0930 0011

195
item 11

WILLIAM H. GRAHAM
MINING ENGINEER
570 NORTH KENMORE AVENUE
LOS ANGELES 4, CALIFORNIA

The Argentum Mining Co. of Nevada

Mina, Nev.

Attention: Mr. E. S. Gates, President

Gentlemen:-

Enclosed herewith is 5 copies of my report, covering the examination of your properties made on May 15-16-17, 1954. As the reason for the examination was wholly for appraisal purposes, no study of the Geological situation was made. The geology was covered in the reports of BURGESS, 1922 in which everything was made quite clear, as this was a very thorough job, covering both instrument survey and final mapping, the writer made a study of these reports and maps after his examination. It is clear from Burgess reports and maps that not less than 90 days work was performed by him at that time. It is unlikely that any other person would care to enlarge on his work.

The original report is typewritten and the copies are made by blue print process. Should you wish further prints, these can be made directly from the original by any Blue printer, however, the original report shouldn't be folded to get the best results. A reversed carbon copy is on the back side of report to enable Blue printer to obtain good copies, care should be taken to avoid smudging the reverse side of the original.

Yours very truly,

W. H. Graham

W. H. Graham. E.M.

WILLIAM H. GRAHAM
MINING ENGINEER
570 NORTH KENMORE AVENUE
LOS ANGELES 4, CALIFORNIA

BELLEVILLE TAILINGS ....

The tailings of the Belleville Dump, consist of rough milled and roasted tailings remaining after the crude recovery operation of 1880 period, high in Silica, with values remaining in both Gold & Silver. This Dump is presently under contract to American Smelting & Refining Co., who have agreed to reclaim the tailings at their own expense and paying to the Argentum Mining Co., 60 cents per ton net. Examination of the tailings at Belleville shows that there is not less than 210,000 tons, and likely running to 30% more than this figure, when allowances are made for the inequities of the ground. Based on the estimate of 210 thousand tons @ 60 cents net per ton to your company. Therefore, the present value of this deposit of tailings is placed at $126,000.00.

- - - - - - - - -

Caeser Claims, Location Old Townsite of Candelaria Nev. There are 2 full claims containing 40 acres and on the surface are located two tailing dumps, the first consists of 7 acres of cyanided tailings still containing values of $5.00 per ton. Methods can be developed that will permit recovery of at least 90% of these values, which are mostly Silver and Gold. The approximate tonnage is 59,460 and the value before deduction of recovery costs is $297,300.00.

The second dump consists of Sand tailings covering an area of 3 acres, with depth averaging about 15 feet making a tonnage of 121,875 with reported values of not less than $4.00 per ton. The value of this tailing dump, before reworking to recover the metals is, $487,500.00.

Therefore the value of the two Tailing Dumps on the Ceaser Claims is $784,800, with recovery costs not presently known.

- - - - - - - - - - - -

WILLIAM H. GRAHAM
MINING ENGINEER
570 NORTH KENMORE AVENUE
LOS ANGELES 4, CALIFORNIA

Old Candelaria Mill Site . . .

Located adjacent to the former mill site of the Candelaria Mines is a small dump of minus 3" ore, containing average values of about $6.00 per ton. The estimate of tonnage in this dump is 12,000 tons and the total values before milling is $72,000.00.

- - - - - - - - -

Main Level Dump. Northern Belle

There is located here about 30,000 tons of possibly mill grade low value ore. No effort was made to ascertain values.

- - - - - - - - -

Main Dump, Northern Belle

Located close to the shaft head is a Stockpile containing about 275,000 tons of Oxidized ore with values of about $7.00 per ton. The value before milling of this Stockpile is,therefore, $1,925,000.00.

- - - - - - - - - -

Shafthead Dump, Northern Belle

This dump consists of about 20,000 tons of Sulphide ore reported value is about $7.00 per ton the total value of this dump being $140,000.00.

- - - - - - - - - -

Columbus Scheelite, 3 claims total 60 acres.

The present status of this property is Undeveloped Claims. There are two veins showing on the surface dipping 28 degrees east with a North-South strike. Both veins are exposed for about 25' and both seem to widen from zero to 3½" in a 25 foot length. Further prospecting is warrented as there is strong possibility of

WILLIAM H. GRAHAM
MINING ENGINEER
570 NORTH KENMORE AVENUE
LOS ANGELES 4, CALIFORNIA

Tungsten being developed. Geiger tests show mild radioactivity. No value is placed on this holding.

- - - - - - - - -

The Mount Diablo Mine . . .

