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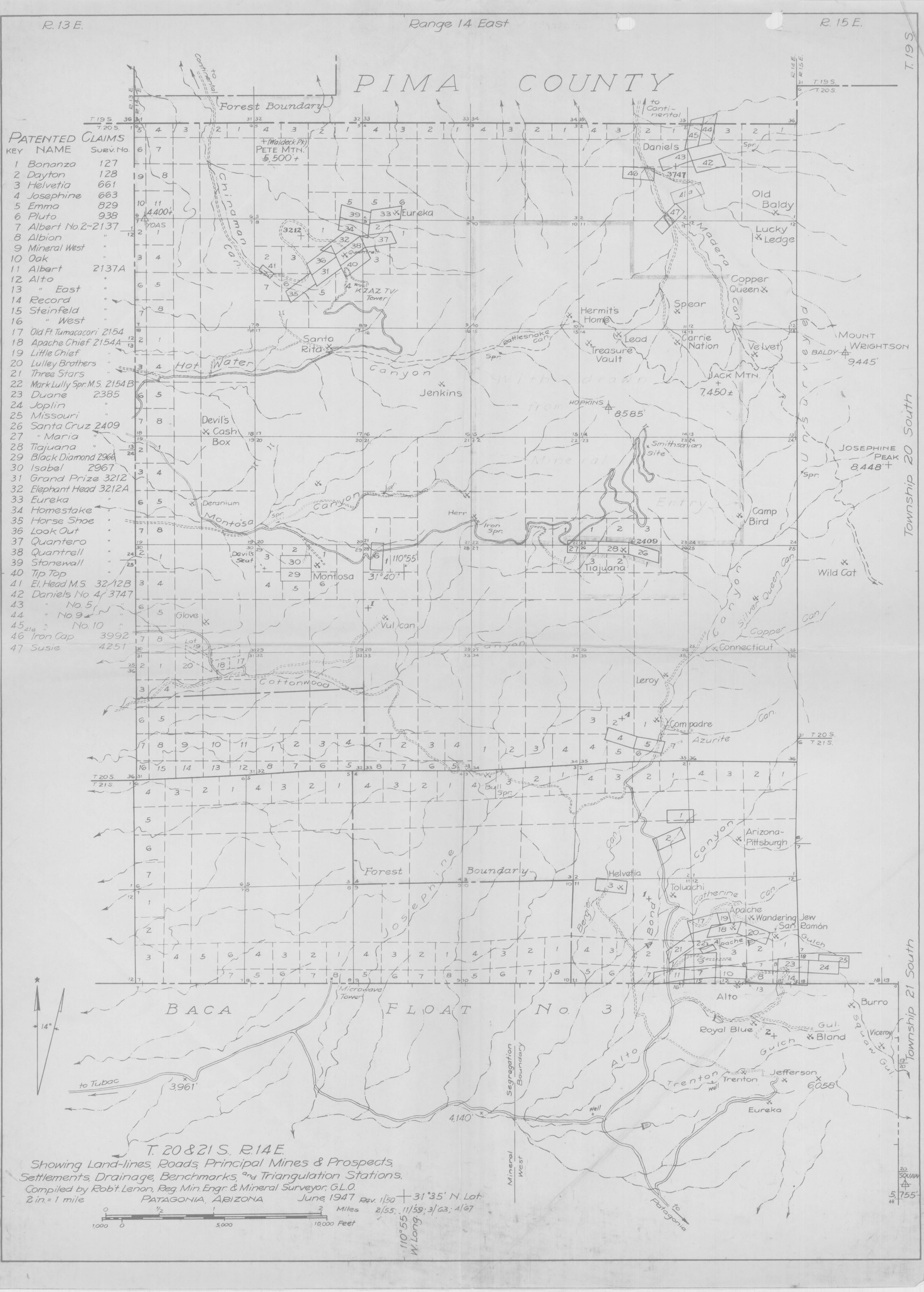
R. 13 E.
Range 14 East
R. 15 E.
T. 19 S.
PIMA COUNTY
Forest Boundary
to Continental
to Continental
PATENTED CLAIMS
KEY NAME SURV. NO.
1 Bonanza 127
2 Dayton 128
3 Helvetia 661
4 Josephine 663
5 Emma 829
6 Pluto 938
7 Albert No. 2 - 2137
8 Albion "
9 Mineral West "
10 Oak "
11 Albert 2137A
12 Alto "
13 " East "
14 Record "
15 Steinfeld "
16 " West "
17 Old Ft. Tumacacori 2154
18 Apache Chief 2154A
19 Little Chief "
20 Lulley Brothers "
21 Three Stars "
22 Mark Lully Spr. M.S. 2154 B
23 Duane 2385
24 Joplin "
25 Missouri "
26 Santa Cruz 2409
27 " Maria "
28 Tiajuana "
29 Black Diamond 2966
30 Isabel 2967
31 Grand Prize 3212
32 Elephant Head 3212A
33 Eureka "
34 Homestake "
35 Horse Shoe "
36 Look Out "
37 Quantero "
38 Quantrell "
39 Stonewall "
40 Tip Top "
41 El. Head M.S. 32/12B
42 Daniels No. 4 3747
43 " No. 5 "
44 " No. 9 "
45 41a " No. 10 "
46 Iron Cap 3992
47 Susie 4251
+ (Waldeck Pk.)
PETE MTN.
5,500'+
4400'+
YOAS
Chinaman Can.
3212
Eureka
Quantrell
KZAZ TV Tower
Daniels
3747
Old Baldy
Lucky Ledge
Madera Can.
Copper Queen
Spear
Hermit's Home
Lead
Carrie Nation
Treasure Vault
Velvet
Rattlesnake Can.
