. Smelting and Refining Company has reached a depth of 1600 feet. This property is principally a lead producer though their ores carry good values in silver also.

The Hackberry ore occurs mainly as silver sulphides (Argentite) in a quartz gangue associated with some six or eight per cent lead sulphide. When lead contents increase the silver values usually increase correspondingly. Consequently the association of the silver values with lead in the Hackberry ores is considered a good indication that the ore bodies will continue much deeper than the present workings at 750 feet. The present development work has also disclosed a much better understanding of the occurrence of the ore bodies alongside the intrusive dyke.

It is very probable that prospecting along the dyke, where favorable outcrop conditions exist, will disclose new ore bodies, or other ore bodies which do not show any surface indication of their existence, may be discovered by a thorough prospecting along the dyke. In the opinion of the writer, the Hackberry Mine has the large general conditions to develop into one of the really large silver mines of the country.

The Hackberry Company is a close corporation which has carried on its work with very little publicity, consequently the public has heard very little about it so far. However, a mine of this magnitude will lead to considerable new mining activity in that section, and may create quite a mining boom during the next year.

## SILVER KING GROUP

( Now the property of the  
Hackberry Extension Min-  
ing Company.)

### LOCATION AND EXTENT:

The Silver King Group comprises the Silver King, Big Ben, Pinon, Pinon No. 2, Dipper and Dipper No.2, unpatented lode mining claims, covering an area of about 120 acres, in Peacock Mining District, Mohave County, Arizona.

The property is three miles west of Hackberry, a station on the Santa Fe Railway, about thirty miles north-east of Kingman, Arizona. A serviceable wagon road extends from Hackberry to the property.

The group joins the Hackberry Consolidated ground and covers 3,000 feet in length of the north continuation of the porphyry dyke which forms the Hackberry ore bodies. The Hackberry ore bodies lie along this dyke about 3,500 feet southeastward. (See attached map.)

### EARLY HISTORY:

The property was discovered about 1879 at the time of the Hackberry discovery, and was worked until 1884 by chloriders who prospected and hunted along the outcrop for rich surface ore. The methods of mining were crude and expensive and in most cases the work did not exceed 50 feet in depth, which is about the limit of windlass work. These old timers mined only the high grade ores around 200 ounces silver or better, and packed it on burros over to the Hackberry Mill for treatment. This mill was a small five stamp pan amalgamation mill. According to Mr. Ridenour, who is an old timer in that section and was in charge of the Hackberry Mill at the time, the production from the Silver King and Big Ben Claims was about \$70,000.00 of 200 ounce ore. About \$30,000.00 of this was mined from surface stopes along a length of about 400 feet near the center of the Silver King Claim. The other \$40,000.00 was produced

from similar shallow surface workings along a length of about 500 feet on the Big Ben Claim about 1200 feet distant. These two places present very favorable outcrop showings for ore bodies below. (See Map.) In places along the vein between these two workings some small favorable ore showings exist.

Along in the 90's Mr. Ridenour states that he cleaned out an old 60 ft. shaft near the south end of the workings on the Silver King Claim, and by sinking the shaft 20 feet deeper he took out one car of ore which shipped 196 ounces silver per ton. Directly after this the shaft which is in a gulch and made considerable water, caved in. About 1907, two prospectors sank a new shaft 100 feet deep near by and it is reported that they opened up 60 ounce ore, four feet wide along a length of 40 feet. The 60 ounce ore at that time, on fifty cent silver, was too low grade to ship, and they were trying to reach the 196 ounce ore reported left around the old shaft. This shaft which was also in the gulch, was lost by similar soft ground and caving. However, the ore now on the dump bears out their statements of encountering 60 ounce ore.

The general conditions of the property now existing seem to confirm the above statements of the early production and ore values.