No examination of the mine was made as there was no request to do so. There is at this mine, one of the largest stockpiles of ore ever made by hand mining methods. The estimate of ore in this stockpile is two million tons, subject to error of possibly one quarter million tons either way due to there being no map showing the profile of the canyon wall which may vary in shape without such variation being known to the writer. This stockpile is jointly owned by the Argentum Consolidated Mines, a Nevada Corporation, whose interest therein amounts to 1/6th and to your Argentum Mining Co., and Arizona Corp., whose interest in this stockpile is 5/6th. The value placed on this stockpile is $1,200,000.00 and the interests of your corporation amounts to $1,000,000.00.

- - - - - - - - -

The Northern Belle and Holmes Mines . . .

This engineer finds, that the report by BURGESS of Sept. 1930 covers the requirements of appraisal fully. Since the report was made there has been removed from the mine less than 15,000 tons of ore, therefore, the Burgess report figure of 875,000 tons of ore 12 to 14 ounces of Silver per ton, with Silver at 50 cents per ounce, can still stand.

Based on 875,000 tons of ore, reported in the Burgess Report of 1930 carrying 14 oz. of silver, with todays prices of 90 cents per ounce, plus $1.40 cents in Gold making total valuation per ton of ore $14.00. The total valuation indicated should be $12,250,000.00, however, since much of the former near marginal ore,

WILLIAM H. GRAHAM
MINING ENGINEER
570 NORTH KENMORE AVENUE
LOS ANGELES 4, CALIFORNIA

has become ore of good grade due the increased silver price, the total valuation can probably be lifted at least 40%, and yet, no consideration has been given to ore already mined that was used as back fill, low grade or marginal at time of extraction that has now become ore of good milling grade.

It must be made clear that the ore reffered to above is not ore "BLOCKED OUT". There is not much doubt, if any, that the ore mentioned is available. As processes not yet developed may, from time to time lower the grade required to make good mill feed, it is considered entirely possible that the total ores extracted and milled in the future may reach terrific tonnages.

Accurate valuation of the back fill is impossible as neither tonnage or values is on record. It is suggested that back fill of 8 oz. silver content plus some gold and lead values is excellent ore in view of the fact that there is no mining cost involved.

- - - - - - - - -

In the examination of the various dumps and stockpiles, the writer was accompanied by Mr. E. S. Gates, the President of your Corporation and, in the examination of the Northern Belle & Holmes Mines he was accompanied by Mr. Gates, Jr., and Mr. Ed. Packer, Mill superintendent, assisting also was Mr. Carl Earl, who acted as hoisting engineer.

- - - - - - - -

This report is tendered as a full Appraisal of your properties and is not intended as a Geological or operating report.

Very truly yours,

W. H. Graham

W. H. Graham, E. M.

Argentum

195

item 11

0930 0011

Los Altos, Cali. October 30th. 1930

Mr F.W.Stehr

P.O.Coreys, New York

Dear Fred,-

Herewith I submit my report on the Argentum Mines Co as requested by you at our recent meeting at Beverely Hills, Cali.

In the beginning I desire to state I have been connected with the Argentum Mine for the past 35 years in looking after the interests of this property and have had the pleasure to accompany many prominent Mining Engineers in examining the Mine and was theus enabled to study their ideas and reports on the property which has given me a very clear understanding of the ore formations of this Mine and which all more or less concurred and agreed with the reports made by Mr John A.Burges M.E. the Geology in July 1922 and a further report under date of Sept.1930 after the development of the 1900 level of the Sulphide ores had been concluded at that time as recommended by Mr. Max Bowen M.E.

This last report by Mr Burgess was made after the development work of 1929 & 1930 had been completed under my Supervision on the 1900 Level and a winze sunk on the 1700 level this work was approved by Mr Max Bowen formerly connected with the Portland Gold Mining Co of Cripple Creek and now connected with the Golden Cycle Mill at Colorado Springs as Manager the work was done to prove the downward extension of the Sulphide ore veins on the 1500 and 1700 levels developed in 1927 by Mr Gordon during the operations of the New Candelaria Co.

This work according to conservative estimates made has proven that aprox 300,000 tons of 14 oz silver sulphide ore in the zone opened up between the 1900 level and the 1500 level are available for milling.

Furthermore from all indications the Ore bearing vein system may continue easterly from 1000 ft. to 2000 ft and it is therefore recommended

that the 1500 level be extended some 500 ft easterly of the 1300 co-ordinate line "see map" and also extended up to this co-ordinate line to bring the said workings out easterly to said line from the present mine workings and if this work proves the existence and continuity of the vein easterly as stated by Mr. Burgess in his report then the lower levels should also be extended easterly.

I suggest doing this development work on the 1500 level as the cost of mining will be reduced somewhat and results obtained faster.