Spr.
MOUNT WRIGHTSON
BALDY
9,445'
Unsurveyed
JACK MTN.
7,450±
Santa Rita
Hot Water
Canyon
Jenkins
Withdrawn from Mineral Entry
HOPKINS
8585'
Smithsonian Site
JOSEPHINE PEAK
8,448'
Township 20 South
Devil's Cash Box
Deranium
Montosa
Canyon
Herr
Iron Spr.
Camp Bird
2409
Tiajuana
Devil's Seat
Montosa
110°55'
31°40'
Wild Cat
Silver Queen Can.
Copper Can.
Canyon
Connecticut
Glove
Vulcan
Lot 19
Cottonwood
Leroy
Compadre
Azurite
T. 20 S.
T. 21 S.
Bull Spr.
Arizona-Pittsburgh
Canyon
Forest Boundary
Helvetia
Toluachi
Catherine Can.
Bergier
Bond
Josephine
Apache
Wandering Jew
San Ramón
Gulch
Apache
Alto
Microwave Tower
BACA FLOAT No. 3
Burro
Royal Blue
Gul.
Bland
Viceroy
Squaw Gul.
Township 21 South
14°
Alto
Gulch
Trenton
Trenton
Jefferson
6058'
Well
Eureka
to Tubac
3,961'
4,140'
Segregation Boundary
Mineral West
SQUAW
5,755'
to Patagonia
T. 20 & 21 S., R. 14 E.
Showing Land-lines, Roads, Principal Mines & Prospects, Settlements, Drainage, Benchmarks, and Triangulation Stations.
Compiled by Rob't. Lenon, Reg. Min. Engr. & Mineral Surveyor, G.L.O.
2 in. = 1 mile
PATAGONIA, ARIZONA
June, 1947 Rev. 1/50 2/55; 11/59; 3/63; 4/67
31°35' N. Lat.
110°55' W. Long.
0 1/2 1 2 Miles
1,000 0 5,000 10,000 Feet

