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PRINTED: 12-28-2012

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: MONTIZONA MINE

ALTERNATE NAMES:
MONTAZONA MINE

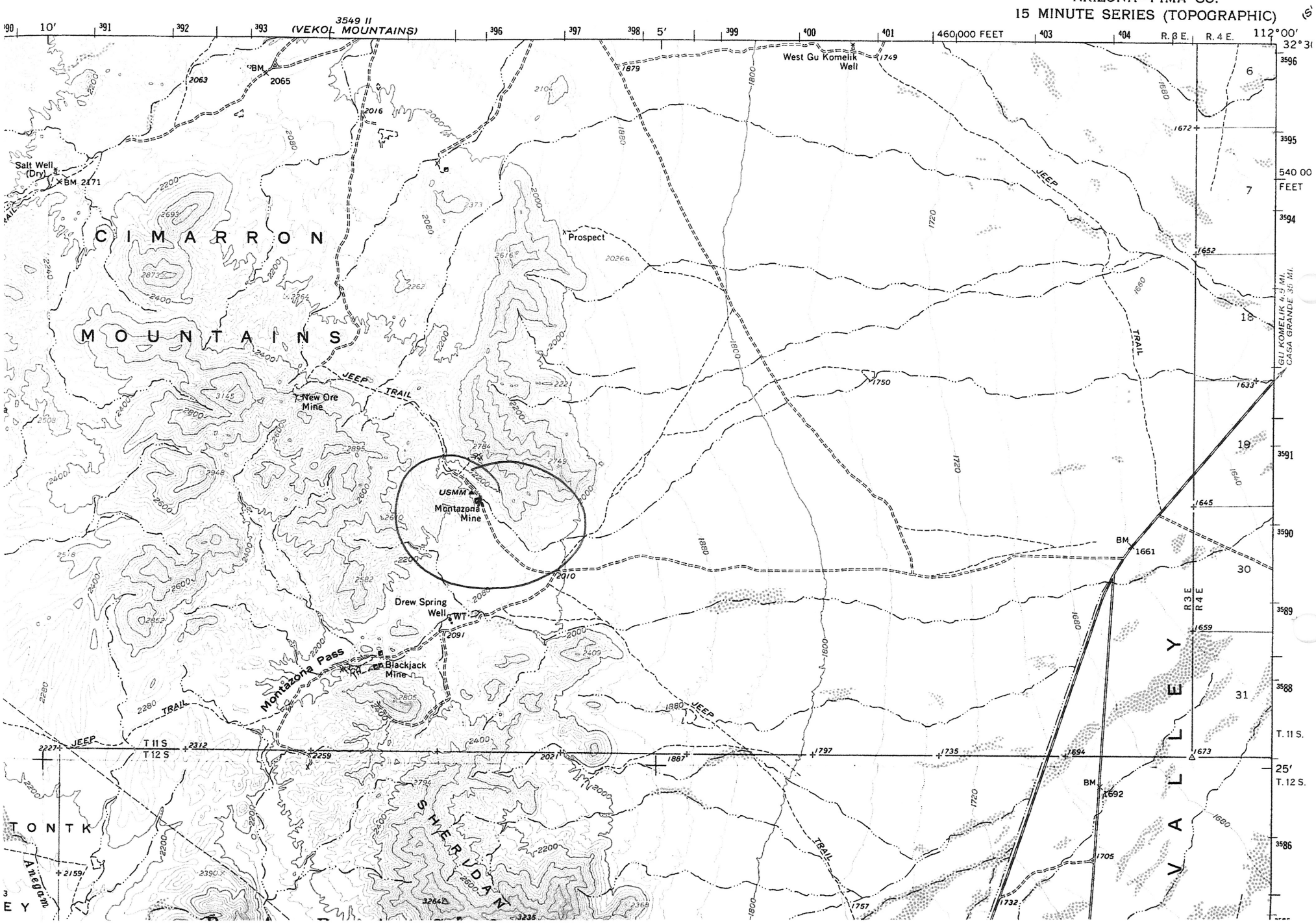
PIMA COUNTY MILS NUMBER: 109

LOCATION: TOWNSHIP 11 S RANGE 3 E SECTION 30 QUARTER NW
LATITUDE: N 32DEG 26MIN 49SEC LONGITUDE: W 112DEG 06MIN 29SEC
TOPO MAP NAME: GU ACHI - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
COPPER OXIDE
SILVER
LEAD SULFIDE
GOLD LODE

BIBLIOGRAPHY:
S.B. KEITH, AZBM BULL. 189, P. 115, 1974
ADMMR MONTIZONA MINE FILE
PATENTED CLAIMS MS 3772


GU ACHI QUADRANGLE
ARIZONA—PIMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)
3549 II
(VEKOL MOUNTAINS)
460,000 FEET
112°00'
32°30'
R.8E.
R.4E.
West Gu Komelik Well
Salt Well (Dry)
BM 2171
BM 2065
CIMARRON MOUNTAINS
Prospect
JEEP TRAIL
New Ore Mine
USMM
Montazona Mine
Drew Spring Well
WT
Montazona Pass
Blackjack Mine
JEEP TRAIL
T 11 S
T 12 S
SHERUDAN
TONTK
Antelope
GU KOMELIK 4.9 MI.
CASA GRANDE 35 MI.
TRAIL
BM 1661
BM 1692
SALLEY
R3E
R4E
T. 11 S.
T. 12 S.
540 000 FEET
25'
6
7
18
19
30
31