#### GEOLOGY:

General geological conditions are similar to those of the Hackberry Mine, namely an old granite porphyry country rock intruded by the silicious porphyry dyke, which extends through the Hackberry Mine northward, traversing 3,000 feet along the length of the Silver King and Big Ben Claims of this property, and beyond for several



miles. As at the Hackberry Mines the ore bodies are formed in quartz veins, lying between the softened country rock and the hard intrusive dyke which strikes North  $40^{\circ}$  W. and dips about  $45^{\circ}$  southwest. Usually the ore bodies follow the hanging wall of the dyke, but on the Silver King Claim the old ore bodies were mined both along the foot wall and hanging wall of the dyke for a length of about 400 feet. The dyke at this point is about 70 feet wide.

The surface ores are all oxidized, being mainly silver chloride and horn silver in a quartz gangue. The old timers mined principally this class of ore on account of easy treatment by amalgamation. The ores change to sulphides, associated with lead on reaching water level at around 50 ft. in depth, and were difficult to treat by the old amalgamation methods. Also, encountering water at about 50 feet prevented deeper work by windlass. This work of the old timers was without any machinery equipment, and was before the advent of the Santa Fe Railway.

The ore lenses near surface vary from 2 ft. to 4 ft. in width. Similar surface conditions obtain on the Hackberry, but at depth the ore bodies reach a width of 22 feet. The Silver King Vein shows a strong condition along its entire length with about two feet of gouge on the hanging wall. This is a favorable indication that the vein will continue downward.

#### SAMPLING:

The old surface workings are now largely caved and inaccessible for sampling. However, a very good idea of ore conditions was obtained by sampling pillars and walls around the surface workings, and ore left on dumps. The two old shafts 80 ft. and 100 ft. deep on the Silver King Claim are filled with water, to within 35 ft. of the surface



and caved below.

<u>Sample No.</u>		<u>Silver \$1.00</u> <u>per ounce</u>
1 -	Quartz on foot wall of stope at center of Big Ben Claim	\$83.40
2 -	Talc on Hanging wall at #1 18" wide	5.40
3 -	Re-check of sample #1	115.96
4 -	Footwall above Sample #3	48.60
5 -	" " " #4	32.70
6 -	Red Material on outcrop 2 ft. under footwall at Sample #5	4.48
7 -	25 ft. South Sample #1 - Foot- wall of stope down 50 ft. Quartz 12" wide	17.04
8 -	Near #7 - footwall quartz 6" wide	87.56
9 -	100 ft. North, Sample #1, 18" wide	48.86
10 -	30 ft. North Sample #9 - 6" wide	31.20
11 -	200 ft. " " #10 - 18" "	6.56
12 -	Gouge Material on dump at Silver King Shaft. No quartz	5.80
13 -	Quartz ore on dump at Silver King Shaft - Sulphides	44.60
14 -	Re-check of Sample #13	64.56
15 -	Lead sulphide ore at Silver King Shaft	118.40
16 -	Mill ore at #15	20.20
17 -	100 ft. south Silver King Shaft General sample ore on dump	58.60

The above samples give a good idea of the ore left in pillars and on walls of the old workings, and represent the ore left by the old timers after cleaning out the high grade ore. Samples Nos. 13, 14, and 15 are sulphide samples from the dump of the Silver King shaft. These sulphide ores are associated with lead and represent probable ore values in the sulphide zone. The character of the ore is identical with that of the sulphide ores in the Hackberry Mine - principally the association with lead. The fact that good silver values extend into the sulphide zone, as shown by the above samples, is an excellent indication that there will be no sudden impoverishment of values in depth. The strong occurrence of the vein is another very favorable feature.

### RECOMMENDATIONS:

In the opinion of the writer, the old surface workings on the Silver King and Big Ben Claims represent the outcrops of two ore bodies which probably extend downward into the sulphide zone. (Marked possible ore bodies on Map.) To determine these conditions well into the sulphide zone, I recommend sinking an incline shaft on the vein, near the center of the outcrop on the Silver King Claim to depth of about 300 feet, then lateral development along the length of the vein. The cost of this work, including the necessary mine plant and equipment, is estimated at \$20,000.00. However, it is possible that sufficient shipping ore above 30 ounces silver will be mined during the course of this development to repay part or all the above outlay. Freight and treatment charges to San Francisco are about \$15.00 per ton.