November 3, 1969

MEMORANDUM

To. Mr. Q. A. Shaw
From: D. B. Cooley
Subject: Claim investigation in Patagonia Arizona area.

Bill Mackay and I went over the claims in the Hosey Mine-Alto group area with Mr. L. (Red) Sebring of Patagonia. Mr. Sebring is the local representative of Mr. Fenix who was ill and unable to join us. We spent all day Wednesday 20 October and most of Thursday 30 October on the ground.

This property, like most of the others in this area, is in an area of intermediate volcanics and some monzonitic intrusions with generally a moderate alteration. The mines present, almost without exception, are on pyrite-quartz veins up to four inches wide that carry appreciable amounts of silver and some copper. The vein structures are strongly altered as a rule and trend easterly.

A comprehensive district-wide examination could turn up some rich shoots or veins, previously unworded that are near surface. This type of approach is the best and about the only way to work this area and, of course, might produce nothing.

Donald B. Cooley, Geologist

DBCLjh

L. Sebring
P.O. Box 431
Patagonia, Ariz
Phone 394-2495

TOWNSHIP 20 SOUTH
RANGE 14 EAST

TOWNSHIP 21 SOUTH
RANGE 15 EAST

SURPRISE CLAIMS
SANTA CRUZ COUNTY ARIZONA

1-6

R. 14 E. Range 15 East R. 16 E.

T. 20 S.

PATENTED CLAIMS

KEY	NAME	Survey No.
1	Missouri National	133
2	General Craig	134
3	Record	2137 A
4	Bowling Green	2362
5	Duane	2385
6	Joplin National	"
7	Missouri	"
8	A.C. Sweet	2397
9	Black Cap	"
10	Chalcocite	"
11	Contention	"
12	Glen C. Bruner	"
13	Hillside	"
14	Hobo	"
15	H.W. Bruner	"
16	Mansfield No. 1	"
17	" No. 2	"
18	North and South	"
19	Old Nick	"
20	R.E. Bruner	"
21	Richmond	"
22	R.M. Bruner	"
23	Skidoo No. 23	"
24	South Side	"
25	Sulphide	"
26	Timber Line	"
27	Trinidad	"
28	Black Top	2404
29	Fraction	"
30	Lee	"
31	Montecello	"
32	Solomon	"
33	Yellow Aster	"
34	Hornet	2408 A
35	Rupert	2472
36	New Era	"
37	" " No. 2	2580
38	Clipper	3672
39	" Side Line	"
40	Eclipse	"
41	Grand Leader	"
42	Happy Jack	"
43	" " No. 2	"
44	Keystone	"
45	Mountain View	"
46	" " No. 2	"
47	Philadelphia	"
48	Pilot	"
49	Wedge	"
50	Commercial No. 1 ~	3777
51	" No. 2	"
52	" No. 3	"
53	" No. 4	"
54	" No. 5	"
55	" No. 6	"
56	Imperial	"
57	Ivanhoe No. 1	"
58	" No. 2	"
59	" No. 3	"
60	" No. 4	"
61	" No. 5	"
62	" No. 6	"
63	" No. 7	"
64	" No. 8	"
65	" No. 9	"
66	Albert Gross	4318
67	American Boy	"
68	Deep Down No. 1	"
69	" " No. 2	"
70	Fraction	"
71	Great American	"
72	Lost Horse	"
73	New York	"
74	Rhode Island	"

Unsurveyed

St. Louis

Philadelphia

Flagstone

Spr.

Armada

Anaconda

5,038'

H.E.S. #528

White House Con.

Little

White House

Smith Stevens Con.

EAGLE + PK.

Dixie

Hosey

Piper

Lion Gulch

American Boy

Mansfield

Mansfield Canyon

2397 ±

Ruby

Joplin

Lot 4

Lot 4

Temporal

Dragozee

Happy Jack

Happy Jack Spr.

Burro

Bland

+2

Viceroy

6,058'

Victor

2 Coyotes

Well

Adolfo

Rosario

Boundary

SQUAW 5,761'

110°50

31°35'

Mohawk

Baca Float No.

Forest

Squaw Gulch

Canyon

Gringo Gulch

Gringo

Boundary

110°45' W. Longitude

31°35' N. Latitude

Township

To Alto

Montezuma

Min'l. Segreg'tn. Boundary

Mammoth

Patagonia

Spr.

56

65

64

Ivanhoe

60 55 54 51 59 50 53 52 58 57 63 62 61

3777

Smith Gul.

Forest

Gringo

Patagonia

T. 21 S.

R. 15 E. R. 16 E.

T. 22 S.

PAT 4,060'±

14°

MAP OF T. 21 S., R. 15 E.

Showing Land-lines, Roads, Principal Mines & Prospects, Settlements, Drainage, Benchmarks, and Triangulation Stations.

Compiled by Rob't. Lenon, Reg. Min. Engr. & Mineral Surveyor, G.L.O.

2 in. = 1 mile PATAGONIA, ARIZONA May, 1947

Rev. 4/52; 11/58; 7/61

0 1/2 1 2 Miles

1,000 0 5,000 10,000 Feet

FROM THE BUREAU OF MINES REPORT - MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, BY FRANK C. SCHRADER -- MANSFIELD MINES -- PAGE 226 THRU 229.....

MANSFIELD MINES - LOCATION AND GENERAL FEATURES. The Mansfield mines are located near the center of the district, on Temporal Gulch 3½ miles north of the Gringo mine and about 6 miles north of Patagonia. The Mansfield mine, which formed the nucleus of the present property, comprised three original adjoining claims. The deposit was discovered in 1879 by Jack Mansfield and Con Ryan, who sunk a 50-foot shaft on the Mansfield claim and in 1881 took out some ore. In 1883 the Gunsight Mining Co. bonded the property for $50,000, paying $8,000 down. In 1884 after shipping 30 tons of ore which, it is said, averaged 30 per cent in lead and 15 ounces to the ton in silver, this company relinquished the bond. In 1903 A. B. Richmond became the owner. Meantime William Powers had in 1890 shipped from the Contention ground, just to the southeast of the Sweet shaft, 10 tons of ore said to have averaged 40 per cent in lead and 40 ounces to the ton in silver; and $25,000 in silver is reported to have been taken out in the early days from the Dog Day claim, just southeast of the camp.