Furthermore I recommend that at this time that the work required to block out the now known sulphide ore so that it can be stated as positive developed ore tonnage,- that the various levels (as shown on the map.) be extended to the 1300 co-ordinate line (see map) and that said level be connected with Winzes and Raises between levels as they are extended and in said raises between levels to cross cut the vein which will give a general average of the values, I estimate this would block out a known ore zone of 600 ft in length on the vein by 840 ft of backs or height and taking a width of 12 feet wide of pay ore,this block would contain aprox 500,000 tons of Sulphide ore that can be milled and a very safe estimate can be made that this tonnage would assay 14 oz silver and $1.20 in gold per ton.

To do this work would require 3500 feet of drifting and cross-cutting on vein and 3000 feet of raises connecting levels, which is most necessary for ventilation as levels are extended and also permits exploration of vein between levels. (See map for proposed new work.)

Furthermore it would be most advisable to extend 2 Winzes below the 1900 level down to the 2000 ft. level and to do aprox 1000 ft of drifting and cross cutting if the vein is found in place this would prospect the sulphide vein below the 1900 level and if proven the continuity of the vein downward then to locate a working incline shaft on the 1900 level

in order to develop aprox some 500 ft in depth below the said 1900 level as it would be more economic to sink an incline shaft on the vein from this level than to extend the Northern Bell Shaft downward, I say 500 ft further depth on the ore vein can be obtained as I concur with Mr Burgess report on the occurrance of the Candelaria fault as mentioned on page 12 of his report that after the vein encounters the fault same will not be profitable to be mined at greater depth.

I estimate to fully block out the Sulphide ores the work will cost aprox $75,000.00 at the present cost of labor,material and electric power and would require about a years time with the present equipment, the air Compressor we have installed will supply air for three machines a larger Air Compressor would facilitate and reduce the cost of the development work as the same overhead expenses would cover employment of more air drillsand would eventually have to be installed in case a Mill was built on the ground to mill the ores.

I will also state that to develop and block out the present estimated 300,00 tons of sulphide ores now opened above the 1900 level the same can be developed at aprox a cost of $40,000. and the other work as stated above of development on a larger scale can be undertaken when a Mill is in operation on the Property and a income is derived from the milling operations.

It may not be amiss for me to state that this Property produced from 1878 to 1893 in excess of $20,000,000.00 in silver from Ores mined from the Oxidized zone this by selective mining which avge 40 oz. silver per ton also in those days the cost of mining and milling was $20.00 as I gathered from the old records.

During the years of 1916 and 1917 when the price of silver avge around 80 cts an ounce I shipped and mined by selective mining over 6000 tons of ore of an avge value of 24 ounces silver per ton from the Lucky Hill mine the vein formation being the same as the Northern Bell vein,again in 1925 to 1927 period when the New Candelaria Mines Co operated the Argentum mine I find they mined considerable tonnage on the 1500 and 1700 level stopes by selective mining to raise the grade of mill ore at that time,this shows that the Argentum ores can be mined selective if required,your attention is also called to Mr Burgess report pages 10 to 12 on characteristics of ore bodies also page 13 as to value of present day ore shoots with those found in the earlier days of operation, I will therefore state that I feel assured that a 14oz product can be produced from a width of 12 ft or more of the vein and by mining smaller widths the values can be increased as required for a milling product.

Milling.

In regard to Milling of Sulphide ores I had an interview with Mr Albert Silver Metallurgist of Tonopah,Nevada who was connected with the Tonopah Mining Co and the Belmont Company for many years and supervised their milling operations, Mr Silver is well acquainted with the Candelaria Ore having been Consulting engineer for Mr. Gordon during the operation of the New Candelaria Mines Co during the years of 1925 to 1927 when they encountered and developed the Sulphide ores on the 1500 and 1700 level and milled some 6000 tons of sulphide from stopes on these levels but having only the Cyanide plant which was built by Mr Kaeding during the war period to handle the oxidized ores they were compelled to mix the sulphide with the oxidized ores,at that time,they had plans made to change the Mill to secure a higher extraction but the price of silver going lower they felt not justified in going to considerable expense in making these changes.

Mr Silver stated from tests made at that time on the sulphides ores that Mr Gordon encountered on the 1500 and 1700 levels with a view of changing the operation of the Mill then in use was to change this plant to the flotation and leaching process which from tests made at the time by him gave from 90% to 92% extraction of the values. As the former plant was sold and dismantled after the New Candelaria Co ceased operations account of the low price of silver at that time a new plant would now have to be installed, Mr Silver suggested that before stating the exact process of milling and per centage of extraction with the new modern practices which were not in use some ten years ago when he made his last tests on these ores it would be advisable to make new tests on these ores which he estimates would cost $250.00 in case it was decided to have him make these tests and to give us a complete report of the best process to make the highest recovery of the values.