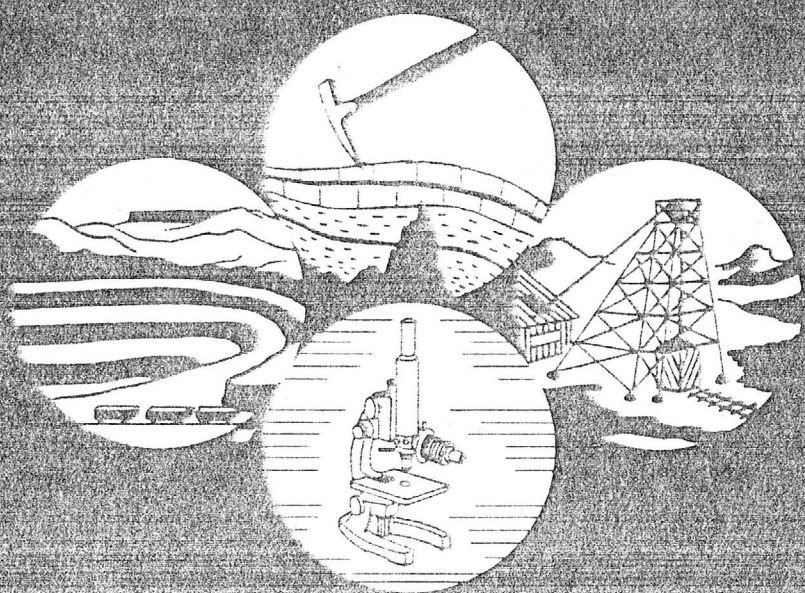
INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA

by
Stanton B. Keith
Geologist

VISITOR LOAN COPY

THE ARIZONA BUREAU OF MINES

Bulletin 189
1974



THE UNIVERSITY OF ARIZONA
TUCSON

Table 4, cont.

MINING DISTRICT AND MINES	LOCATION T.	R.	Sec.	MINERAL PRODUCTS	GEOLOGY	TYPE OF OPERATION AND PRODUCTION	REFERENCES
2. Cerro Colorado mine (Heintzelman, Silver Queen; Sonora Exploration & Mng. Co., Consolidated Arizona Mine & Mllg. Co., Cerro Colorado Mng. & Mllg. Co., Udall, Cerro Cristo Mines Co., Steinfeld, Baker, Snyder.	20S	10E	Cen. 25	Ag, Au, Pb, Zn, Cu (Hg)	Irregular, lensing, drusy, quartz-fissure vein with spotty cerargyrite, cerussite, anglesite, chrysocolla, copper carbonates, freibergite, galena, sphalerite and traces of cinnabar. Minor barite, calcite and much iron oxide. Wall rock is an andesite porphyry complex.	Shaft workings. Operated from 1770's to about 1937, producing some 3,000 tons of ore averaging about 100 oz. Ag/T, 0.1 oz. Au/T, and minor amounts of lead and copper.	Copper Handbook, 1903, 1909 Jones, 1957 ABM file data
3. Liberty mine (Liberty Mng. & Smltng Co.)	20S	10E	NE¼ 16	Ag, Au, Pb, Cu	Irregular quartz-fissure vein with spotty, oxidized, argentiferous galena and minor gold and copper mineralization.	Shaft and pit workings. Operated sporadically from mid-1800's to early 1900's producing some 100 tons of ore averaging about 80 oz. Ag/T, 0.5 oz. Au/T and minor Pb and Cu.	Copper Handbook, 1903, 1908 Chaffee, 1964 ABM file data
4. Mary G mine (Mary E, Princess group; Mary Leasing Co., Ayers, Goodsill & Carry Bros., Workman, Worsley, Bledsoe, Turner, Mary G. Mng. Co., Roberts)	20S	10E	E. Cen. 21	Ag, Pb, Cu, Au, Zn (Hg)	Irregular, lensing, drusy, and milky, partly oxidized, quartz vein containing stringers and veinlets of galena, sphalerite, copper carbonates, and mercury-bearing tetrahedrite with minor barite and calcite along a fault zone in Laramide (?) propylitized andesite porphyry. Specs of cinnabar. Ore shoot controlled by fault intersection.	Shaft workings. Operated intermittently from late 1880's to 1950, producing some 800 tons of ore averaging about 60 oz. Ag/T, 1.5% Pb, 0.7% Cu and minor Au and Zn.	Davis, 1955 Jones, 1957 Chaffee, 1964 ABM file data
5. New Colorado mine (Silver Colorado Mng. Corp. of Am.	20S	10E	E. Cen. 17	Ag, Au, Pb, Cu, Zn (Hg)	Irregular, partly oxidized, quartz-fissure veins with argentiferous galena, freibergite, copper carbonates and oxides, sphalerite and rich silver mineralization. Minor barite, calcite, and cinnabar. Strong iron and manganese oxides. Wall rock is Cretaceous andesite porphyry.	Shallow shaft and pit workings. Prospected and worked from 1800's to about 1900 with estimated production of some 50 tons of ore averaging about 120 oz. Ag/T, 2.7 oz. Au/T, 19% Pb and 2% Cu.	Chaffee, 1964 ABM file data
6. Silver Hill mine (Gold Coin; Cotton & Flynn, Lowell, MacFarlane)	20S	10E	E. Cen. 17	Ag, Au, Pb, Cu, Zn (Hg)	Irregular, lensing, oxidized, quartz-fissure veins with spotty argentiferous base metal sulfides in stock of Laramide dioritic intrusive and bordering andesite porphyry. Minor tetrahedrite and cinnabar.	Shallow shaft operation. Worked sporadically from 1800's to 1930's, producing an estimated 50 tons of ore averaging about 80 oz. Ag/T, 5% Pb, 4% Cu and 0.1 oz. Au/T.	Chaffee, 1964 ABM file data
7. Silver Shield mine (Colorado Clark; Falk, Mitchell)	20S	10E	NE¼ 35	Ag, Pb, Au, Cu, Zn (Hg)	Irregular, spotty, and weak, oxidized, argentiferous, base metal sulfides in a lensing quartz-fissure vein in Cretaceous andesite porphyry.	Shallow shaft operation. Worked intermittently from 1880's to early 1900's, producing about 20 tons of high grade silver ore with minor base metals.	Jones, 1957 Chaffee, 1964 ABM file data