In 1906 the property was acquired by the present owner, the Mansfield Mining & Smelting Co., of Kansas City, Mo. Most of the development work was done by this company between 1906 and 1908, principally on the Sweet and Black Cap ground. Late in 1907 the company shipped to the El Paso and Douglas smelter, mostly from the Black Cap and Ruby claims, 100 tons of hand-sorted ore that averaged $50 to the ton in copper, gold, and silver.

The property now comprises a group of about 40 claims, of which 25 are patented, and extends through a distance of more than 3 miles. The camp is located in the east end on Temporal Gulch, and the principal claims and mines lie on a tributary known as Mansfield Gulch and are reached by wagon road. Since 1908 the property has been worked each year by a small force of men. It is developed by over 4,000 feet of work, principally in shafts, drifts, and tunnels at the Sweet and Black Cap mines. The smelter in located at the Sweet mine. Late in 1912 the company was reported to be working with a force of 20 men, mostly at the Black Cap mine, and early in 1914 it cut a large shoot of copper-gold ore at a depth of 400 feet.

The topography is hilly and becomes mountainous in the western part of the property. The country rock containing the deposits is the medium to fine grained quartz monzonite described on page 178 as occurring at the Carrie Nation mine, but it could not be differentiated from the overlying andesite on the accompanying map. It is composed principally of oligoclase-andesine, orthoclase, hornblende, biotite, and quartz. The quartz monzonite is intruded by rhyolite, which also, like the andesite, overlies and caps it in the surrounding hills.

SWEET MINE -- The Sweet mine is located in the east end of the Mansfield property, on the Sweet claim, on Mansfield Gulch at an elevation of about 4,700 feet, the collar of the shaft being 80 feet above the bottom of the adjoining canyon. It is on the south vein of a large lode of mineralized zone, which strikes N. 70 degrees E. and dips 80 degrees S. in the reddish medium-grained quartz monzonite. The dominant structure in the monzonite dips 35 degrees E. Rhyolite is intruded near by on the north, and is in general light gray and vitro-phyric, but in part pale grayesh and reddish brown. It is tuffaceous and contains fragments of a coarse altered granitoid rock. It is traversed by a coarse sheeting which dips 60 degrees West.

The vein is about 6 feet wide and consists mostly of quartz, which is iron stained near the surface. It is opened by a 360-foot shaft, the Sweet shaft, the latest large piece of work done by the company, with levels spaced 100 feet apart, beginning at a depth of 150 feet. The showings of ore in the bottom of the shaft are said to be good, but considerable water in encountered. At or just beyond the north-south gulch, a few hundred feet beyond the shaft, the vein is faulted off laterally 60 or 80 feet. On the first and second levels drifts extend 200 feet west on the vein. On the first and second levels drifts extend 200 feet west on the vein. On the first level a drift extends 100 feet east, and on the second level a crosscut extending to the north cuts a second vein, parallels the sweet vein at about 80 feet to the north.

The vein in the mine contains some ferruginous copper ore, which carries principally pyrite, chalcopyrite, and a little galena in a white quartz gangue, but it has not produced any ore to speak of and the company states that it was not expected to produce within the limits of the present workings. Northwest of the shaft, across the road, on the Gone Gosling claim, occurs a good-looking siliceous ledge bearing galena-silver ore, which dips steeply to the south and whose croppings rise boldly 12 feet above the surface.

BLACK CAP MINE -- The Black Cap mine is about 4,400 feet west of the Sweet mine, on the Black Cap claim. It is at an elevation of 5,020 feet on the south slope of Mansfield Gulch, the collar of the shaft being 110 feet above the gulch floor. The mine was worked principally in 1907 and produced about 250 tons of copper-gold-silver ore, that was shipped to El Paso and Douglas. About 70 tons of $30 ore now lies on the dump.

The mine is developed by a 140-foot shaft and a 200-foot tunnel with laterals on three levels and stopes, aggregating nearly 2,000 feet of work. The tunnel and first level are 30 feet below the collar of the shaft and the second and third levels at 90 and 130 feet, respectively.

The country rock is close-grained dark-gray monzonite or diorite allied to that of the Sweet mine and is considerably altered. As at the Sweet mine, it is intruded and overlain by rhyolite on the south. In fact the mine seems to be on an east-west contact of these two rocks.

The deposits occur mainly in a 10-foot siliceous vein or lode which dips 70 degrees SE. In this vein the principal value lies in an ore shoot or pay streak said to be about 3 feet in width. The ore contains mainly chalcopyrite and pyrite in the fine-grained massive form, little tetrahedrite and galena, considerable manganese, and in places bornite. The metals are chiefly copper, with some silver and a little gold. A moderate-sized portion of the ore shoot is said to have contained principally bornite and averaged 35 per cent in copper and 4 ounces to the ton in gold.

