CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the

Arizona Department of Mines and Mineral Resources 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.

PRINTED: 02/13/2004

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: HALF MOON

ALTERNATE NAMES:
PAYOFF GROUP

YAVAPAI COUNTY MILS NUMBER: 1012C

LOCATION: TOWNSHIP 12 N RANGE 2 E SECTION 7 QUARTER W2
LATITUDE: N 34DEG 26MIN 36SEC LONGITUDE: W 112DEG 11MIN 40SEC
TOPO MAP NAME: MAYER - 7.5 MIN

CURRENT STATUS: DEVEL DEPOSIT

COMMODITY:
COPPER SULFIDE
GOLD
SILVER
IRON SPECULARITE

BIBLIOGRAPHY:
USGS MAYER QUAD
EVENSEN, J.M. GEOL. OF CENTRAL PORTION OF
AGUA FRIA MINING DIST YAVAPAI COUNTY
DISSERTATION U OF AZ TUCSON 1969 P 83, 90
AZ MNG JRNL SEPT 1917 P 9, 24, MAY 1926 P 54
LINDGREN W. ORE DEPTS JEROME & BRADSHAW MTNS
QUADS USGS BULL 782 1926 P 148
ADMMR PAYOFF GROUP FILE

PAYOFF GROUP

YAVAPAI COUNTY
AGUA FRIA MINING DIST.

Visited Mrs. Manly in Bumble Bee. She has optioned her Copper Queen and Payoff Groups to Robert Ford Enterprises, Flagstaff, who is also associated with McAlester Fuel Co. Ford is trying to come to agreement with the Binghampton Mine owners and proposed to drill both properties in the near future.

FTJ WR 1/21/66

Visited Mrs. Manly at Bumble Bee. Robert Ford and associates have drilled 5 holes, depths ranging from 200 to 500 feet, on her Copper Queen and Payoff Claims. Drilling had been suspended until June 1. Bagdad Copper Corp. are also interested in the property if Ford relinquishes his option.

FTJ WR 5/20/66

DEPARTMENT OF MINERAL RESOURCES
State of Arizona
MINE OWNER'S REPORT

Date Sept. 30, 1963

1. Mine: PAYOFF group. Formerly known as the HALF MOON group
2. Location: Sec. 7 & 18 Twp. 12 N. Range 2 E. Nearest Town Mayer Distance 5 miles.
   Direction N.E. Nearest R.R. Santa Fe, Humboldt siding Distance 10 miles
   Road Conditions good
3. Mining District and County: Agua Fria Mining District, Yavapai County
4. Former Name of Mine: old HALF MOON
5. Owner: Manly and Durant. Contact Mrs. Manly at the Golden Turkey Mine 8 miles
   Address: from Bumble Bee. Mailing address Bumble Bee, Ariz.
6. Operator: Not leased at present time.
   Address:
7. Principal Minerals: Copper predominates. Some gold and silver
8. Number of Claims: Lode 12 Patented Unpatented X
   Placer Patented Unpatented
9. Type of Surrounding Terrain: (Read report on old Half Moon by Walter Harvey Weed. good road to workings
10. Geology and Mineralization: Assays taken from the new pits are as follows:

	% Copper	Ozs Gold	Ozs Silver
# 1 hole	26.80%	tested only for copper	
# "	9.01%	0.02%	1.0
# 2 hole	12.30%	tested only for copper	
" "	4.55%	ozs 0.02	0.6

11. Dimension and Value of Ore Body: See Walter Harvey Weed's report on old Half Moon workings. New pits are a little over 2 feet wide and there are numerous ones.

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective leasors or buyers.

(over)

12. Ore "Blocked Out" or "In Sight":

Ore Probable:

13. Mine Workings—Amount and Condition:

No.	Feet	Condition
Shafts 1	535	About 3/4 full of water
Raises		
Tunnels		Numerous pits shafts, etc. but not very big.
Crosscuts		
Stopes		

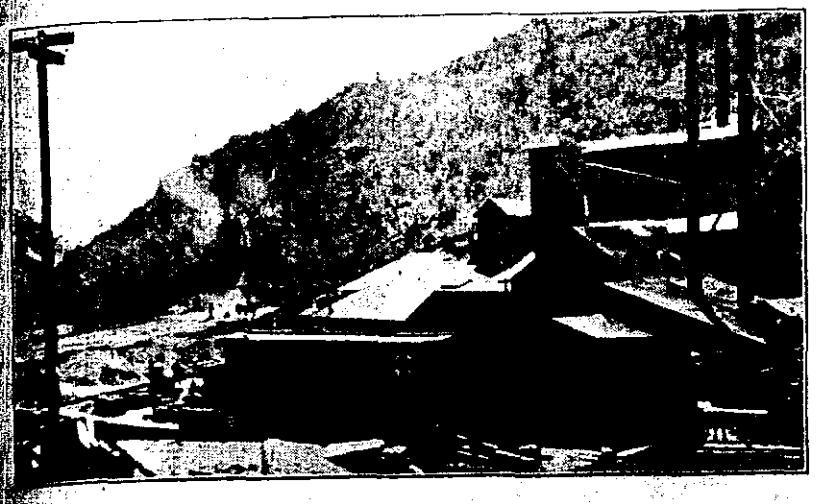
14. Water Supply: From Agua Fria river or from mine shaft.