X. Cimarron Mts. (Salt Well) District (Cimarron and Sheridan Mtns.)	11S 12S	2E 3E	----	Mn, Au, Cu, Ag, Pb, Zn	1. Manganese oxides along fault zones in Paleozoic limestone, Laramide quartz diorite and andesite porphyry. 2. Spotty, oxidized, auriferous, and argentiferous, base metal sulfides in irregular quartz-fissure veins in Precambrian schist, Laramide granodiorite intrusive, and Tertiary volcanics.	Mostly shallow, surface workings. Base and precious metal deposits produced some 120 tons of ore averaging about 0.7 oz. Au/T, 8% Cu, 1.5 oz. Ag/T and minor Pb from 1910 to 1939. Manganese production in early 1940's and mid-1950's amounted to about 9,500 long tons of 35%+ Mn.	Farnham et alia, 1961, p. 108-115 ABM file data
1. Black Diamond group (Pettijohn & Kennedy)	11S 11S	3E 2E	NW¼ 7 NE¼ 12 Protracted	Mn	Soft manganese oxides with segregations of psilomelane and stringers and blebs of calcite along a brecciated fault zone in Laramide quartz diorite. Also a vein-like occurrence along an intrusive-andesite porphyry contact.	Open cut and adit workings. About 40 long tons of low grade sorted manganese ore shipped in 1955.	Farnham et alia, 1961, p. 114-115
2. Black Jack mine	11S	2E	N. Cen. 36 Protracted	Mn	Psilomelane, wad, and other soft manganese oxides, with local abundance of iron oxides, in and around Paleozoic limestone fragments in a bedding plane fault zone between limestone and quartzite beds.	Shaft and drift workings. Some 1,240 long tons of 35% Mn ore produced in the mid-1950's.	Farnham et alia, 1961, p. 113-114
3. Isabella mine (Isabella Mines Co.)	11S	2E	NW¼ 21 Protracted	Au, Ag, Cu-, Pb-, Zn-	Irregular and lensing, quartz vein with spotty and weak, base metal sulfides along a fault zone between Precambrian schist and Tertiary silicic volcanics. Slight oxidation and enrichment near the surface.	Shaft and pit workings. Prospected and developed in early 1910's but only produced some 20 tons of ore averaging about 0.5 oz. Au/T and 0.1 oz. Ag/T.	ABM file data
4. Manganese King group (Struckmeyer, Young, Price and Dorsey, Manganese King Mng. Co.)	11S	2E	NW¼ 36	Mn	Irregular and erratic psilomelane, wad, and soft manganese oxides with some calcite and hematite in a Paleozoic limestone bed.	Shallow shafts and open cuts. Some 580 long tons of sorted 30% Mn ore produced in 1955.	Farnham et alia, 1961, p. 112-113
5. Monte Cristo mine (McNatt, Andrade)	12S	3E	NW¼ 7 Protracted	Au, Ag, Cu	Oxidized, quartz-fissure vein with surface enrichment of gold, silver and copper in Laramide metamorphic schist and phyllite.	Shaft and tunnel workings. In the 1930's produced some 65 tons of ore averaging about 0.9 oz. Au/T, 0.5 oz. Ag/T and 1% Cu.	ABM file data
6. Montizona mine (Montizona Copper Co.)	11S	3E	SW¼ 19 Protracted	Cu, Pb, Ag, Au	Spotty, argentiferous, and auriferous, copper carbonates, chalcocite, cuprite, tenorite, chrysocolla, and minor chalcopyrite and galena in brecciated quartz-fissure veins along a fault zone in Laramide granodiorite. Numerous aplite, trachyte, and andesite dikes.	Shafts, tunnels and diamond drilling. Developed in late 1920's and mid-1930's but only shipped some 15 tons of high grade oxidized copper ore averaging about 67% Cu, 8 oz. Ag/T, 7% Pb and 0.1 oz. Au/T.	ABM file data
7. Oro Grande mine (Sterling; Westbrook & DeRhodes)	12S	3E	W. Cen. 7 Protracted	Cu, Ag, Au	Oxidized, quartz-fissure veins with surface enrichment of gold, silver, and copper in Laramide metamorphic schist and phyllite.	Shallow shafts and pits. A few tons of about 4% Cu, 3.5 oz. Au/T and 8 oz. Ag/T shipped in 1924.	ABM file data

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

December 15, 1971

COPY

William E. Speers
1309 Homestead Lane
Lancaster, Penna. 17603

Dear Mr. Speers:

In reply to your inquiry of Mr. Epler, concerning the Montizona Copper Company, we enclose a photocopy from the Mines Handbook, 1931 giving information about the company. The 1937 issue of the Handbook merely lists the company as inactive, and we have no further file information.

We know of no mine or mines currently operating in the vicinity. The topographic sheet located the property near Montazona Wash in the Cimarron Mountains, Sheridan Mining District, Pima County. The claims are located on the map in Township 11 South Range 2 or 3 East. The land is still unsurveyed, so we are unable to locate it exactly for you. The area is within the confines of the Papago Indian Reservation.

Apparently many of the claims belonging to the company were patented. As with most property, if the taxes are not paid, such property is sold at tax sales. Many old property claims were sold to satisfy debtors. Such information should be available in the Pima County Recorder's office at Tucson.

Sorry not to be of more assistance in the matter, but if you feel there are other questions we can answer, do not hesitate to write us.

Very truly yours,

JOHN H. JETT, Director

by:
Adm. Aide.