The cost of a 100 ton milling plant by the process he has in view would cost aprox. $75,000.00 but he suggested this cost might be reduced in case some of the former flotation and leaching plants in operation in late years in Nevada and not now in use can be bought for considerable less than new machinery and moved to Candelaria.

Also we had some mill tests made by Mess Bowen & Harner of the Golden Cycle Mill at Colorado in 1930 on a mixture of sulphide and oxidized ores we had at that time, as the bulk of the ore to be milled in the future would be a Sulphide and whereas since 1930 progress has been made in extraction by flotation it may be advisable to have Mr. Bowen make further tests on the ores when the

proposed development work has progressed far enough so that a general sample of the then developed sulphide mill ores can be furnished in the event it is decided to erect a milling plant.

On my recent trip to Candelaria I resampled some sulphide ore we have now on the surface dumps and in the bins at the Mine of the sulphides I developed in the 1929 and 1930 work on the 1000 level these samples can be easily procured should it be considered advisable to have some tests made at this time.

In behalf of Mr Albert Silver I wish to state that he could be secured as Consulting Engineer to supervise construction of a milling plant and to select suitable men to do the work and that he would be available for consultation and weekly or monthly trips of inspection of milling operations when plant is constructed as his home is at Tonopah, Nevada and only one hours drive from Candelaria.

Yours very truly

(Signed) F. J. Grube

Argentum Mining Co. Properties

Candelaria, Esmeralda County, Nevada

Argentum

195
item 11

0930 0011

1. Location: About seven miles west of Redlich from main Highway on Tonopah & Goldfield R.R.

2. Roads: Very good.

3. Number of Claims: 83 U.S. patented, 5 claims located covering easterly extension of N.B. vein, 22 claims located covering tailings all work done for 1941 and recorded.

4. Geology: The only development work done was in ore contained in the Triassic Shales, lying on Greywacke beds, in turn lying on Chertized limestone, of Ordovician Age.

The sedimentaries have been cut through by Tertiary igneous flows, the youngest being Basalt.

Andesite, Granidiorite, Rhyolite, etc. have been observed.

5. Reports: Two were made by John A. Burgess, very good and thoroughly detailed.

Comments: The Operators failed to appreciate the significance phases of the Burgess reports, not being familiar with the possibilities of the additional fissure dep[illegible] failed to explore for other pockets of ore.

6. Faults: There were detailed by Burgess three fault zones, in themselves very significant factors for possibilities of encountering new zones of ore. The writer saw separate veins in which gold values were predominent on the other side of the hills of the range on which the main workings of the Candelaria are located.

7. Mining Development: There are Nineteen levels in the Argentum workings along a stretch of only some 1800 feet. The first eleven levels No. 1 to 11 are tunnels. The collar of the shaft is at elevation 6972, with the 1st tunnels about 1100 ft. above the collar, near the Apex of the Mountain. There are about 15,000 feet or more of tunnels and drifts. It is stated that most of the workings are in good shape, with practically little caving in considering the extent of the workings and the width of the stopes, as much as 30 to 40 feet.

No water is yet found as far as the 19th level, elevation 5097. Water is not anticipated for 500 ft. more depth. The level of Columbus Marsh is about 4550 ft. and as water is found there, it is anticipated that the water level goes as far as the sedimentaries in the Candelaria district.

8. Type of Ores: There are two zones of ore, oxidized ore, and leached oxidized ore. The oxidized ore has been found to carry high grade ore in pockets, and the leached oxidized ore is more lean and spotty. Below the oxidized (leached) zone there is the sulphide ore that generally persists for tenor and contents. The sulphide ore is found beginning about the 1300 level and becomes stronger with depth.

9. Quantities of Ore blocked out and values:

There has been developed on four sides or positive ore over 600,000 tons of Ore.

In July 1915 there was on hand 1,200,000 tons of ore available.

There was very little development work away from the main vein being exploited, except to drift 500 ft easterly from the 1900 level developing the Sulphide ores.
No cross-cutting was ever done south, as it should have been. All work done since 1915 was confined to exploiting the developed ore, excepting the 1900 work on the 1900 level. The drop in the price of silver discouraged the owners of the Mines.

Between 1915 and 1941 there was culled out about 300,000 tons, and the mill returns seemed to show better than the mine assays.

From records on hand shown the writer there is left in the dumps and the fills of the 11 levels 213,000 tons that will average at least 12 oz. silver and $1.50 gold.

There is also a block of ore or rather series of blocks of ore at the east end of the workings above the 11th level in quantity of 78,000 tons that will average at least 17 oz. Ag. and $1.50 Gold.

On the last developed block between the 13th and the 19th level there is available over 420,000 tons of ore both oxidized and sulphide ore that will average 12 oz silver and $1.75 gold per ton.