15. Brief History: Has not been worked since first world war years.

16. Remarks: These pits are in the basin Mr. Weed speaks of in his report and I believe would make a wonderful open pit mine, as it lies right ~~[illegible]~~ Between ~~[illegible]~~ the Copper Queen Mine and the Stoddard.

17. If Property for Sale, List Approximate Price and Terms: Sale or lease. $75,000.00 terms. or Would give lease with option to buy. Lease money to apply on purchase price. $150.00 per month or 10% whichever is greater. I have Power of Attorney to deal on this property as Mr. Durant lives in Florida and leaves everything to me.

18. Signature (Mrs. C. H. Manly – formerly Clementson) Samuel M. Manly, Dewey, Ariz
Phone 632-7716



Tailings of Crown King Mill are Dumped on an Endless Chain by Fresno Scraper

...ase is to be sunk another 200 feet ...h drifts at each level. At adit No. ...which is 1200 feet south, a 300-... shaft is developing a separate ...ystem to that at adit No. 2 at ...ich level most of the work has ...n done. There are half a dozen ...more very promising outcroppings ...ore which show a strong leaching ...the surface.

...The money for the development of ...s property has come from Paris ...d other cities in Texas. The offi... of the company are: President ...d general manager, Louis Goldman; ...e president, R. F. Scott; treasurer, ... Goldman; secretary, W. F. Gill, ...of Paris, Texas, and Claude Fer...on is superintendent and resident ...nager.

Half Moon Company

...There are six or eight new mining ...panies which have commenced ...ating north and south of the Ari... Binghampton and the Copper ...n mines, on what seems to be ...extensions of the ore veins that ...being developed in these two ... The first property to the ...h is being developed by the Half ... company, which is capitalized ...500,000 shares, par value, $1.00. ...Kemp of Mayer is the president ...eneral manager. J. E. Russell ...escott is secretary and treasurer ...L. E. Hesla of Prescott and J. ...rennan and Edward S. Spring ...w York City, directors. A com... hoisting plant with air drills has ...d at the mine and work on a ...oot shaft will be commenced as ...n the plant can be erected.

The Big Bug Company

...deal is pending for large capital ... will finance the Big Bug com... ...y. Recently 29 per cent copper ...n encountered in a 40-foot shaft on ...company's property on the north-

wagon road has been repaired to haul the ore to the smelter at Mayer.

Mayer-Belford Group

The Jerome Copper company has recently taken over the Mayer-Belford group of claims, which are south and close to the Arizona-Binghampton mine. Surface work has opened up a 30-foot vein of copper-gold ore, 17 feet of which will average about 6 per cent copper and another vein has been surfaced 100 feet in width, much of which is a milling grade of copper ore. The president of the company is E. A. Kastner of Prescott; the vice president is F. M. Burdick, Chicago; Markham Orde, Chicago; Gus Zork, El Paso; Wellington Hay, M. P., Toronto, Canada. The general manager is H. B. King. The property is extensively developed.

Pocahontas Copper Co.

W. H. Skinner, president of the Pocahontas Copper company, has returned from New York, where he arranged for large capital. This is one of the best developed mines on south extension of Copper mountain. Several shafts have been sunk, the deepest being 200 feet, with 300 feet of drifts all in ore, carrying milling values in copper, gold and silver. The company plans building a flotation mill yet this season. The stock is held principally by Oklahoma people.

At the Iowa

Adjoining the Pocahontas mine are two properties, the Iowa, owned by Uri Embody of Prescott and H. R. Noel of Mayer and the Celebration group, owned by H. R. Noel and James Harris of Mayer. A deal is pending in the east that will fully fiance the Iowa property. Both groups carry the extension veins of Copper mountain on the south. Considerable high grade ore has been shipped from a 250-foot shaft on the Iowa mine.

The Harvard-Yale

One of the largest transactions in mine financing is about to be closed in Chicago. P. J. Montgomery, of that city, has acquired 33 claims adjoining the old Harvard-Yale mine and has an option to sell the latter property which makes a total of about 820 acres. The Harvard-Yale mine has a record of shipping several cars of very high grade copper ore from a shaft 86 feet deep. The vein is from four to nine feet wide. This is considered to be one of the most promising mining properties in that section of the copper-gold belt. Frank Giroux of Mayer and H. J. Perry of Cordes are the owners of the Harvard-Yale mine.

There is a great deal of new work being done covering this particular section of the belt. A carload shipment of 20 per cent copper ore was made by the Arizona Queen company recently. The company has one of the most complete steam hoisting plants of the belt, which is capable of sinking 1500 feet. A shaft is on its way to the 500-foot level and has already opened up a very strong vein of high grade copper-gold ore. At

EXHIBIT H
J. H. SCHOCKLEY

REPORT ON THE PROPERTIES OF THE HALF MOON COPPER COMPANY MAYER, YAVAPI COUNTY, ARIZONA.

BASIS OF REPORT

This report has for its basis a thorough and careful examination of the Half Moon property covering a period of four days late in March,1917, during which some twenty odd samples were taken and assayed from the various openings.