P

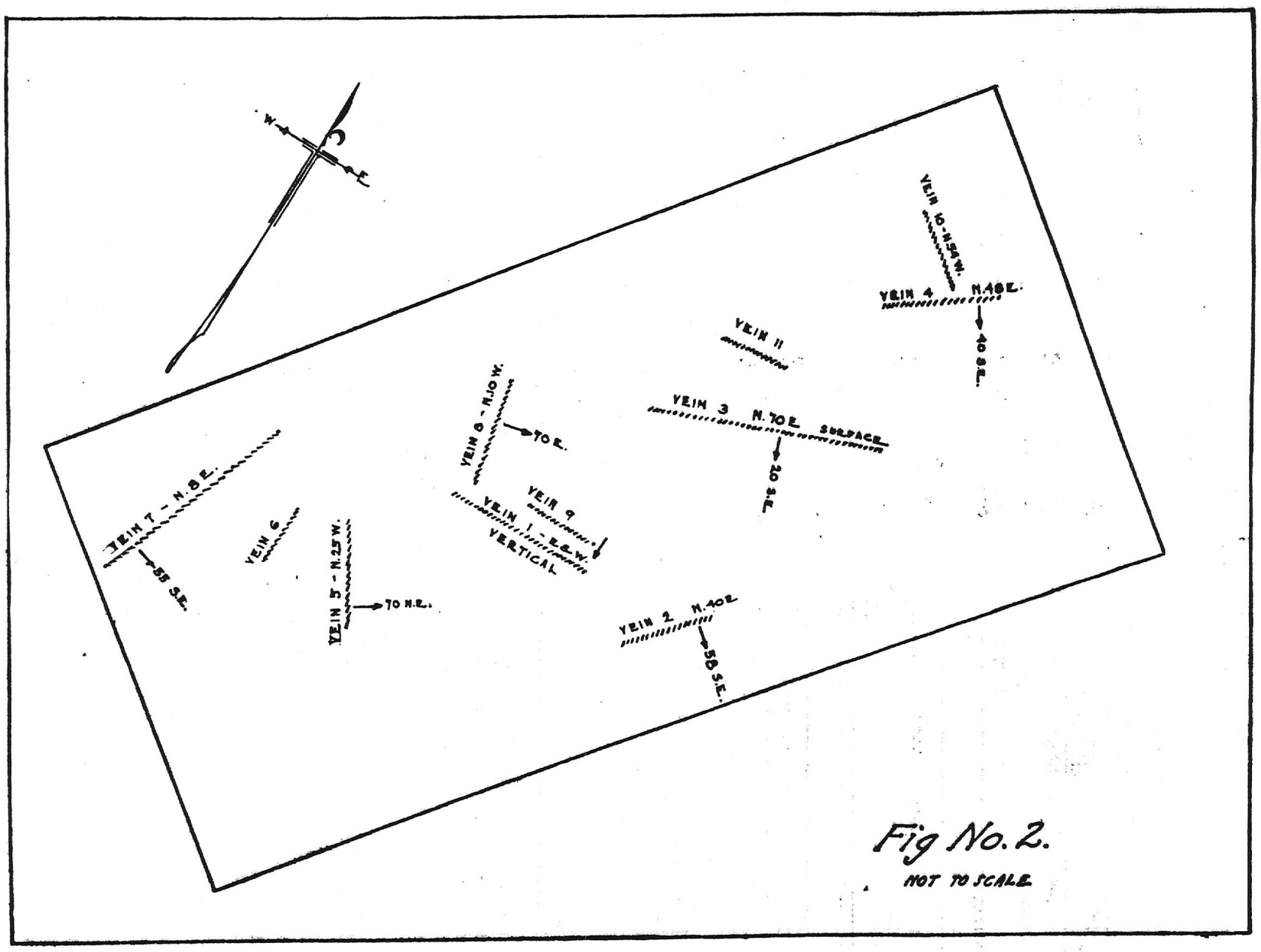


Fig No. 2.

NOT TO SCALE

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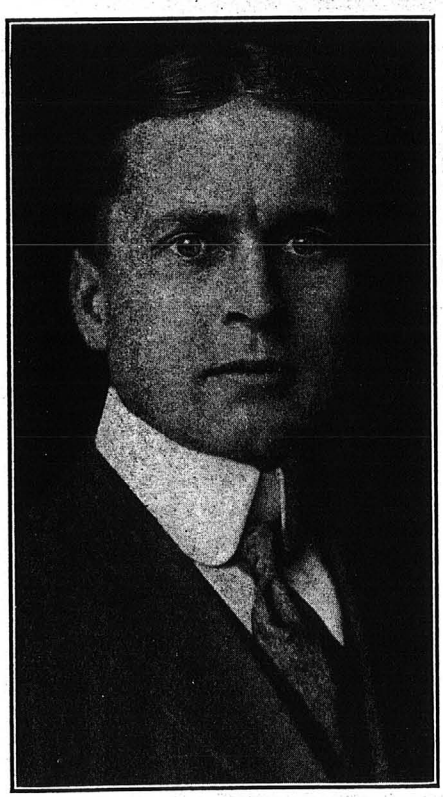
MAURICE WARDER BACON

NOTED MINING ENGINEER; PRESIDENT OF THE HUDSON BAY ZINC COMPANY, LTD., AND OTHER IMPORTANT MINING CORPORATIONS



MAURICE WARDER BACON

Although Mr. Maurice Warder Bacon's earlier experience was gained in the railway service, his energies have been directed, through the major portion of his career, to the administration of important mining properties and to the solving of the complex engineering problems involved in their operation. In this province his activities, in association with the famous Heinze mining interests, brought him into national prominence in the copper and allied industries; while as the present executive head of a number of large mining corporations that are palpable factors in the development of the vast deposits of mineral wealth of the North and West, his influence is still more widely exerted in the field of mining and in the industries and financial enterprises dependent thereupon.

Maurice Warder Bacon, a native of New Jersey, was born October 15, 1873, the son of Josiah and Caroline (Wood) Bacon. Through his paternal ancestry he is a lineal descendant of the brother of Francis, Lord Bacon, the philosopher-statesman of Queen Elizabeth's reign.

After completing his education, which was obtained at Westtown College, Philadelphia, Mr. Bacon entered upon his business career, his first work being with the Northern Pacific Railway, in that company's general offices in St. Paul, Minnesota. While still in the employ of the Northern Pacific, he was later sent further west on their lines in the capacity of cashier and agent. Subsequently, when the connection of the Oregon Short Line and the Union Pacific System was severed, Mr. Bacon was made general agent of the Oregon Short Line, for Montana.

During the term of his railway service in Montana he became acquainted with the late F. Augustus Heinze, whose employ he entered in 1898, and with whose great mining operations he continued to be identified throughout the remainder of Mr. Heinze's life. His first position in this connection was as purchasing agent and traffic manager for the Montana Ore Purchasing Company, at Butte, Montana. After serving in this capacity for a few years he was made manager of the Davis-Daly Copper Company, La France Copper Company, Basin Reduction Company and the Stewart Mining Company, and devoted his time to the affairs of these and other Heinze interests until Mr. Heinze's death, which occurred in 1914. Mr. Bacon then became identified with the important mining interests, the operations of which have since engaged his attention. In these several organizations he is an active official, being president of the Hudson Bay Zinc Company, Ltd.; Independence Lead Mining Company, Ltd.; Quatsino Copper Company, Ltd., and a director of the Coast Copper Company, Ltd. Mr. Bacon is also a mining engineer of widely recognized ability, and maintains his mining engineering offices in the city of Spokane, Washington, and Vancouver, British Columbia.