The lower grade ores would have to await erection of a mill on the property. Tests on the Hackberry ores have shown excellent extraction by oil flotation methods. On basis of a 50 ton plant, all ores above 10 ozs. silver could be mined and milled at a profit.

### CONCLUSION:

I have kept in close touch with developments at the Hackberry Mine during the past year. From comparison of conditions I consider the development of the Silver King Group as a highly promising mining venture, with reasonable possibilities of developing into a mine of similar magnitude to the Hackberry.

Respectfully submitted,

*A. L. Jones.*  
Mining Engineer.

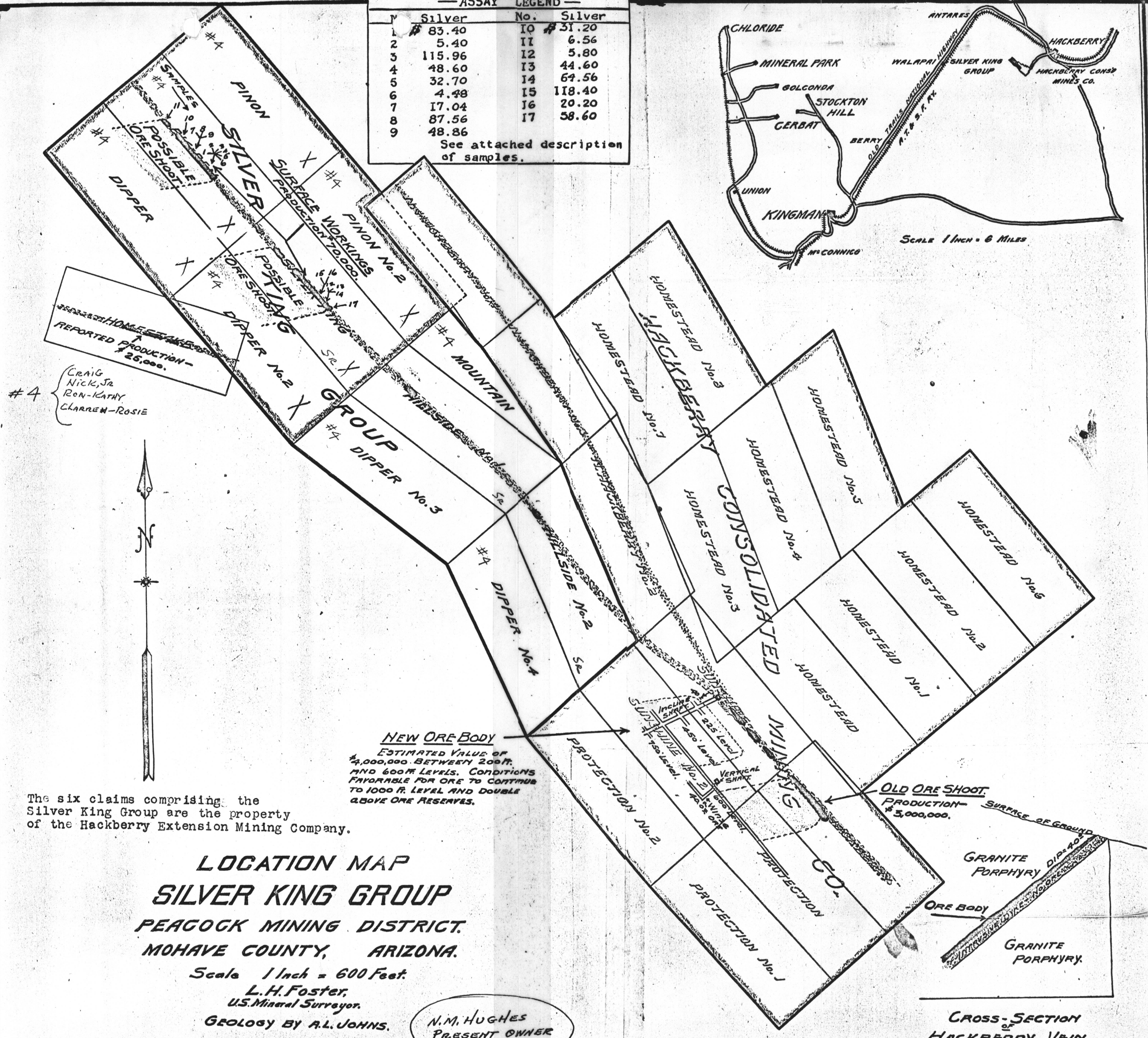
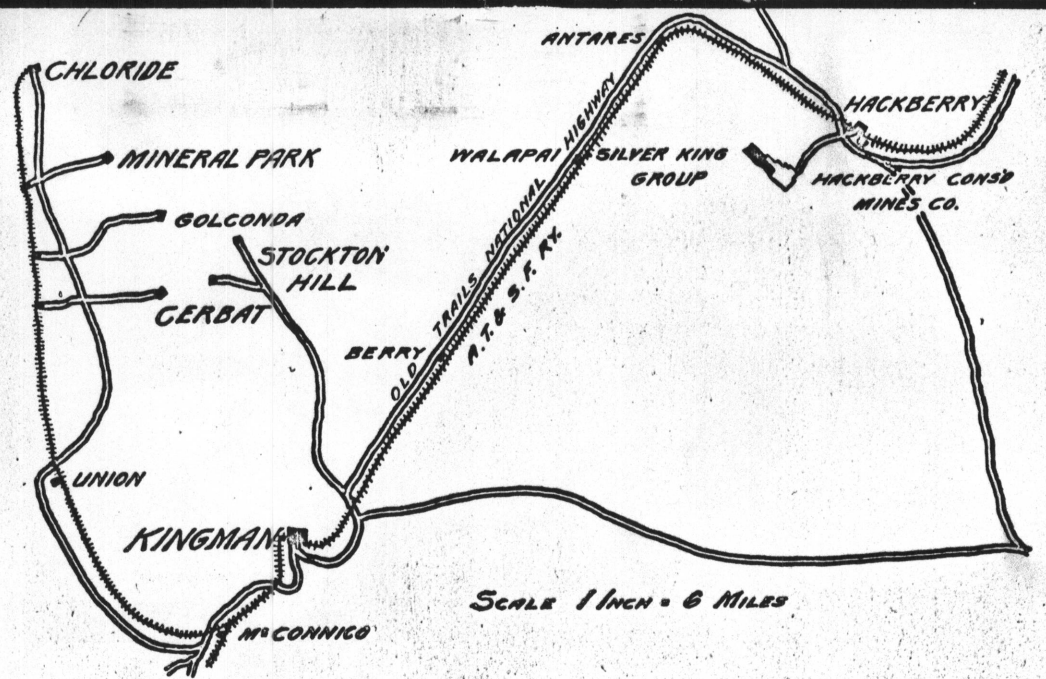
Prescott, Arizona,

May 27, 1918.



— ASSAY LEGEND —			
No.	Silver	No.	Silver
1	83.40	10	31.20
2	5.40	11	6.56
3	115.96	12	5.80
4	48.60	13	44.60
5	32.70	14	64.56
6	4.48	15	118.40
7	17.04	16	20.20
8	87.56	17	58.60
9	48.86		

See attached description of samples.



#4 { CRAIG NICK, JR.  
RON-KATHY  
CLARENCE-ROSIE

The six claims comprising the Silver King Group are the property of the Hackberry Extension Mining Company.

# **LOCATION MAP SILVER KING GROUP PEACOCK MINING DISTRICT, MOHAVE COUNTY, ARIZONA.**

Scale 1 inch = 600 Feet.