The author's experience, however, in this particular field is much amplified and backed by years of intimate contact through association with large operations and examinations of other mines on the "mineral belt" in question. In fact, during the past eighteen months he has made eight trips to this part of Arizona on mining business.

SITUATION

The properties of the Half Moon Copper Company are situated some three miles easterly of Mayer, Yavapai County, Arizona. Mayer is a lively electric lighted town of several hundred inhabitants, with merchandising stores, garages, etc.etc. The altitude of the vicinity is about 4000 feet above sea level.

ACREAGE

The property consists of fourteen adjoing claims, 280 acres, the location of which and relation to each other are shown on the accompanying map.

HISTORY AND TITLE

The claims have been held by the original owners for years and the title,established by yearly assessment work, is good and perfect.

ACCESSIBILITY AND TRANSPORTATION

A branch of the Sante Fe Railroad from Prescott passes through Mayer with passenger service daily. The smelter of the Consolidated Arizona Smelting Company at Humboldt is 10 miles by rail from Mayer. The new Clarkdale smelter and the famous United Verde mine and the noted Verde Extension mines of Jerome lie about 20 miles northerly. The Blue Bell and the DeSoto Mines of the Consolidated Arizona Smelting Company lie to the south some five miles. Less than a mile north of the Half Moon property are the well known Stoddard and Copper Queen mines. An auto truck road to these last two named mines passes within 3000 feet of the Half Moon property and a branch wagon road therefrom traverses the the Half Moon holdings. From the center of the Half Moon operations to the Sante Fe Railroad would not be over four miles, and as there are no bad grades, freightage either way should not exceed $1.50 per ton. The copper smelter formerly operated in Mayer has recently been acquired by the Big Ledge Company, whose properties are only a few miles away, and has been overhauled by them for the treatment of their ores, as well as for outside ores they intend to purchase.

Water for all purposes in abundance exists in the Aqua Fria River one mile away, and the electric power line of the Arizona Power Company passes directly over the Half Moon property; in one place within 75 feet of where there is an important showing of copper which will undoubtedly be sunk on in the near future. Thus the important factor of a supply of power in any amount is well taken care of. It is to be noted that the Half Moon property from an economical standpoint is very favorably located. The mines of this belt are not so expensive to open up as copper mines are usually. This is owing to the fact that the ore bodies are found nearly always near the surface, occurring in ground easy to hold; there is no large amount of water to contend with as a rule; and a greater part of the ores at least are of sufficient grade to ship direct. There is no snow fall to speak of and work can be carried on every day in the year without effort.

BUILDINGS & EQUIPMENT

1 14 x 30 Boarding House with culinary equipment for 25 men.

1 14 x 24 Bunk House.

1 14 x 16 Blacksmith Shop with complete equipment.

1 10 x 12 Cabin.

1 32 H.P. Fairbanks Morse Engine

1 Rix-Gartner Duplex Compressor

1 12 H.P. Fairbanks Morse Hoist

800 ft. 5/8 cable

1 600# Ore bucket

1 Torpedo Bailer

3 Jackhammers

75 Pieces air drill steel

150 ft. air hose

800 " air pipe from 3/4" to 2"

1 Buffalo Blower 8"

1 " " 12"

200 ft. 8" air pipe

1 set sharpening tools for air drill

50 pieces of hand steel

Picks, Shovels, Hammers, etc. for 10 men

1 Gasoline Tank - 100 gals.

2 1000 gal. water tanks

Drill press

Pipe cutters - dies, etc.

NEARBY MINES AND MINERAL BELT

From the standpoint of location as compared with other producing properties, there are within a radius of 20 miles, several of the bonanza mines of the world; notably the United Verde and the United Verde Extension at Jerome. Other well known mines within this radius are the Blue Bell of the Consolidated Arizona Smelting Company, a large producer and the De Soto of the same company, the Copper Chief, the third best producer in Jerome; the Big Ledge properties consisting of the Henrietta and Buttermut, and the Stoddard and Copper Queen mines, adjoining the Half Moon, which have just been equipped with a new oil flotation plant.

The merit of these properties and region is proven by the substantial record of a production amounting to more than $200,000,000. and as the deepest workings have not yet reached over 1500 feet the youthful stage to which development has as yet been brought is clearly apparent.

It is well to bring out here the highly important fact that the Half Moon is on the same identical mineral zone or belt as the great mines above mentioned. That is to say on a narrow belt of schistose rocks, cropping out at irregular intervals almost continuously in a northerly, southerly direction for a distance of 35 miles, but under similar geological and topographical conditions, are found the mines referred to and many others of lesser magnitude.

This belt of copper-bearing rocks begins near a place called Crown King where it is terminated by a gigantic intrusion of massive granite mountains and ends just north of Jerome where it disappears beneath overlying strata of more recent origin. From a point near the beginning of this copper belt through the Blue Bell and DeSoto mines to Copper Mountain twelve miles to the northeast, taking in the Blackberry, Half Moon, Copper Queen and Stoddard mines, the schists have a remarkably uniform trend of north 20 to 30 east. Thence this belt with the same remarkable continuity of strike goes on to Jerome, embracing the Big Ledge, Bauman, Sullivan, Shylock, Yaeger, Copper Chief and Green Monster mines and finally the great Verde Extension and United Verde properties, where as above stated its further north exposure is

prevented by overlapping rocks. The continuity and linear character of this belt of schists and the intimate similarity of the copper deposits at intervals along it,are sufficient proof of widespread uniformity of conditions and a continuous copper bearing zone.