Mining education completed at Columbia College

Mr. Bacon is thirty-second degree Mason, a Shriner, and a Knight Templar. His clubs include the Spokane and the Spokane Amateur Athletic, of Spokane, Washington; and the Rocky Mountain Club of New York City. He is a member of the American Institute of Mining Engineers.

He was married in 1898 to Miss Maude Heron, and has one son.

Exhibit B.

REPORT

UPON THE PROPERTY OF

Montizona Copper Company

OF ARIZONA

By

M. W. BACON

FEBRUARY

1919

LOCATION

These properties consist of a group of twelve mining claims as follows:

Henry Blair No. 1
Henry Blair No. 2
Henry Blair No. 6
Saint Charles
Gail Borden No. 1
Gail Borden No. 2
Black Eagle
Southern Cross
Washington No. 1
Washington No. 2
Washington No. 3
Sunny Side

situated in the Cimarron Mountains, Sheridan mining district, Pima County, Arizona. Twenty-five miles south southwest of Casa Grande on the Southern Pacific railroad and about forty miles west of Sasco where the Silver Bell smelter is located and eight miles north of the proposed railroad from Silver Bell to Ajo, Arizona.

ACCESSIBILITY

It is reached by automobile road from Casa Grande approximately thirty-five miles long over a dry flat desert with no visible change in elevation the entire distance, but anaroid shows a rise of five hundred feet toward property, there are no grades or hills. This road is in fair condition and could be shortened by straightening, it now being somewhat circuitous.

TOPOGRAPHY

The mountain ranges are elevated above the plain of the desert to elevations approximating one thousand feet, and extend for many miles in a general northerly and southerly direction, but are of comparatively narrow widths, so that the rise in most instances is quite abrupt and not accompanied by a series of foothills.

GEOLOGY

The general geology of the district has not been studied, but within a radius of a few miles to the south and west there are sedimentaries of limestone and sandstone, also some quartzite overlying the granites, in which there are some copper and manganese prospects under development. To the north and east within the range of this zone of mountains the rocks are wholly igneous of the granitoid group.

These properties are within the boundaries of these granitoid masses of rocks, samples from which gave the following microscopical analysis:

1st. An acid Granite of holocrystalline texture with slight metamorphosis consisting of approximately 50 per cent Orthoclase, 40 per cent Quartz, with little Oligoclase, and accessory Biotite, Apatite, Magnetite and Zircon, all as primary minerals.

2nd. A Granodiorite of holocrystalline texture, with approximately 40 per cent Oligoclase, 33 per cent Biotite and Hornblende with about 10 per cent Quartz, a small amount only of Orthoclase and Magnetite as primary minerals. Metamorphosis has taken place to a considerable extent by processes of hydration and carbonation with formation of Epidote, Sericite and Chlorite as secondary minerals.

3rd. The above masses are intersected by many Granitic Dikes, classified as Aplite with very fine allotromorphic texture and slight metamorphosis, consisting approximately of 35 per cent Orthoclase with Quartz, Oligoclase, Biotite and Hematite as primary minerals and some Secondary Chlorite.

These intrusive dikes are responsible for the mineralization and all veins thus far discovered are associated with one or more of these dikes in some manner.

VEINS

There is a series of a dozen or more fissures striking easterly and westerly cross-cutting the general trend of the mountain range so that most of them outcrop from the base of the hills upon the plain toward the tops of the ridges as per plate (2) attached hereto. These fissures are in some instances along and accompanying the aplite dikes through the granitoid masses, but in most instances are wholly within the granite or granodiorite, being crosscut at broad angles by the dikes. They are from one to ten feet in width and can be traced upon strike from a few hundred to two thousand feet in length. There are also cross fractures throughout a portion of the areas.

MINERALIZATION

The mineralization throughout is very uniform, the vein fillings being quartz carrying gold, silver and nearly all the copper minerals, including chalcocite, malachite, azurite and chalcopyrite, no zinc and very little iron. The analysis of these is as follows:

	Oxygen	Silicon	Water	Carbon Dioxide	Iron	Sulphur	Copper
Quartz	53.3	46.7					
Chalcocite						20.2	79.8
Cuprite	11.2						88.8
Malachite			8.2	19.9			71.9
Azurite			5.2	25.6			69.2
Chalcopyrite					30.5	35.0	34.5

The coppers occur in importance in the order named, chalcocite being far the most abundant and chalcopyrite being found only in small pieces imbedded in quartz impervious to the oxidizing influences. The ratio of gold and silver to copper is probably higher at this elevation than it will be at greater depth where the coppers have not been subject to oxidation and leaching, the present ratio is 10c in gold to the per cent of copper and eight-tenths of an ounce or 80c in silver to the per cent of copper. There is some iron in the veins but not enough to interfere with concentration or to neutralize the ores.

VALUES

In consideration of this portion of the subject I would call attention to Figs. 3 and 4 attached, which are copied from Lindgren's "Mineral Deposits," page 783 and page 809, and are typical cross sections of veins in hot arid sections. These veins appear similar thereto and in general are either leached entirely at the surface or contain minor quantities of carbonates. secondary sulphide or of oxidized ores. In many instances however there are sufficient mixed ores to make mining from the surface profitable. Three test samples to determine these possibilities ran as follows:

		Gold		Silver		Copper
Number	Mark	Ounces	Valued	Ounces	Valued	Per Cent
25645	No. 9	.005	$ .10	1.44	$ 1.44	1.63%
25646	No. 10	.05	1.03	10.36	10.36	14.07%
25647	No. 11	.02	$ .41	2.50	2.50	2.10%

A small expenditure should put sufficient tonnage of sample No. 10 in sight to more than pay for any reasonable amount of development work.