All these above figures have been obtained from calculations of widths, lengths and depths shown by the mine maps and the several thousands of assays taken.

Each station or level is on vertical length equivalent of 100 feet but as the slope is about 40 degrees north there is a back of about 150 feet between each level.

Mr. Burgess gave his opinion that the vein is deep seated, concurred in by the writer as the age of the Charized lime stone is Ordovician, above the Archean rocks, and below the Cambrian era. As ferrodolomite was mentioned, it is apparent that it is of Cambrian age. Mr. Burgess further suggested that the vein would go at least 1000 feet deeper, and the writer agrees, and believes the vein will go down over 2,000 ft. His opinion is based on the length of the Candelaria main vein that was found along a stretch of a few miles, and as Herbert Hoover stated there is the axiom that deposits can be encountered at depth for one half of the lateral surface workings, it is obvious the depth is much greater than 2000 feet.

10. [illegible] silver and [illegible] or more gold. It is [illegible] of the writer that when water level is approached, much better values will be found, and it is the recommendation that the shaft be deepened to the water level, but as the water level is approached, there must be provided timbering. The shaft should not be deepened in the shale zone north graywacke formation, but a crosscut should be made at the 1900 shaft level either to basalt and in basalt or in chertized limestone, and a station for hoisting erected at this point so deepening can continue to the water level, and then crosscuts made into the ore bodies, which will permit stoping and filling, etc. with minimum waste considering the great width of the vein.

At the 15th and the 19th levels crosscuts should be made to the other side of the Range, and the writer is confident that new zones of ores will be discovered, that is the fissure deposit will be encountered with values as good or better than the best values ever discovered and mined in this property.

11. Type of Ore

Mr. Burgess has described the ore and the writer will not amplify, except to say that he has noted manganese, iron, graphite, copper and zinc in the mill tailings which he tested and recovered between at the rate of 2½ to 3 oz. silver or more, and invariably $1.00 to $1.50 gold, samples being taken from the Mill tailings at the Argentum Dumps, Belleville tailings, Sodaville and Columbus Marsh tailings of Candelaria ores milled there.

12. Metallurgy

Using modern flow sheets, and the Aimsa Mills, the writer gave his opinion that the ore now blocked out can be mined on basis of 250 tons a day at a cost of $1.50 per ton, and the milling costs won't go over 50 cts per ton. Recoveries should exceed 95% of the silver and the gold values. However it will be necessary to construct a small pilot mill with capacity of 10 tons a day and all tests should be undertaken by thoroughly competent metallurgists, solely to check results of the work done by the writer.

13. The present blocked ore can be selected, to raise 12 oz. tenor to 20 oz, waste carrying 4 oz. 2 to 1. That is one half of the ore is culled out. Similarly 16 oz ore is stepped up to 30 oz. ore, with waste carrying 6 oz. The extra cost of sorting should not exceed 75¢ a ton, when belting is provided for with skilled sorters employed in separating the culls from the Ore.

14. Estimates for Rehabilitation and Equipment

Mr. Grube who kindly showed the writer all of the data estimates $15,000 required for cleaning out shaft between 15th and 19th. levels, this shaft having caved just above the 15th in the Candelaria fault zone and left considerable material down to the 1900 level which will have to be removed and retimbered in places. The writer estimates $60,000 for necessary mill and equipment to replace mines in operation, and adds at least $25,000 for working capital, in all $100,000 for the rehabilitation project.

0930 0011

195
item 11

ARGENTUM CONSOLIDATED MINES, INC.

MINE OWNERS AND OPERATORS
GENERAL OFFICES - MINA, NEVADA

Eugene F. Grossman
1455 4th St
Santa Monica Cal
90401

5/17/76

Hugh A. Shamberger

Dear Sir: I hope the enclosed data helps you. There are three items I have marked return

Send me a copy of your book when finished.

Congdon & Cary of Denver purchased from the B. Court all of Arg. Mining Claims and they have leased all of ours, so they control every thing in Candilaria