It is not intended to convey the impression that this entire belt is one continuous mine where all that is necessary to get ore is to sink anywhere, but that upon it, where local conditions are favorable, one can look forward to successful operations with the greatest of certainty.

The ore bodies of all the mines upon this belt, be they situated at one end or the other, are impregnations of chalcocite, chalcopyrite, and pyrite in the schists, accompanied nearly always by a very considerable alteration, silification and seritization. The United Verde, the best developed mine on the belt is opened to a depth of 1500 feet. It has been paying dividends for years at the rate of anywhere from $1,500,000. to $4,000,000 per annum amounting to about forty millions of dollars. The mines is judged by competent authority to be as yet in its infancy, and the owner Senator W.A.Clark of New York is now sinking a new shaft to go 2200 feet below the present depth.

Next comes the United Verde Extension which has opened up in the past two years a mine believed to be even greater than the United Verde itself. Already in this brief period this mine has blocked out a tonnage of 700,000 tons of 16% copper ore amounting to the colossal reserve at present copper prices, of forty millions of dollars. In other words the mine has in this short time opened a reserve of one and one-half times the total price of what its shares are at present ($38.00) selling for in the market. Moreover, in this brief period its shares have advanced from 50¢ to $35.00 per share. A depth of 1500 feet has been reached and as the mine stands today it is the copper wonder of the world with no doubt a wonderful future in front of it.

Next in importance comes the Blue Bell, 1000 feet deep, showing a zone of copper impregnation 40 feet in width and increasing with depth. Besides copper

the ore carries several dollars in gold and silver. This mine could easily net one million dollars a year for several years on what it has now in sight, stated to be 500,000 tons of 8% copper ore.

The De Soto is probably just as good a mine. The Stoddard and Copper Queen, adjoining the Half Moon, after undergoing extensive development work and responding favorably, recently equipped with a reduction plant, will shortly take their position among those above enumerated.

GEOLOGIC HISTORY

The rocks of the greatest age in the vicinity are geologically very old and are known as Yavapai schists. The entire schist series here, in places nearly or quite 8 miles wide, are principally of sedimentary origin and were derived from and originally deposited on a pre-existing land surface. But today this basement rock has not been identified and it is doubtful if it appears in the region. In part these schists are of volcanic origin consisting of intrusive sheets, now highly altered, but still retaining great basicity. The whole series has been involved in periods of sever deformation, causing the destruction of original forms and giving the rock its present lenslike structure of closely appressed folding. This tremendous appressive stress brought the flat-lying rocks to their present vertical or nearly vertical near nearly vertical angle and northerly strike.

During the transformation, with the strata still deeply buried in the interior of the earth they were invaded by other rocks of igneous origin which are now found wedged in among the schists. Thus were provided what is considered the very best of conditions for the migration and deposition of metal bearing solutions in the form of what are known as ore deposits of deep-seated origin. After various periods of uplift, depression and erosion, a period of profound continental uplift occurred, causing the removal of all overlying rocks and the exposure of the present ore outcrops. This elevation of all the region is still going on. As shown by the geology and confirmed by the history of many of the nearby mines the region is

noticeably one of importance fully warranting the attention of those interested in the copper industry.

HALF MOON DEVELOPMENT AND ORE DEPOSITION.

The development as a whole on the Half Moon property amounts to some 700 feet. It is simply work of a prospecting character and while of no great importance in the deeper opening up of the property, yet as a means of proving the widespread mining probabilities of the area, is highly important.

A glance at the accompanying map will show that on the Half Moon property over an area of 3,000 feet in length by 600 feet in width(40 acres) on the Mile, Amason, Half Moon and Horse Shoe claims, there exists a series of some 20 workings of various depths (4 to 60 feet) from any of which high grade copper ore can be taken. These workings plainly demonstrate that the location is on the "Mineral Belt" proper on its trend to Jerome.

Not only does this series of workings show streaks and bunches in some 20 odd places of high grade ore, but at several points within this area there are large croppings, fifty feet wide or so, more or less copper stained and of a nature which on this "Mineral Belt" strongly indicate that at water level large bodies of commercial ore probably exist.

To be more specific, taking the surface showing of the Half Moon and comparing it with any of the other mines on this "Mineral Belt", excepting only the United Verde itself, it will be found that the Half Moon more than compares favorably and in fact outshows any of them for high grade surface ores.

In one place on the Amason claim there is an area of outcropping porphyritic rocks, highly altered and leached, pitted and copper-stained, which will in spots assay as high as 2% copper. Indications here strongly point to an underlying body of disseminated porphyry copper of commercial grade at ground-water level. And while as a whole the ore deposition on this property is apparently in the form of impregnation zones of indefinite and irregular outline, with the copper occuring as chalcocite,

chalcopyrite and pyrite, with quartz replacing many of the original constituents of the schist - yet it is possible, even probable, owing to the shattering and fissuring which it has received from the intrusives, that as development goes ahead large areas of underlying, disseminated or porphyry copper may be found.