DEVELOPMENT

This consists of a series of open cuts and shallow tunnels and shafts none of which are at this writing over thirty feet in vertical depth most of which work is done on vein No. 1. All other veins have had sufficient work to prove ore shoots therein and veins 1, 3, 4, 6, 8 and 10 give promise of developing considerable tonnage. Detail of the eleven mentioned is as follows:

No. 1 (Henry Blair Claim)

This vein is upon a south contact of an aplite dike forty feet wide within a granodiorite massif, is from one to ten feet wide. well defined with perpendicular walls striking east and west. It can be traced upon the surface for 1500 feet and has an indicated ore body approximately 1000 feet displayed by outcroppings, open cuts and shallow tunnels thereupon. A good proportion of the ores displayed here are of shipping grade and much of it will run from 10 per cent to 20 per cent copper and carry its usual quota of gold and silver.

At station No. 1 (see map No. 5) there is a tunnel driven on the vein thirty-eight feet in vein matter thoroughly oxidized and leached. An extension of this tunnel three hundred and fifty feet will give a vertical depth of one hundred and seventy feet and undercut a very promising ore shoot shown on the surface, after which the continued driving of this tunnel should be in ore for eight hundred feet, with backs averaging two hundred and fifty feet. Both the dike and the granodiorite are much altered some feet from this vein in places and it gives promise of an important producer.

No. 2 (Black Eagle Claim)

This vein has but two cuts upon it both of which show few inches of ore. The vein is from one to five feet in width, can be followed for approximately six hundred feet on strike which is north 40 degrees east and has a dip of 58 degrees southeast. It is a fissure with granite for both walls and might intersect vein No. 1 and its accompanying dike upon its north eastern extremity. It can be intersected two hundred and seventy feet deep by a crosscut tunnel approximately that long or can be drifted upon so as to gain nearly the same depth. See Fig. 6.

No. 3 (Gail Borden Claim)

This vein is one of the most important from a tonnage standpoint of any thus far discovered; it is from two to ten feet in width, can be traced upon strike one thousand and fifty feet and extends westerly upon the plain another thousand feet or has a parallel over-lapping fissures carrying the same ore. It has granodiorite walls, both hanging and foot, strikes north 45 degrees east and dips 20 degrees southeast, it terminates westerly against a vertical dike three feet wide striking north and south. The easterly extremity of this vein being under the wash cannot be determined without further work but is probably intersected by a diabase dike, striking north and showing some distance to the south.

This vein (see maps 6 and 7) can be drifted upon westerly, obtaining a vertical depth of three hundred and twenty-five feet by driving one thousand feet, with indications that it may all be in ore, this depth would give eight hundred feet of backs on the vein unless it straightens with depth. I should expect the ores from a tunnel here to more than pay the cost of driving after the first three hundred feet which are required to gain the first one hundred foot depth. This vein shows ore wherever broken into.

No. 4 (Saint Charles Claim)

This vein is similar to No. 1 in that it is along an aplite dike in the granite, runs from two to four feet wide, can be followed upon strike northeast and southwest for five hundred feet, dips southeast, carries the same ores in the same gangue, but can not be developed by tunneling, lying in low hills must be explored by shaft.

No. 5 (Southern Cross Claim)

This vein is one foot wide, strikes north 25 degrees west, dips 70 degrees easterly, with granodiorite walls, is partially developed for about 600 feet along strike, is intersected by two dikes almost at right angles to its strike. Has a twenty foot shaft sunk upon it and carries some very good ore, containing all the aforesaid copper minerals. It cannot be tunneled to advantage.

No. 6 (Washington Claim)

The ore showing here is upon a ridge between veins 5 and 7 and is probably a parallel vein to those, there is not sufficient work to determine its features.

No. 7 (Washington Claim No. 2)

This vein is four feet wide strikes north 18 degrees east and dips 55 degrees east; is developed by several shallow shafts and many open cuts, can be followed on strike approximately 1500 feet, is a fissure in granodiorite crossed by several dikes and shows some very good commercial ore. Near its northern extremity, in Washington No. 3 claim, where it encounters a large aplite dike it is approximately twenty feet wide, and is paralleled by another vein one hundred feet east. Development work here is to be strongly recommended, as there is probability of developing a large tonnage near the intersection of these veins with this dike.

No. 8 (Henry Blair No. 2 Claim)

This is a three foot vein striking north 10 degrees east and dips 70 degrees east, can be followed three hundred feet, has granodiorite walls and approaches a large aplite dike upon its southern extremity; shows some good ore.

No. 9 (Henry Blair No. 6 Claim)

This vein is two feet wide, strikes east and west, dips south, parallels vein No. 1 on south side of big dike, but has granodiorite for both walls. No work.

No. 10 (Saint Charles Claim)

This vein approximately two feet wide, strikes north 45 degrees east, intersecting the main Saint Charles ledge, No. 4, at its eastern extremity, can be followed many hundred feet therefrom and contains some good ore. Not sufficient work to make any estimate of its possibilities.

No. 11 (Gail Borden No. 2)

This ledge parallels vein No. 3 a few hundred feet to the north, and outside of some ore showing therein, there is no information available, no work having been done.

PROBABLE TONNAGE

Veins 1 and 3 are the principal ones with sufficient work to make an estimate as to possible tonnage. The calculations from these above tunnel levels are as follows:

Vein No. 1

$$\frac{1000 \text{ ft. long} \times 200 \text{ ft. deep} \times 2 \text{ ft. thick}}{10} = 40{,}000 \text{ tons}$$

Vein No. 3

$$\frac{1000 \text{ ft. long} \times 600 \text{ ft. deep} \times 6 \text{ ft. thick}}{10} = 360{,}000 \text{ tons}$$

Total 400,000 tons

Of this 400,000 tons I would estimate a probable 10% of shipping grade that should net ten dollars per ton on a 15-cent market, or $400,000, a 10% ore being worth $10 per ton net after all deductions, at this time. The deposit is undoubtedly deep-seated and may be expected to continue to great depth. The zone of secondary enrichment may be expected to encounter the primary ores about six hundred feet vertical depth, at which elevation permanent water level is estimated from many well borings in this section and from studies of the southern section of Arizona. The other veins should produce very substantial tonnage above this same elevation. As to what may occur at greater depth can only be compared with what has occurred under similar circumstances elsewhere, I am unable to find a record of any copper mine consisting of fissures in this formation having as yet been worked out. Granites are known to be richer in mineralizers than most other rocks and in consequence deposits therein are most persistent.