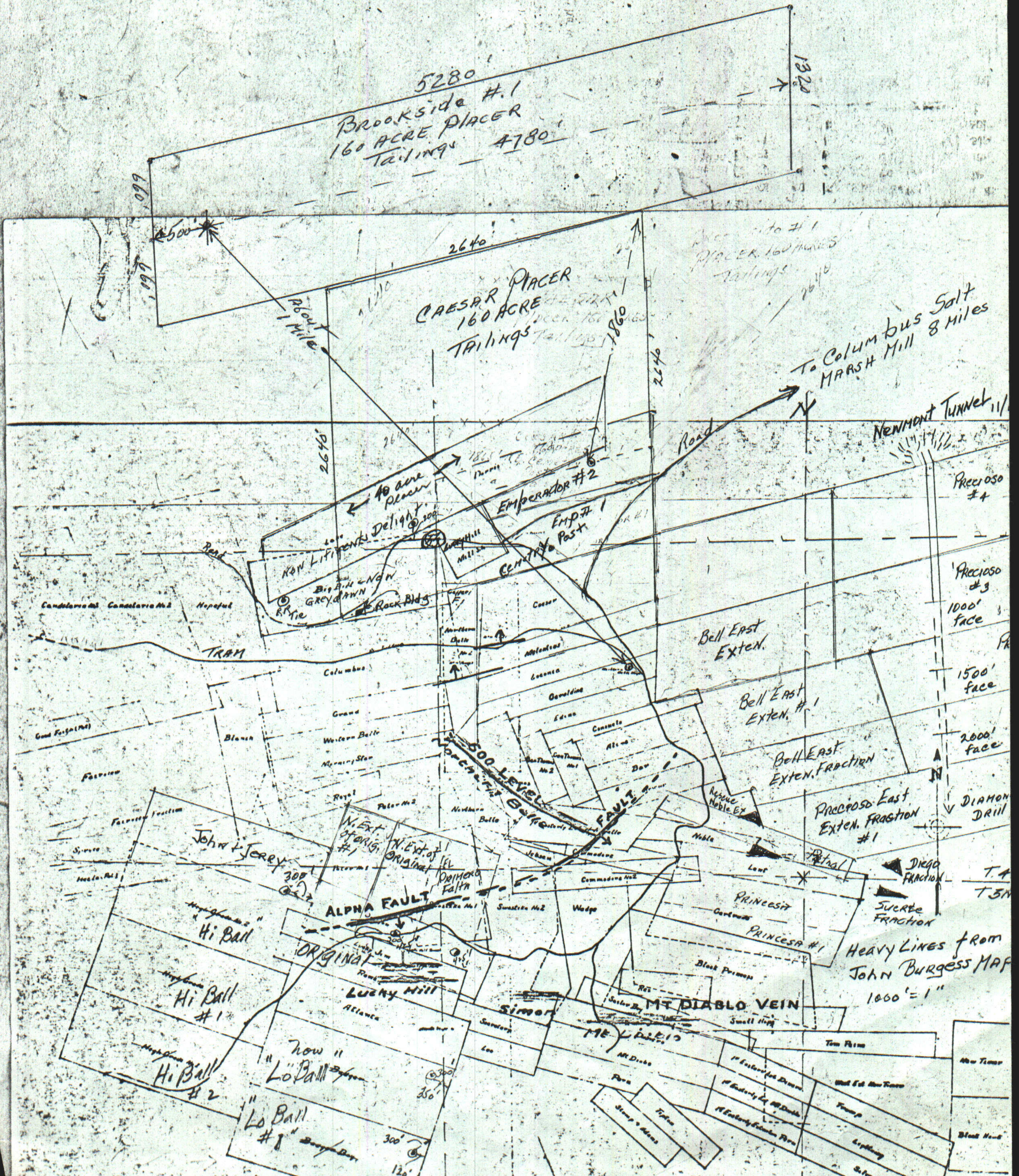
Kindest Regards
E.F.G.