ASSAYS

The following list of assays, designated on the map, taken by the author, gives a comprehensive idea of the values and of the pronounced mineralization and great scope of the ground in question:

No.		Value
1	Hole 5 ft. deep across 6 in.	5.4 per cent
2	" 8 " " " 3 ft.	2.5 " "
3	" 3 " " " 10 in.	2.2 " "
4	" 3 " " " 12 in.	5.8 " "
5	" 8 " " " 4 in.	5.1 " "
6	" 8 " dump	4.8 " "
7	" 8 " dump	6.4 " "
8	" 8 " dump	3.6 " "
9	Open cut across 18 ins.	2. " "
10	Shaft 30 ft. dump	7.6 " "
11	" 50 ft. "	1.4 " "
12	" 8 " "	10.8 " "
13	Croppings	18.3 " "
13A	Dump	9.3 " "
14	Open cut across 10 ins.	12.4 " "
15	Shaft 60 ft.dump	13.0 " "
16	Croppings across 6 ins.	2.8 " "
17	Shaft 10 ft.dump	5.8 " "
18	Hole 8 ft. deep across 8 ins.	13.2 " "
19	Hole 4 ft. across 6 ins.	15.8 " "
20	Croppings, disseminated ore	2.16 " "

The ore as exposed in the different openings from which the above samples were taken, occurs in veinlets, streaks and bunches. Sometimes as much as six inches of solid ore will be found, in other places several streaks will occur within a few feet with the intervening ground carrying more or less copper.

VALUATION

In considering a valuation of such a property as the Half Moon it is necessary in a measure at least to use comparison. There must be borne in mind two important facts:

(1) That the property is on the same rich" Mineral Belt" as that of many

other noted copper mines, two of which adjoin the Half Moon.

(2) That, with but a single exception, no more favorable surface conditions and ore exposures were originally found on any of the other nearby mines than those existing on the Half Moon. Acknowledging these facts, then, there can be no reason to doubt that by developing to depth (in order to reach conditions where as miners say, the ore can "live") in the manner similar to that of the neighboring properties, mines of equal importance will be opened.

It is a well established fact on this "Mineral Belt", as on other copper belts, that it is necessary to get below the superficial and weathered surface from which the copper values have been leached, down into the zones of standing water where original conditions prevail, in order to find as a rule large bodies of payable ore.

Very good possibilities in regard to the extraction of copper exist on the Half Moon when consideration is taken of the large area where many excavations prove it likely that not one ore body but several may be developed.

On account of the good grade copper on the surface it is reasonable to assume that at a depth of 300 feet, or less, bodies of shipping ore will be found to such an extent that the property may become, to a degree at least, self-sustaining. To this end it is believed that the sum of $50,000.00 may bring such a condition about, or to a point where additional financing could easily be negotiated.

In the opinion of the author the future of the Half Moon property is assured, if the plan of development as outlined below is followed.

CONCLUSIONS AND RECOMMENDATIONS

Summarizing the different advantages in favor of the Half Moon property attention is drawn to:

(1) The "Mineral Belt" on which it is located and its close proximity to other noted mines with the same geological characteristics.

(2) The high grade of the different ores from some twenty odd

workings.

(3) The adaptability of the ores to concentration, flotation or smelting.

(4) The fact that the formation is favorable for economical mining.

(5) The nearness to railroad and smelters.

(6) The further important fact that water is abundant in the Aqua Fria River less than one mile away.

(7) Consideration of all these favorable conditions warrants the recommendation of this property as promising an excellent basis for mining operations, where ore depositions on an extensive scale are foretold by characteristics which long experience in the majority of instances shows are the guides to the mines.

Development is advised to first consist of six shafts each 100 feet deep to be sunk at points marked on the map A.B.C.D.E.F. These shafts will all start in high grade ore and those responding most promisingly should be kept going down.

The proving up the zone of disseminated copper in the northeastern part of the property should be done by churn drilling. Not less than four holes should be put down at least 500 feet each.

Respectfully submitted,

(Signed) J.H.Shockley.

March 20,1917.

EXHIBIT G.
WEED REPORT

R E P O R T

ON THE

HALF MOON GROUP OF CLAIMS

Stoddard, Arizona

by

Walter Harvey Weed.

Mr. O.B.Kemp,

Mayer, Arizona.

Dear Sir:-

At your request I have examined the Half Moon Group of claims and submit herewith my report on same.

HOLDINGS:

The Half Moon property consists of over twenty mineral claims situated in the Agua Fria mining district, about four miles north of the little town of Mayer and one mile from Stoddard, on the Agua Fria River. Mayer is a station on the Santa Fe branch line, twenty-nine miles from Prescott.

The Half Moon Group is a tract of about 400 acres covering an area of mineralized schist, known as the Yavapai formation. The tract shows numerous exposures, both of natural outcrop and shallow mine workings, of copper ore.

My examination was specifically to determine whether in my opinion the claims warrant development and what prospect there is that such development will open up a profitable copper mining property.