L.H. Foster,  
U.S. Mineral Surveyor.

GEOLOGY BY A.L. JOHNS.

N.M. HUGHES  
PRESENT OWNER  
1966

TO ACCOMPANY REPORT  
OF A.L. JOHNS

CROSS-SECTION  
HACKBERRY VEIN





MAP  
SHOWING UNDERGROUND DEVELOPMENT.  
HACKBERRY CONSOLIDATED  
MINING CO.

PEACOCK MINING DISTRICT MOHAVE CO. ARIZONA

Scale 1-in = 30 Ft.

September 1919

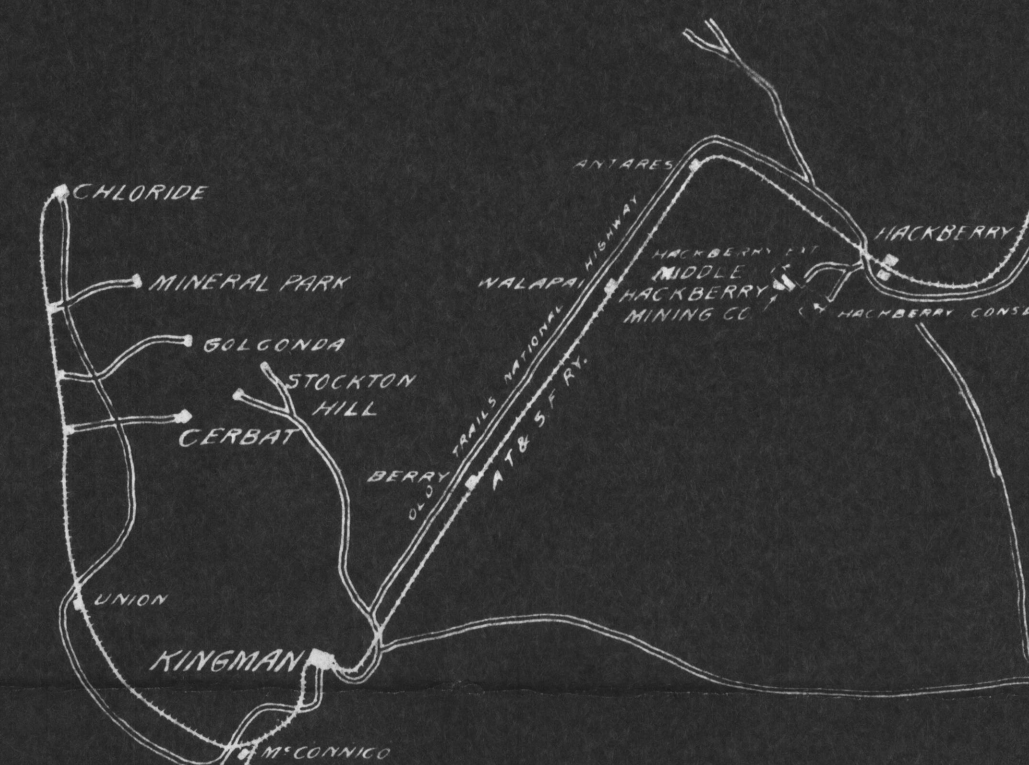
L.H. Foster  
U.S. Mineral Surveyor

LEGEND

- Gube-Manway