MILLING

If the property develops as indicated a concentrator will be required to concentrate the low-grade ores, most of which can be done advantageously on account of the large percentage of sulphides therein. This can be accomplished on the ground or by shipments to adjacent streams.

WATER

Water for the purpose of concentration can be pumped either from the mine itself or wells drilled to obtain it. The best criterior as to what to expect in this, is from the experience of the Southern Pacific Railway, who are pumping from various stations in this section six hundred gallons a minute, ten hours daily from three eight-inch wells, sunk within a radius of twenty feet, such a unit as this would serve as large a mill as can be foreseen.

There are also many pumping plants for irrigation in this district and one farmer states that he pumps intermittently 1,950 gallons a minute one hundred and ninety-five feet for this purpose.

TRANSPORTATION

Until the construction of the railroad from Silver Bell to Ajo or a similar construction to serve the mines through this section it will be necessary to haul by motor trucks either to Casa Grande twenty-five to thirty miles or direct to smelter at Sasco about forty miles. The adjacent mines h ave hauled both ways depending on the condition of the roads and advise that their cost to Casa Grande is from five to six dollars per tons and to Sasco a few dollars more. A light rail line to serve this district is to be recommended and with continued development of ore reserves is to be anticipated.

The annual rainfall is from seven to twenty-three inches with nearly all the precipitation in the mid-winter months, so a good road bed can be maintained with the use of some oil without great expense.

ADJACENT PROPERTIES

There are several small mines in the district, the principal copper property being the Lake Shore, across the valley. The management of which have developed 1,000,000 tons of 2½% copper carbonates above the three hundred foot level, and are now developing sulphides thereunder. This is upon a granite andesite contact. The largest developments in this section are at Silver Bell, thirty miles east, and at Ajo, forty miles west.

CONCLUSION

In conclusion I would refer briefly to the leading features of the property:

1st. The geology, which is identical with that of Butte, Montana, with the exception that in this instance the aplite dikes cut the granitoid rocks, granite and granodiorite, instead of the granitoid rocks, quartz monzonite and granite porphyry. The aplite dikes in each case being primarily responsible for the ore deposition, are an indication of great persistency here.

2nd. The extent of the fracturing which covers an area of approximately two square miles and is found in association with the dikes.

3rd. The valuable minerals which consist chiefly of the highest grade copper sulphide (chalcocite) carrying substantial amounts of silver and some gold, is again coincident with the ore occurrences of Butte as well as with the leading copper deposits of Arizona.

There is, therefore, every reason to anticipate that in driving upon such veins as No. 1 and No. 3, that ample ore can be developed to place the property upon a productive basis, and after these ore shoots are once encountered at depth, a profitable operation should be indefinitely maintained.

NOTE

Since the completion of this report a contract for driving 500 feet on Vein No. 1 has been let and the work is advancing at the rate of two and one-half feet daily. The first twenty feet just completed is all in ledge matter, with one (the north) wall only disclosed, containing a quartz streak a few inches wide carrying the following values:

		—Gold—		—Silver—		Copper
Number	Mark	Ounces	Value	Ounces	Value	Per Cent
26732	No. 1	.05	$1.03	4.11	$4.11	13.71%
26733	No. 2	.06	$1.25	3.90	$3.90	10.93%

These values indicate that commercial ore in this working may be anticipated at any time and that the continuation of the high grade ore shoots at depth is practically assured.

Petrographic Work by
W. Harold Tomlinson, Petrographer.

Respectfully submitted,
M. W. BACON. Mining Engineer and Geologist.

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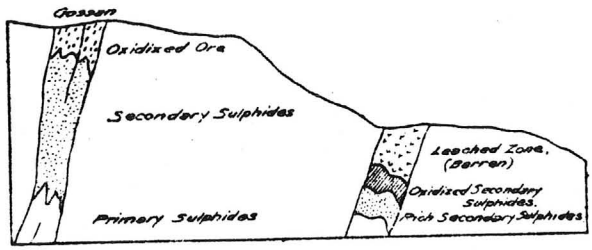


Fig No. 3.
See Lindgrens Mineral Deposits. Page 783.

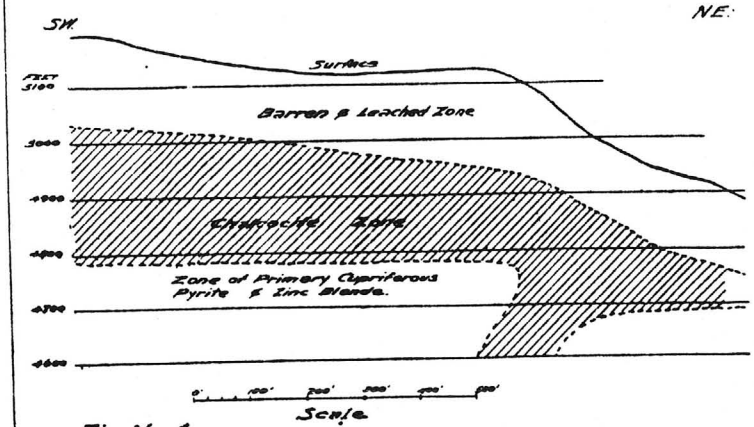


Fig No. 4.
See Lindgrens Mineral Deposits. Page 809.

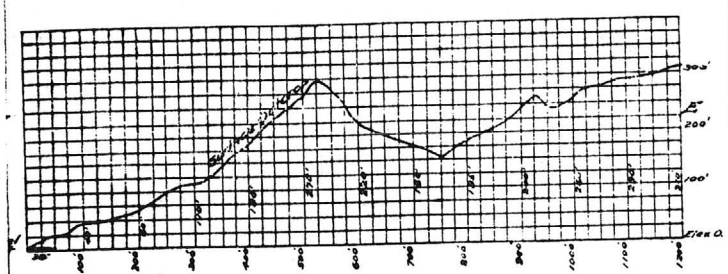


Fig No. 5. Cross Section
Vein No. 1. Looking North.