In my opinion the property warrants development and gives a reasonable promise of making a profitable, low-grade copper mine. This conclusion is based upon a comparison of the geologic and mineralogic facts observed on the property with those of similar deposits in other parts of the world, more especially those of the Blue Bell and Stoddard mines, both of which are profitable producers in this same region, the latter adjoining the Half Moon on the north. The facts on which the conclusion is based may be briefly summarized as follows:

The Half Moon property lies in a belt of mineralized schist running nearly north and south. This belt is in most places recognizable as different from the schistose rocks on each side of it. It descends from the De Soto Copper Mine on the South, through the Blue Bell Mine, being large producers, to the Stoddard Mine on the North. The claims of the latter property abut

against those of the Half Moon Group.

The surface conditions on the Half Moon Group are practically identical with those of Stoddard, save that the former carries richer ore. Compared with the Blue Bell ore some, the rocks show much less iron staining and less silicification.

Geological conditions on the Half Moon Group are comparatively simple, the rocks being thinly laminated, chloritic schists of general greenish color with occasional areas whose brownish weathering differentiates them from the rest. Over the southern part of the tract the schist bands trend northward directly toward the Stoddard mine and there is no warping or curving of the rocks. In the northern half of the tract however the schists run northeast and areas of more massive rocks occur.

Compared with adjacent areas, the copper bearing belt shows fewer reefs of barren, milky white quartz and the weathered surface is not so brown.

THE ROCKS:-

The predominant rock of the tract is a leafy, flaky, pale green to pearly gray schist, characterized by much sericite and colored by chlorite. In places these rocks are undoubtedly of sedimentary origin but in a large part of the copper bearing belt of the tract, they are sheared and altered, igneous rocks, in part quartz porphyry, in part perhaps a more granular rock. Small lenses of brown weathering limestone occur and at least one area of massive, igneous rock, light colored, siliceous and not schistose, which is shattered and carries irregular quartz and jasper veinlets and patches. At one place this rock contains disseminated copper ore.

THE ORE:

The tract is remarkable for the occurance of high grade copper glance ore in many outcrops. In the flat basin area near the old camp, the rocks are

worn down and protrude but a few inches above the general surface; at many places within a width across the schist of several hundred feet, copper glance occurs in a silicious matrix, and the oxidized ore minerals, azurite, cuprite, malachite and chrysocolla, impregnate the schist. The area of massive, igneous rock and the limestone masses also contain copper glance in a disseminated ore worthy of development.

It is observable that the copper minerals occur with little quartzose veins and lenses and there is some spar associated with them. This quartz is dense, fine grained, is seldom pure white and occurs in fracture planes which cross the schist planes at so slight an angle that they appear on first inspection to be conformable. The quartz occurs in small oval lenses, seldom over a foot thick or a few feet long, and usually much smaller. The ore is not continuous and though the schist alongside carries values as a result of oxidation, no face seen in any of the pits and cuts on the property carries recognizable copper ore, outside of the ore band itself. The apparent conclusion would be that the area is only valuable for pocket miners, or lessees. This conclusion is I believe, erroneous, in view of precisely similar surface conditions at the Stoddard mine where underground development has shown that there is a general impregnation of the schists beneath the area of green schists having similar small ore lenses with barren schist between. The only recognizable difference is the occurrence of the richer ore, crystalline copper glance and some specularite, at the Kemp property.

The lack of pyrite and of pyrite pitting of the schists indicates that the ores below will be like those of the Stoddard mine, free or almost free, from the barren iron sulphide. This feature is believed to be the cause of the lack of iron stained, or gossan outcrops and also the reason why copper glance is formed and the surface rocks colored green by the complex iron silicate chlorite.

The bright green schist is an outcrop or oxidation condition, due to the absorption of the iron content of the chalcopyrite of the deposit, freeing the copper to form chalcocite, which is in turn altered to the green and blue carbonates. The ore from the Stoddard workings is not green, but a gray sericitic schist with greasy lustre and abundant, tiny quartz lenses and films with which the chalcopyrite is intimately associated. Though much richer ore occurs, the mine output averages, I am told by the mine superintendent, about two percent copper.

In my opinion the Half Moon Group contains a similar deposit of schist ore and exploration work will, I believe, open up a large deposit of low grade chalcopyrite ore, entirely similar to that now worked at the Stoddard mine.

I therefore recommend the equipment and development of the property as a legitimate mining venture.

Respectfully submitted,

Walter Harvey Weed.

Prescott, Arizona.

November 25th, 1918.

EX I
RPT. F.J. HOBSON

THE HALF MOON MINING CLAIMS

by

FRANCIS J.HOBSON, E.M.

LOCATION and AREA

The Half Moon Group of Mining Claims is located in the Agua Fria Mining District, Yavapai County, Arizona, about twenty miles south of Jerome, and three miles north-east of Mayer. They are reached from the latter point, a railroad station on the Prescott and Eastern R.R., by a fairly good automobile road. They are in the copper bearing schist belt, exposed for varying widths south twenty degrees west, from Jerome to within a few miles of the southern boundary of Yavapai County. The Group consists of thirteen full mining claims, a ½ and two fractions, each approximating half a claim, as shown on the annexed drawing. (#1)

GENERAL GEOLOGY.