- Stope
- Ore Pocket
- Winze
- Small Opening (Down)
- Fill

Note: For slope distance on vein  
multiply horizontal distance by 1.259





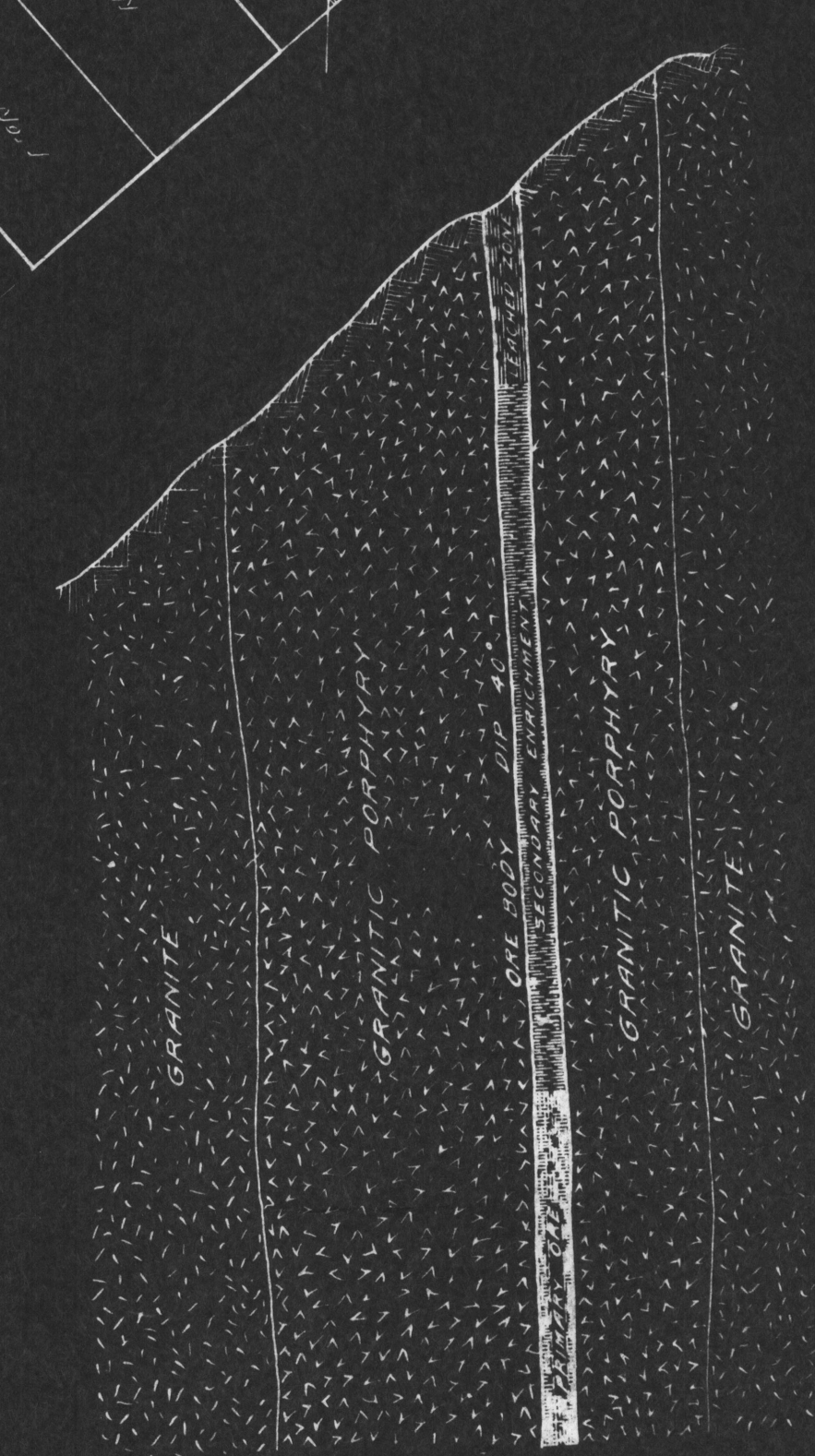
MAP SHOWING  
GENERAL LOCATION  
Scale 1 inch = 6 miles



LOCATION MAP  
SHOWING PROPERTY OF  
**MIDDLE HACKBERRY MINING CO.**  
PEACOCK MINING DISTRICT,  
MOHAVE COUNTY, ARIZONA.  
Scale 1 inch = 600 Feet  
L. H. Foster,  
U.S. Mineral Surveyor