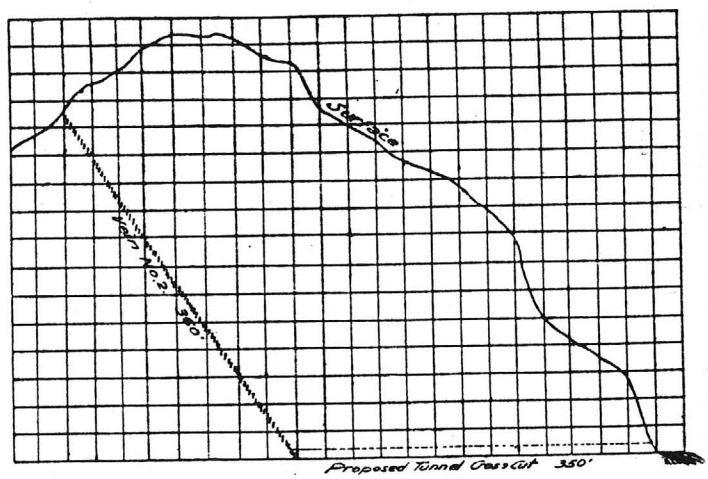


Fig No. 6. Cross Section
Vein No. 2.

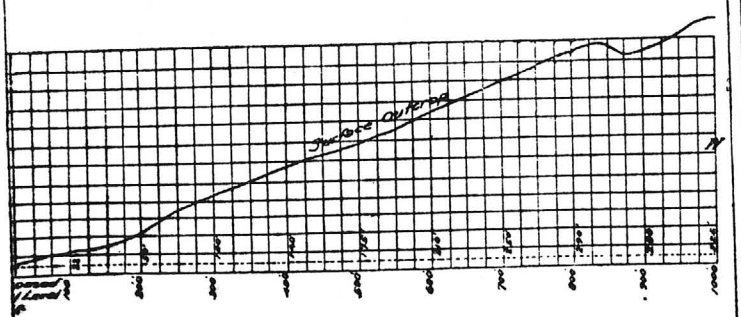


Fig No. 7. Cross Section
Vein No. 3. Looking South.

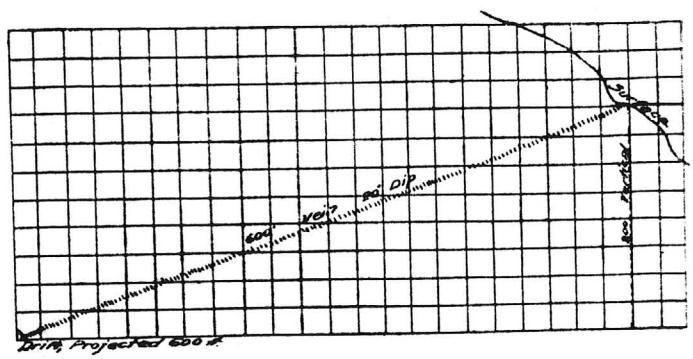
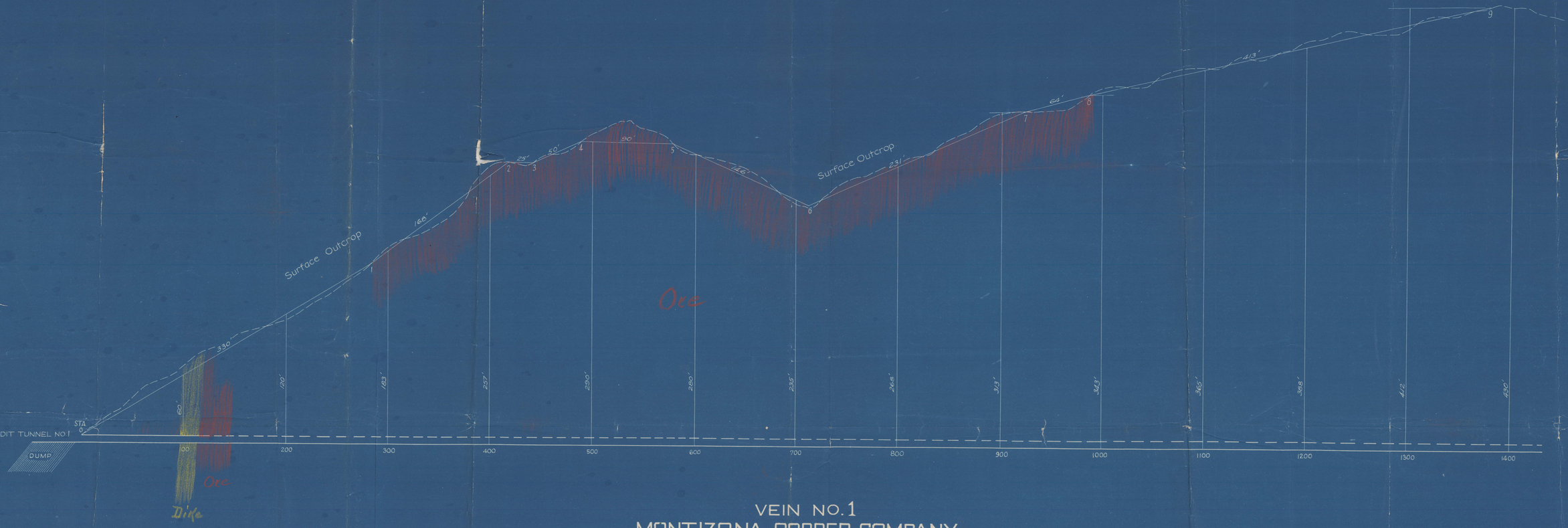


Fig No. 8. Cross Section
Vein No. 3. Looking West.

*



VEIN NO. 1
MONTIZONA COPPER COMPANY

Scale 1 INCH = 40 ft.

March 31, 1919.