The geological conditions of the district are characterized by every favorable aspect for the occurence of ore bodies on a large scale, including epochs of igneous activity, intense regional and local metamorphism, and the presence of a country rock suitable for mineral deposition.

The geology of the district is discussed at length in the Bradshaw Mountain Folio No. 126 U.S.Geological Survey, and may be summarized briefly as follows:

The rocks are chiefly metamorphic of Pre Cambrian and presumably Algonkian age, largely of sedimentary origin, interwoven with intrusive igneous rocks of uncertain age, and effusives of Tertiary age, the resulting schists of sedimentary and igneous origin being exposed continuously from Jerome south about forty-five miles. At Jerome they have a similar trend and underlie the Paleozoic rocks unconformably.

The "formation" of the belt is known as "Yavapai Schist" and includes several

varieties of the schist family chiefly: Phyllite, Mica Schist, Hornblende Schist, with Limestone lenses, Quartzite and Siliceous Schist lenses. Estimated thickness, five thousand to seven thousand feet.

Siliceous lenses or reefs of Sericite Schist were mineralized, probably by the solution that brought about their silicification, with Chalcopyrite (Copper-Iron Sulphide), Gold and Silver. Later weathering and leaching changed the Chalcopyrite near the surface to rusty Limonite and Copper Carbonates, carrying down the major portion, in parts all the copper, redepositing it at depth as Chalcocite (Copper Glance). This secondary enrichment is notably evidenced in the bonanza exposed in the United Verde Extension at Jerome. Below the leached areas, large bodies of the primary ores are found as originally deposited, notably in the United Verde, Binghampton, Blue Bell, De Soto, and Butternut mines.

The surface conditions of all copper ore bodies of consequence, developed in the district are the same. Leaching of the surface and near the surface ores has left the tetrahedral and octahedral cast, and the iron residues of the decomposed Chalcopyrite. One boundary or wall of the mineralized reef is almost invariably schist of Diorete origin.

In every instance in this district where these two conditions obtain andexploration to depth has been made, ore bodies have been proven. The surface presence or absence of copper carbonates does not seem to be a matter of importance. On the surface of the United Verde, Binghampton and Blue Bell copper carbonates are in evidence, but none on the De Soto and Butternut mines. The largest ore bodies developed in the Blue Bell are under croppings showing no carbonates on the surface.

NEIGHBORING PROPERTIES.

Twenty miles to the north is the world famous United Verde, belonging to Senator Clark, and the Little Daisy or United Verde Extension. The former 2200 feet deep is producing about three thousand tons of ore daily and is operated at

a profit exceeding one million dollars monthly; and the latter 1400 feet deep has one million tons of sixteen per cent copper ore blocked out, and has been operated during the past two years at a profit of approximately fifteen million dollars.

North fifteen miles and eleven miles respectively are the Copper Chief and Yeager Canyon Mines. The latter is a mammoth property, recently purchased by the Shannon Copper Company, developed to a depth of 1400 feet.

One mile to the north is the Binghampton, a property with considerable development and of great promise. On the deepest level, the 600 foot, ore has been proven with an average content of six per cent for a width of fifty-one feet and the same grade of ore in the face. A diamond drill core twenty-one feet long was taken last week, which assayed eight per cent copper. The upper levels are in a lower grade ore. On the property is a one hundred and seventy-five ton mill and a flotation plant. Recently the mill heads have averaged four per cent copper and produce a concentrate averaging twenty-two per cent copper. Besides the milling ore, high grade is being shipped directly to the smelter. Recently a large hoist was installed and preparations are under way for sinking a 1200 foot shaft.

Six miles to the southwest is the Blue Bell Mine, producing at the rate of eleven thousand tons monthly. The ore averages about four and one half per cent copper, two dollars and fifty cents per ton gold and one ounce silver. Ore reserves of five hundred thousand tons of material of this grade are blocked out. Recent developments on the lowest level, the 1200 foot expose ore in large quantities assaying five per cent copper, one ounce silver, and six to seven dollars gold per ton.

Three and a half miles south of the Blue Bell is the De Soto Mine producing about five thousand tons of ore monthly, of approximately the same grade as that of the Blue Bell. This mine is reported to have about three hundred thousand tons of reserve ore blocked out. On the 800 foot level the commercial ore is eighty feet wide.

Four miles to the west is the Butternut Mine, another property of great

promise, reported to have ore of commercial grade sixty feet wide on the 400 foot level.

Three miles to the west, on the American Eagle Group of Mining Claims, a shaft is being sunk with the objective of 1000 feet depth. This also promises to be a mine of the first importance. Conditions so far developed have been most satisfactory.

THE HALF MOON GROUP.

On the Half Moon Group the mineralized areas of importance consist of a reef of sericite schist extending through the length of three claims for a width varying from fifty to six hundred feet, as shown on the annexed map No.1. The sericite reef is characterized on the surface by the presence of much copper carbonate thorough leaching, chalcopyrite pitting and the residual iron from chalcopyrite decomposition, and the absence of iron pyrite pitting. Much of the sericite has been colored green by chlorite. On the west side of the reef is an intrusion of diorite schist, its eastern boundary is porphyry and unaltered Yavapai Schist.