THE ELEVEN WESTERN STATES  
DEVELOPMENT CO.  
NICHOLAS W. HUGHES  
PRESIDENT

GEOLOGY  
by  
T. J. Sparks

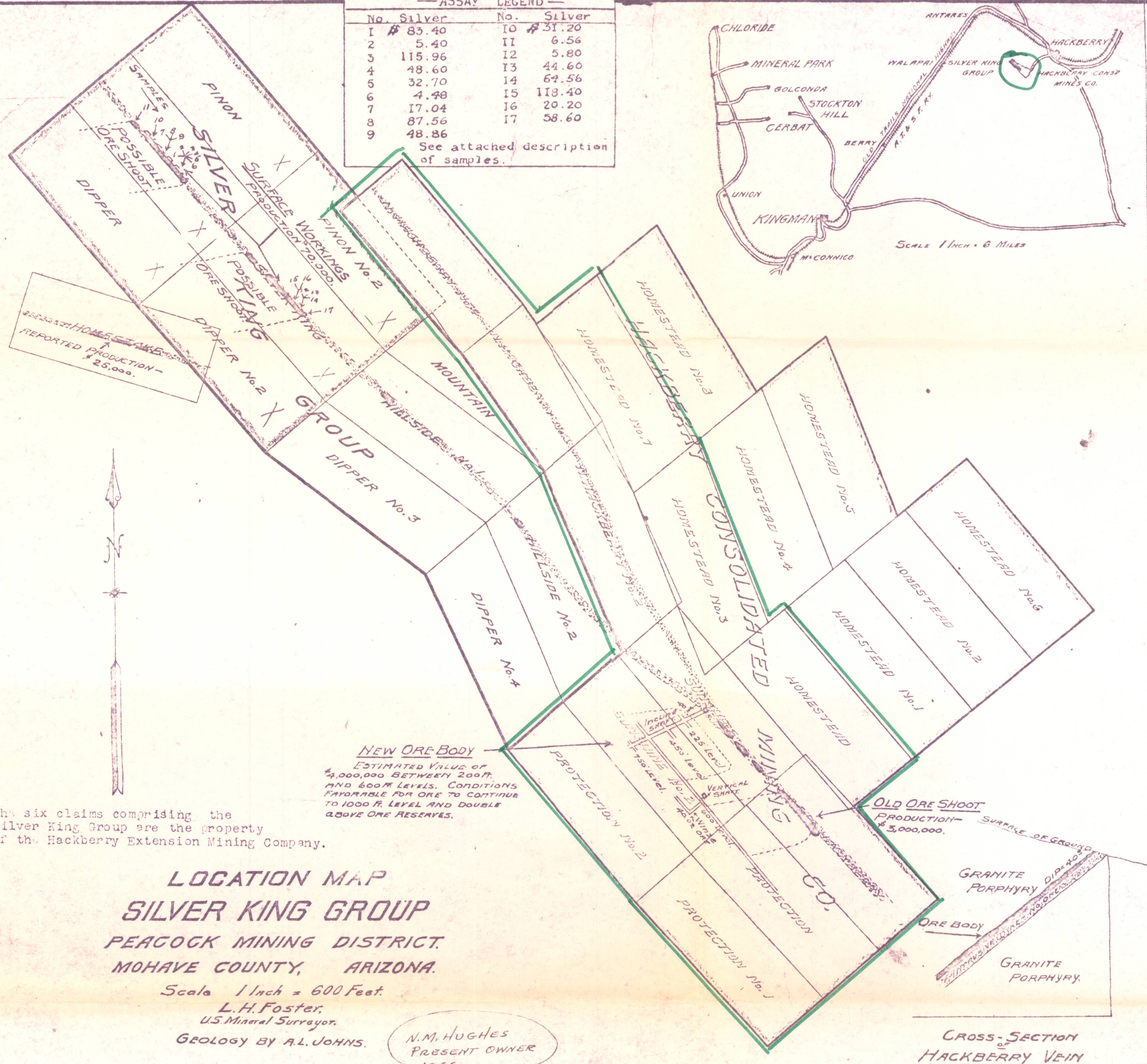
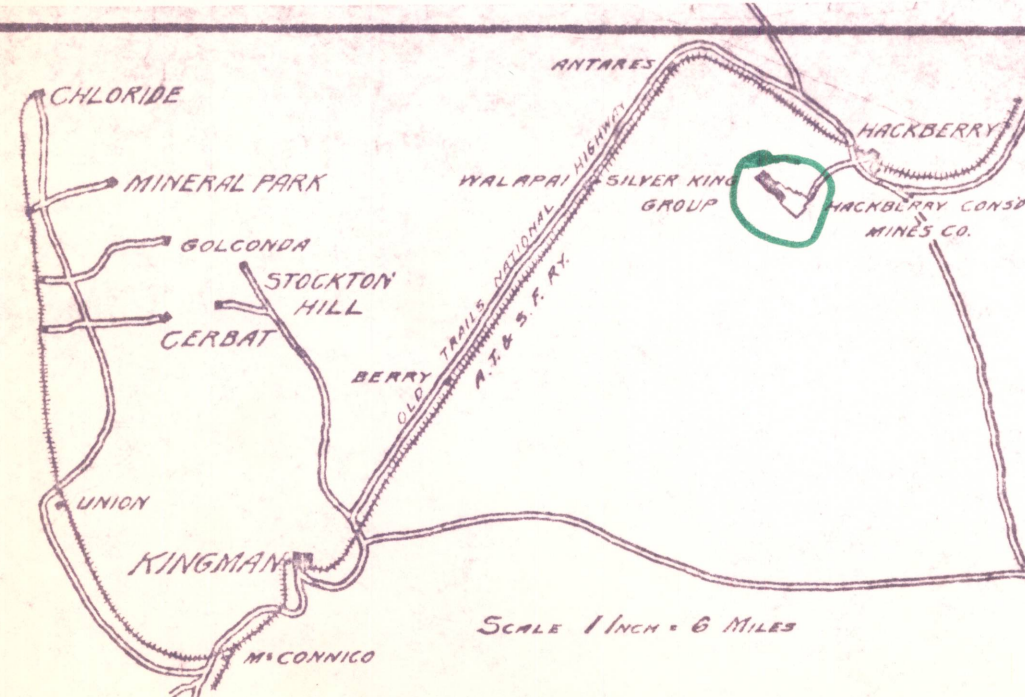