Along the road between the Sweet and Black Cap mines the ground in general is mineralized, and openings show good indications of copper and lead sulphides ores; above the Black Cap claim near the bottom of the canyon, the Sulphide tunnel, 200 feet in length, cuts one of the Black Cap ledges or a branch of it and show a width of 4 feet of sulphide ore, which, however, is mostly pyrite. Farther up the canyon the country rock is largely rhyolite in which openings show the iron and copper sulphides to be widely disseminated, and the workings, including stopes on the Ruby ground, reveal good ore containing principally chalcopyrite and chalcocite.

In September, 1914, it was reported that the Lee shaft on the Ruby ground had attained a depth of 500 feet and that a body of copper-silver ore 4 feet wide, averaging about 8 per cent in copper, had been opened on the 450-foot level, where also a 50-foot crosscute had been driven, chiefly in ORE AVERAGING 2 per cent copper.....

THE BUREAU OF MINES REPORT * MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, BY FRANK C. SCHRADER..

ALTO MINE - Page 197 thru 203..

Location and topography - The Alto, formerly the Gold Tree and later the El Plomo mine, is located 2½ miles nearly north of Selero, Mostly in the SE ¼ sec. 12, at an elevation of about 5,400 feet. It is in rough, hilly ground in Alto Hill, which, however, overlooks an open valley on the southwest that forms a natural approach to the mine and camp, the camp being at the foot and the mine mostly in the upper part of the hill, which rises 900 feet above the valley. The hill was named El Plomo by the early Spaniards, from the lead minerals occurring in it. It is merely a short truncated spurlike piedmont ridge about half a mile in diameter at the basse and but a few hundred feet wide at the top.

HISTORY AND PRODUCTION - The deposit was discovered by the Jesuit priests of the Tumacacori mission about 1687, and they worked it pretty steadily up to 1857, when the whites were driven from the country by the Indians. About 1875 it was located as the Gold Tree by Mark Lully, of Nogales, who worked it for a few years and sold it about 1880. It was later worked occasionally, with moderate success, by Albert Steinfelt & Co., of Tucson, untill about 1902, when it was purchased by the present owners, the Alto Consolidated Mines, Smelting and Transportation Co., financed by a Mr. Boynton, of New York. This company, operationg in 1905 to 1907, inclusive, built roads, installed machinery, drove a long tunnel, sunk most of the shafts, including one 217 feet deep, and did most of the modern development work, principally on the Alto vein. Since 1907 some work has been done intermittently with a force of 5 to 10 men.

The property comprises a group of 21 claims, shown in figure 21. No definite statement of the early production can be made. The ores first taken out were very rich in silver, and no attention was paid to lead. In the late seventies, however, Mr. Lully shipped 12 tons of relatively pure lead-silver bullion. From February, 1906, to July, 1907, the production was $14,000, mostly in copper, lead, and silver, with a little gold. The ore was shipped to the ElPaso smelter and averaged about 5 per cent in copper, 32 per cent in lead, 9 per cent in zinc, and 24 ounces to the ton in silver. About 12,000 tons of low-grade ores said to range from 1 to 3 per cent in copper, 7 to 10 per cent in lead, and 4 to 6 ounces to the ton in silver lie on the dumps.

DEVELOPMENT - The mine is developed by tunnels, drifts, shafts, and stopes aggregating 10,000 feet or more of wowk. The openings are largely in the west slope and upper part of Alto Hill, most of the tunnels being spaced about 200 feet apart vertically. The longest tunnel is the Alto, which has a length of 1,632 feet. It is driven about 300 feet below the top of the hill and in alignment with a series of shafts sunk from the surface, with all of which it is designed to connect. The developments on the Alto vein alone, which

constitute most of the modern work, aggregate about 6,000 feet, as follows: Shafts 1,050 feet, drifts 900 feet, tunnels 2,000 feet, stopes 2,000 feet. The company has spent several hundred thousand dollars, it is said, on the development and equipment of the property.

GEOLOGY - The geology of Alto Hill is complicated. In the upper western part of the hill the country rock is mainly the quartz latite porphyry described on page 72, with probably a core or base of granite porphyry, which seems to be the dominant rock in the eastern part of the hill, and is soon succeeded by the belt of diorite and monzonite rising in the mountains on the east. The granite porphyry, and probably also the diorite, prior to the eruption of the latite apparently formed the east side of the valley or piedmont front on which the latite was deposited. Dacite and rhyolitic rocks and andesite are also present. The latite is disposed in massive sheets or flows, which at the top of the hill dip 35 east and are agglomeratic. It seems to extend from the camp to the top of the hill and to be the principal rock in the mine, extending, with minor interruptions, from the mouth to the face of the Alto tunnel. Near station 8, about 1,200 feet in from the mouth of the tunnel, it gives way to granite porphyry, bowlders of which 2 feet or more in diameter occur as inclusions in the latite on the east near the top of the hill, toward shaft No. 1. At the face of station 6 drift, at 950 feet in from the mouth of the tunnel, the latite is intruded by dense dark reddish- brown andesite. Nearly all the shafts contain water and some are nearly filled.