A number of prospect holes and shallow shafts expose copper carbonates and small quantities of sulphides. Samples taken from these openingsassay from traces to eighteen and three tenths per cent copper. The showing is listed in detail as follows:

	Content
No.1 Hole 5 ft.deep,across 6 in	5.4% copper
No.2 Hole 8 ft.deep,across 3 ft.	2.5 "
No. 3 Hole 3 ft.deep,across 10 in.	2.2 "
No.4 Hole 3 ft.deep,across 12 in.	5.8 "
No.5 Hole 8 ft.deep,across 4 in.	5.1 "
No.6 Hole 8 ft. dump	4.8 "
No.7 Hole 8 ft.	6.4 "
No.8 Hole 8 ft.	3.6 "
No,9 Open cut across 18 ins.	2.0 "
10 Shaft 30 ft. dump	7.6 "
11 Shaft 50 ft. dump	1.4 "
12 Shaft 8 ft. dump	10.5 "
13 Croppings	18.3 "
13A Dump	9.3 "
14 Open cut across 10 ins.	12.4 "
15 Shaft 60 ft. dump	13.0 "
16 Croppings across 6 ins.	2.8 "
17 Shaft 10 ft.dump	5.8 "
18 Hole 8 ft. deep, across 8 ins.	13.2 "
19 Hole 4 ft. across 6 ins.	15.8 "
20 Croppings, disseminated ore	2.16 "

An exploration shaft has been started on the Nile Claim and has attained a depth of twenty-five feet. This work is equipped with a hoist and air compressor efficient for sinking five or six hundred feet. A sampletaken for five feet across the bottom of this shaft assayed 2.95 per cent copper, all carbonates. This shaft in my opinion is most advantageously located for exploration of the reef, it being, in its widest part, and apparently the most mineralized.

The oxidation will not be deep and the sulphide zones will probably be excountered near the surface. The present equipment should be ample for either proving or disproving the mineralization of the schist zone.

The porphyry area gives promise of devloping a large dissemination of secondary ore. At several places copper carbonates occur on the surface with chalcopyrite pitting and absence of sulphides. The characteristics justify drilling three or four holes. A sample taken across four feet in one place assayed 2.16 per cent copper, part of the copper occuring as chalcocite.

The property was reported favorably in November 1916 by Walter Harvey Weed and during the March following by J.H.Schockley,E.M. Dr.Weed opinioned that ores of the same grade and character as those of the Binghampton would be developed, and Mr. Schockley gave as his opinion that the outcropping of the Half Moon Group was the most favorable in the Jerome-Mayer District with the exception of the United Verde. In my opinion the outcropping is the most favorable in the District, barring none. Without doubt large bodies of copper ore will be proven by exploration of the schist area. The grade of ore can be predicted only by comparison with the proven ore bodies of the District. Under similar conditions in the Binghampton and the Blue Bell the large ore bodies assay from 4 to 6 per cent copper, and in the United Verde the replacements in the identically similar schist average about five and one half per cebt copper. There is every reason to believe that large bodies of a like grade will be encountered in the Half Moon schist, and like in the mentioned mines, bodies

of size of high grade ore will be encountered.

LOCAL CONDITIONS

Everything is at hand for favorable operation. The main shaft is 3300 feet from the Agua Fria River, flowing an abundance of water during the entire year. Within five hundred feet of the main shaft is an ideal mill site above a gulch suitable for storing tailings for many years to come. The main electric line of the Arizona Power Company crosses the claims, and the climate is ideal for all year work.

BUILDING AND EQUIPMENT

1 14 X 30 Boarding House with culinary equipment for 25 men.
1 14 X 24 Bunk House
1 14 X 16 Blacksmith Shop with complete equipment.
1 10 X 12 cabin.
1 32 H.P.Fairbanks-Morse Engine
1 Rix-Gartner Duplex Compressor
500 ft. 5/8 cable
1 600# Ore buckets
1 Torpedo Bailer
3 Jackhammers
75 pieces air drill steel
150 ft. air hose
500 ft. air pipe from 3/4" to 2"
1 - 12 H.p. Fairbanks-Morse Hoist
1 Buffalo Blower 8"
1 " " 12"
800 ft. 8" air pipe
1 Set sharpening tools for air drill
50 pieces of hand steel picks, shovels,hammers,etc. for 10 men.
1 gasoline tank-100 gals.
2 1000 gal. water tanks
Drill press
Pipe cutters-dies,etc.

TITLE

Perfect title to all the claims except the Half Moon and Horse Shoe are in the Half Moon Copper Company. Thesetwo claims are under option to the corporation for ten thousand dollars, twelve hundred of which has been paid.

The group of claims to the north-east from the boundaries of the Half Moon Group to the Agua Fria River are also under option to the Half Moon Copper Company, the terms of obtaining them are extended over long periods on bond options, and in the opinion of the writer they should be acquired by the corporation.

CONCLUSION.

Taking everything into consideration, the ideal geological conditions, the surface proof of copper mineralization, and the location of the property in a proven copper district, it is easy to predict that the development of the Half Moon Group will prove it to be a copper mine of the first consequence.