over

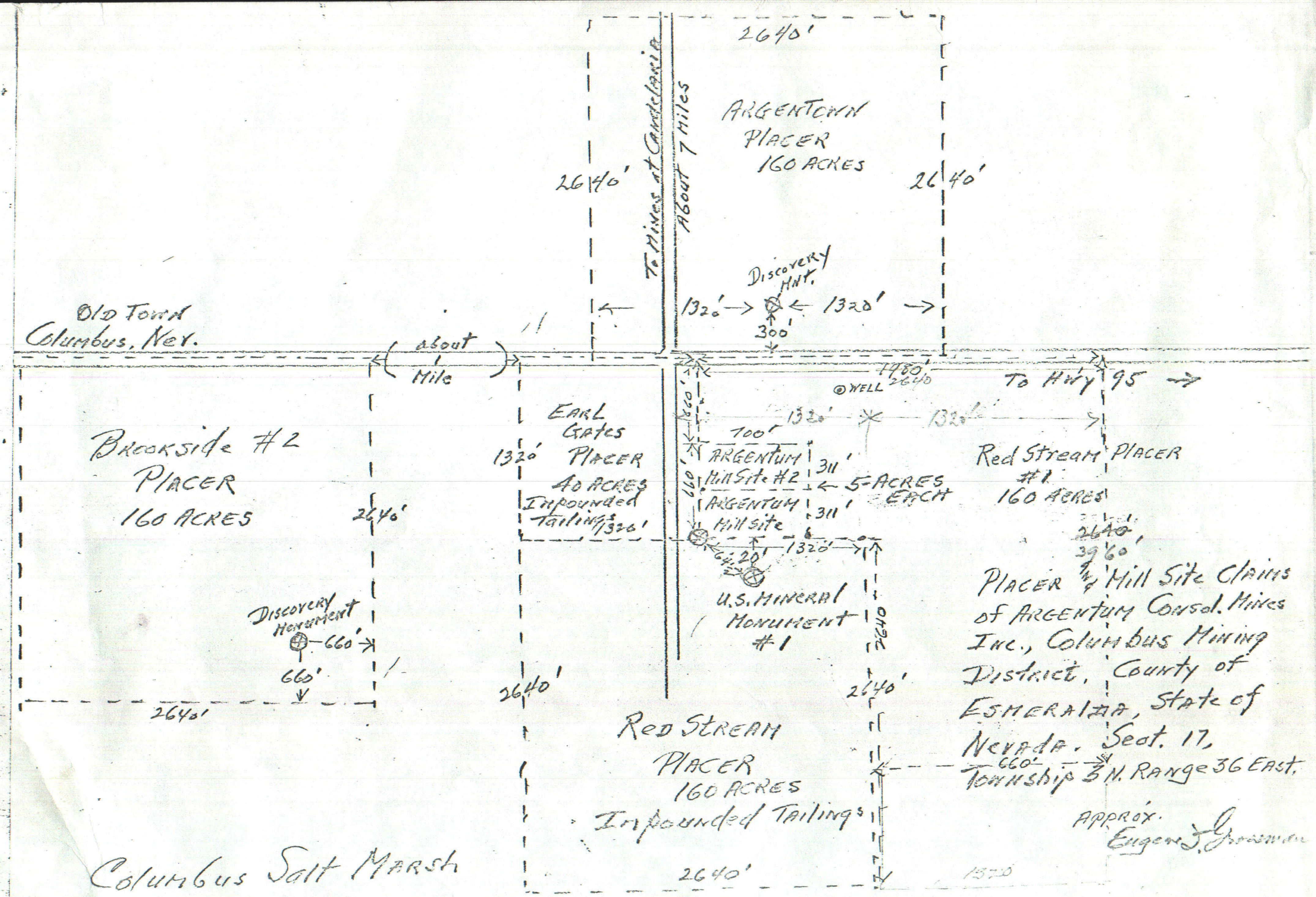
Note:

Arg Consol Shell owns
the Mill Site claim & a
number of placer claims and
Tailing pond at Columbus
Salt Marsh — Not leased

E.G.



5280'
Brookside #.1
160 ACRE PLACER
Tailings 4780'
1320'
660'
500'
660'
2640'
About 1 Mile
CAESAR PLACER
160 ACRE
Tailings
1860'
2640'
2640'
To Columbus Salt
MARSH Mill 8 Miles
NEWMONT TUNNEL
Road
40 acre Placer
Non Lifitenks Delight
Emperador #2
Emp.# 1
Cemetery Post
Road
Big Bill & NOW GREY DAWN
Rock Bldg
RR Tie
TRAM
Candelaria
Candelaria No 2
Hopeful
Columbus
Grand
Blanch
Western Belle
Morning Star
Caesar
Melodius
Geraldine
Edna
Consuelo
Alma
Northern Belle
Royal
Peter No 2
Precioso #4
Precioso #3
1000' face
1500' face
2000' face
Bell East Exten.
Bell East Exten. #1
Bell East Exten. Fraction
Rescue Noble Ex
Precioso East Exten. Fraction #1
N
DIAMOND DRILL
Diego FRACTION
Sucrete FRACTION
T.4
T.5N
500 LEVEL
Porch & Fit Belle
FAULT
John & Jerry
300'
N. Ext. of ORIG. #1
N. Ext of Original
Primero Falta
ALPHA FAULT
"Hi Ball"
ORIGINAL
Lucky Hill
Atlanta
Hi Ball #1
Hi Ball #2
now "Lo Ball"
"Lo Ball #1"
300'
250'
300'
120'
Noble
Lent
Commodore No 2
Swastika No 2
Wedge
PRINCESA
PRINCESA #1
Simon
MT DIABLO VEIN
Small Hope
Black Princess
Tom Paine
Mt Diablo
New Taimer
Trump
Lightning
Black Hawk
Heavy Lines from
John Burgess Map
1000' = 1"