VEINS AND ORES - The Alto property, as shown in figure 21, contains six veins, mainly in the latite and granite porphyry. They strike a little north of west and in general have a steep or vertical dip. Beginning on the north, they are the Mineral, Mineral No. 2, Albert, Alto, Excelsior, and Hillside.

The Alto vein lies in latite and granite porphyry and contains most of the development work which has been described. It extends through a length of two or more claims and is from 3 to 7 feet in width. It is opened by the 1,632-foot Alto or main tunnel with drifts, crosscuts, stopes, the Alto shafts, and also old workings. The tunnel, starting at the head of the tramway in the upper west slope tunnel, starting at the head of the tramway in the upper west slope of the hill, is driven eastward on or near the vein at about 300 feet below the top of the hill. The average dip of the vein for the first 300 feet in depth, as shown in shaft No. 1 is about vertical, but the company now regards the steep dip to the north which prevails in the lower part of the shaft as the general dip of the vein.

At station 4, about 400 feet in from the portal of the tunnel, an auxiliary or blind vein dipping steeply to the north or vertical comes in from the west-southwest. It is opened by a back drift, known as the west drift, for 130 feet to the west and by stopes or upraises to the height of 20 or 30 feet. It shows a low-grade ore body 6 to 8 feet wide containing

principally galena and a little copper, iron, silver, and zinc sulphides. It is said that some lead-silver ore and a little copper ore occur about all the way from the face of this west drift to the face of the tunnel.

For a considerable distance beyond the west drift the south wall of the tunnel is more siliceous and the country rock continues to be latite, the same as at the portal, nearly to the 1,200-foot point, where the formation is seemingly granite porphyry. Dense dark reddish-brown andesite, probably a dike, occurs in the face and adjoining part of the 200-foot drift to the southeast from the 800-foot point. Andesite is also associated with the vein in shaft No. 1 from the surface down.

Between the 600 and 800 foot points appears another small vein dipping steeply to the north and containing low-grade chalcopyrite ore. Between the 1,400 and 1,560 foot points is a large body of kaolin or gouge, and here the vein is 6 feet wide. From the 800-foot point to the face of the tunnel, 1,632 feet from the portal, the vein is in general well defined and carries a more or less continuous 18-inch ore shoot in which the ore occurs in lenses and stringers of galena 6 inches or more in maximum width, and for the last 250 feet of the course the vein dips steeply to the south. At the mouth of the south drift which connects with shaft No. 1 the ore is all galena ore with very little silver and no copper.

In the face of the tunnel the vein is about 4 feet wide and contains an ore shoot nearly a foot wide in the north or hanging-wall side, the rest of the width consisting mostly of altered rock carrying sulphide ore minerals all the way across, with some concentration and copper leaching on the south or footwall side. The middle part of the vein in this portion of the mine is said to carry generally considerable sphalerite. There is here about 6 inches of argillaceous gouge on the footwall and a little on the hanging wall.

On the surface the ore is more or less continuously exposed on the vein for a horizontal distance of about 2,000 feet from a point 100 feet west of No. 1 Shaft to the east end tunnel, which is about 800 feet east of shaft No. 3, and through about 1,200 feet of this distance, from a point west of shaft No. 1 to a point east of shaft No. 3, the ore has a known vertical extent of about 300 feet. It is regarded by the company as an established fact that 800 feet of the 950 feet of this known ore body between shafts 1 and 3 contains 170 tons of ore for each foot and the remaining 150 feet contains 100 tons to the foot, or a total of about 151,000 tons.

At shaft No. 1, which is 290 feet deep, the vein is 3 feet wide and stands about vertical. Small dikes of andesite show at the surface and are said to be associated with the vein in the shaft.

Farther east, on shaft No. 2, which is 140 feet deep and is sunk in granite porphyry, the vein dips steeply to the north and the ore is the same galena and

SILver bearing sulphide ore as that in the tunnel. Some stoping is done here on the 100-foot level.

Still farther east, between shaft No. 2 and the caved ground about 350 feet distant, the surface ore changes from lead-bearing to copper-bearing ore, and from the old 140-foot shaft, just beyond the caved ground, to No. 3 shaft, 400 feet distant, the vein averages 3 feet in width. The underground workings in this area are all connected now but contain water. From the beginning of the caved ground to shaft No. 3, about 600 feet distant, the ores are all copper bearing and show marked increase in the amount of iron sulphide. Here the best ores seen, some of which are rich, contain gray copper or tetrahedrite.