CROSS SECTION OF VEIN



— ASSAY LEGEND —			
No.	Silver	No.	Silver
1	83.40	10	31.20
2	5.40	11	6.56
3	115.96	12	5.80
4	48.60	13	44.60
5	32.70	14	64.56
6	4.48	15	118.40
7	17.04	16	20.20
8	87.56	17	58.60
9	48.86		

See attached description of samples.



**NEW ORE BODY**  
ESTIMATED VALUE OF \$4,000,000 BETWEEN 200 FT. AND 600 FT. LEVELS. CONDITIONS FAVORABLE FOR ORE TO CONTINUE TO 1000 FT. LEVEL AND DOUBLE ABOVE ORE RESERVES.

**OLD ORE SHOOT**  
PRODUCTION - \$3,000,000.

The six claims comprising the Silver King Group are the property of the Hackberry Extension Mining Company.

**LOCATION MAP  
SILVER KING GROUP  
PEACOCK MINING DISTRICT.  
MOHAVE COUNTY, ARIZONA.**

Scale 1 Inch = 600 Feet.

L.H. Foster,  
U.S. Mineral Surveyor.  
GEOLOGY BY A.L. JOHNS.

N.M. HUGHES  
PRESENT OWNER  
1966

**CROSS-SECTION  
HACKBERRY VEIN**

TO ACCOMPANY REPORT  
OF A.L. JOHNS