Shaft No. 3, 176 feet deep, is sunk on the vein in rock that seems to be granite porphyry and is in ore all the way down. At the surface occurs a small spur vein, and some brown intrusive andesite is said to be associated with the vein in the shaft.

West of the No. 3 shaft, toward and almost under the caved ground, the vein is about 12 feet wide and carries ore all the way across, but the best ore, which is of shipping grade, comes from the middle part of the vein, from a band 4 inches to 3 feet wide, not including many rich stringers in the remainder of the vein. The lateral portions of the vein contain about 1 to 2 feet of kaolinized gouge, and the walls are altered and decomposed at the surface. The vein filling is mostly siliceous matter, largely quartz containing pyrites and calcite.

At the old workings between shafts Nos. 2 and 3 the vein is about 7 feet wide and stands vertical. It is tripartite for at least 20 feet from the surface down and consists mainly of mineralized altered rock. Here and in an old work shaft near by the east a very large amount of work has been done. The surface part of the vein is said to be stoped out for a distance of 700 feet, and much ore has been taken out, mostly by Mr. Lully. The very large dump is composed almost wholly of sulphide material, containing iron and copper pyrite and some galena.

The ore minerals of the Alto vein are galena, argentite, chalcopyrite, pyrite, tetrahedrite (gray copper), and chalcocite. The Silver is contained mainly in the argentite intimately associated with the galena and in the tetrahedrite. Where pyrite predominates in the vein the chalcopyrite is intimately associated with it and much of the pyrite seems also to be cupriferous. Where the ore becomes strongly or predominantly copper ore, tetrahedrite as well as chalcopyrite is usually present, and also some chalcocite and a little black copper oxide.

The Albert vein parallels the Alto vein about 300 feet to the north, as shown on the map. It has a known length of about 3,000 feet and is well defined throughout. It is about 4 feet wide and [illegible] steeply to the south. It is opened at

several points to depths of 40 to 70 feet. The ore is similar to that of the Alto vein and averages about the same in tenor, but it is said to be in places richer in chalcocite and black copper oxide and the surface ores are higher in silver. In case this vein and the Alto vein continue downward and maintain their convergent dip they should meet or intersect at a depth of about 600 feet, where it seems reasonable to expect considerable concentration in the deposits.

The Mineral vein, in the northern part of the Alto property, has a known length of about 900 feet. It seems to lie chiefly in granite porphyry and is opened by a 100-foot tunnel and several shallow shafts, each about 40 feet deep. It is about 3 feet wide, dips steeply to the south, and consists of a lode of quartz stringers in altered rock. Both the rock and the quartz contain ore, and much ore has been gouged out from the vein and a spur vein just to the east across the gulch from the east workings. The ore is argentiferous galena, with a little chalcopyrite and copper carbonates, and contains much specular hematite, which in places forms a considerable part of the gangue. Mineral vein No. 2 on the east is probably an extension of this vein or its fissure.

The Excelsior vein, which lies on the south side of the property, is known and well defined for nearly 1,000 feet. It is about 3 feet in width, and is opened by several shafts, short tunnels, and drifts. It is not of relatively great importance but contains workable ore reported to carry fair amounts of copper, gold, and silver, and a little lead.

The Hillside vein probably occupies an easterly extension of the Excelsior fissure...

FROM THE BUREAR OF MINES REPORT - MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, BY FRANK C. SCHRADER ** ALTO MINE - Page 197 thru 203.....

FROM THE BUREAU OF MINES REPORT - MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, BY FRANK C. SCHRADER -- JOPLIN MINE - Page 205..

JOPLIN MINE -- The Joplin mine is three-fourths of a mile northeast of the Alto mine and about the same distance southeast of the Wandering Jew mine, at the head of Apache Gulch, on the south side, at an elevation of about 5,900 feet. It was owned by a Mr. Campbell about 1879, and in 1904 was bonded to Massachusetts people who soon shipped from it to the El Paso smelter 25 tons of ore that averaged about 5 per cent each in lead and copper and 35 ounces to the ton in silver. About 30 tons of sulphide ore lies on the dump. The property comprises three patented claims and is now owned by the Joplin Mining Co., of Tucson. It is developed by about 1,000 feet of work, including a 110-foot shaft, a 100-foot drift, and a 220-foot crosscut tunnel.

The topography is mountainous. The mine is in the head of a small side gulch on the steep side of Apache Gulch. The country rock is fine-grained brownish-gray quartz diorite. The vein, consisting mainly of altered diorite and quartz, dips steeply to the south and as seen in the drift seems to carry pretty continuously on the footwall an ore shoot 3 inches to 1 foot wide and in a few places reported to be 2 feet wide, containing principally pyrite, chalcopyrite, argentiferous galena, and near the surface copper carbonates. the country rock, as shown by the crosscut tunnel extending 100 feet beyond the vein, is impregnated with disseminated sulphides and in places contains also good ore.

At a depth of about 100 feet the vein, it is said, encounters a nearly horizontal slip or fault, where with very flat dip it makes an abrupt offset of 15 feet to the north, below which it resumes its nearly vertical downward course. The trend of the vein at each end of the offset is almost a right angle. At the offset the ore shoot was but 3 inches in width, but the ore was rich, as it was also just below the offset, where the ore shoot resumed its normal width.....

MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA
By Frank C. Schrader

AUGUSTA OR HOSEY MINE - Page 230 and 231..

The Augusta mine, also called the Hosey and the Presidential, is about a mile northwest of the American Boy Mine, near the head of a north-side head tributary of Mansfield Gulch, at an elevation of about 5,500 feet. It is reached by a wagon road ascending the gulch.

Copper was known to be present here as early as 1880, but it was discovered in workable amount in 1905 by John Leek, who, with his partners, soon took out $1,100 worth of black and gray copper sulphide ore from a 40-foot shaft. This ore, with shipments made a little later, aggregated five carloads. At the time of visit there was about 300 tons of good-looking ore on the dump.

In 1909 the mine was bonded to William Kemp, of Tucson, and the Calumet Arizona Co., who soon began operations, and during the later part of 1909 and the early part of 1910 steadily shipped considerable ore, sometimes from 20 tons to a carload a day, it is said, to Globe. Much of this ore, however, came from dumps of earlier work. During the summer of 1912 the mine was also reported to be shipping ore to the Pioneer smelter.

The property comprises a group of seven claims. It is said to have been purchased recently by Col. O. P. Posey.

The mine is developed to a depth of 215 feet by shafts, drifts, crosscuts, and stopes aggregating about 1,000 feet of work. The levels are about 100 and 200 feet below the surface.

The topography is mountainous. The country rock is quartz monzonite cut by rhyolitic dikes, with which the deposits are associated. It is a fine-grained, very dark iron-gray rock that weathers reddish and is moderately porphyritic. Besides the usual minerals it contains much magnetite and hematite, also chlorite derived from the hornblende and biotite. It is traversed by a sheeting which dips steeply to the south, about parallel with the veins, and by a more pronounced sheeting that strikes a little west of north and dips steeply to the east or stands vertical. Water level stands about 50 feet below the surface.

The property contains three veins which lie about parallel and dip 75 S. Each vein is associated with the footwall side of a rhyolite dike. From the south or main vein the middle vein lies 30 feet distant and the north vein 140 feet.

The south vein, on which nearly all the development work has been done, is from 8 to 15 feet in width, and just west of the shaft is marked by croppings of brecciated and honeycombed hematite and limonite stained quartz, rising boldly 8 feet above the surface. The vein is opened by a 215-foot double-compartment shaft inclined 75 and a few hundred feet of drifts extending each way, with crosscuts and stopes on the 100-foot and 800-foot levels. It is said to carry a 4-foot ore shoot which averages about 12½ per cent in

COPPER AND CONTAINS SOME SILVER AND A LITTLE GOLD AND WHICH IS THE Main source of the ore thus far produced.

The ore is siliceous and occurs in part as metasomatic replacement deposits in the rock. It contains mainly fine-grained Chalcopyrite and pyrite, tetrahedrite, and a little chalcocite and argentite. It is usually sold under contract for large amounts to the Globe smelter, where,it is in demand as flux for other ores. A microscopic section of the ore, which, however, seems to be from ore contained in the intrusive rhyolite, is highly altered and sericitized and may not be wholly representative, but consists mostly of a cryptocrystalline to glassy or isotropic base with irregular flow structure containing disseminated chalcopyrite, pyrite, hematite, and tetrahedrite.

The middle vein is opened by an 80-foot shaft, said to be all in ore, as is also a crosscut near the surface. The north vein, which is 6 feet wide, seems to form the footwall side of a 20-foot rhyolite dike. Only a little surface work has been done on it, but it makes a good showing and seemingly carries good ore containing principally pyrite and chalcopyrite, with some bornite and chalcocite..

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Scale 1" = 100

RECUERDO No 9 | RECUERDO No 8 | RECUERDO No 7 | RECUERDO No 6

RECUERDO No 5

RECUERDO No 3 | RECUERDO #1

RECUERDO No 4 | RECUERDO #2