Old Town Columbus, Nev.
about 1 Mile
To Mines at Candelaria
About 7 miles
ARGENTOWN PLACER 160 ACRES
Discovery MNT.
1320'
300'
2640'
To Hwy 95
WELL
1480
Brookside #2 PLACER 160 ACRES
Discovery Monument
660'
Earl Gates Placer 40 ACRES Impounded Tailings
ARGENTUM Mill Site #2
ARGENTUM Mill site
311'
5-ACRES EACH
700'
U.S. MINERAL MONUMENT #1
Red Stream #1 Placer 160 ACRES
3960'
RED STREAM PLACER 160 ACRES Impounded Tailings
Placer & Mill Site Claims of Argentum Consol. Mines Inc., Columbus Mining District, County of Esmeralda, State of Nevada. Sect. 17, Township 3 N. Range 36 East.
Approx.
Eugene J. Grossman
Columbus Salt Marsh

GENERAL INFORMATION FOR OUR STOCKHOLDERS ON THE BACKGROUND AND SOME FUTURE PROSPECTS OF PROPERTIES AND HOLDINGS OF ARGENTUM CONSOLIDATED MINES, INC., MINA, NEVADA

The Northern Belle Mine was discovered in 1864 and is one of the great mines in Nevada history. A model was on display for years at the Nevada School of Mines in Reno. Mr. John A. Burgess, well-known geologist and personal representative of New York banking interests, supplied the present owners with valuable geological survey reports and mine maps of the productive areas of Candelaria. Mr. Stehr, a New York banker and member of the famous Bondbright Financial House, acquired the properties after the passing of the Bondbrights. In his reports, Mr. Burgess mentions that the Mount Diablo and Lucky Hill mines are of the same vein formation as the Northern Belle and should contain values to the same depth. The Northern Belle started paying dividends in 1875 and produced one million dollars annually for ten straight years and made forty uninterrupted divident payments, which, in early history, was considered a record.

Much litigation developed in the early days between the Holmes and Northern Belle Mines, resulting in the formation of the Argentum Mining Company of Nevada, an Arizona Corporation. This company has been in existence since 1884, and taxes have been paid continuously since that date. This company is a subsidiary and is controlled by the present holding company, the Argentum Consolidated Mines, Inc., a Nevada Corporation.

In 1918 the Candelaria Mines Company secured lease and bond control of all the productive areas of the district from Mr. Stehr, and was capitalized for $3,000,000. The stock of this company was listed on the Boston, New York Curb, Los Angeles and San Francisco Exchanges. The drop in world silver prices to 27¢ per ounce in the mid 20s, coupled with heavy lease royalties and power line costs, closed them down. (NOTE: The guaranteed treasury price for newly-mined silver is now 90½¢ per ounce.) From 1930 to 1951, the properties were closed down and inactive. They were legally returned to Mr. Stehr around 1937. In 1951, Mr. Eugene S. Gates and his brother-in-law, Mr. Carl Earl, purchased the Argentum Mining Company from Mr. Stehr, as he was liquidating all of his holdings because of age.

Francis Church Lincoln, in his "History of Nevada Mines," says that the district produced fifty-five million of which the Northern Belle and Mount Diablo were the principle contributors. He described the ore as highly oxidized, manganiferous and ferruginous silver, with enormous deposits of sulphides in the form of argentite in the lower levels. One of the most astonishing and impressive sights in the district is the enormous stock pile of ore removed from the Mount Diablo Mine of what was them too low a grade for economic recovery. Some engineers estimate the tonnage of this pile to be 3,000,000 and the results of 100 assays made two years ago average $9.00 per ton, making a possible value before milling of twenty-seven million dollars. This ore was mined chiefly by ten-cent-a-day Chinese labor during the 60s, 70s, 80s, and 90s. The milling costs to the Mount Diablo Mining Company, in the old days, was $15.00 per ton, hauling $3.62 and mining about $2.00 per ton. This makes $20.00. We figured that the ore pile contained ½ twenty dollar ore and ½ waste, with a ten dollar average. Therefore, the assays checked pretty close with the estimate. We also feel that the ore beneath the pile is of higher average value, as the early-day costs were higher and the recovery of values were more inefficient. With modern floatation as practiced by our present 100-ton mill on the same ore, the possible net profit from this huge stock pile could easily reach $18,000,000. In the Holmes, Northern Belle and Mount Diablo mines, there are enormous amounts of tonnage left in the many miles of tunnel as back-fill, representing good milling ore whose values can now be

economically extracted by modern methods. Also, there are many stopes of twenty-ounce silver, left unstoped because this was the break-even point. Many values were also left on the tunnel walls, as the efforts of the early miners were to high-grade the richest part of the vein.

Mr. John A. Burgess, Geologist, reported in his final survey in 1930 that should silver ever reach 50¢ per ounce, it would pay to reopen the Northern Belle. This survey also included a study of the lower workings of the Northern Belle's sulphide ore deposit. The floatation method of recovery was just coming into successful use in 1930; however, their established mill setup was usable only on the oxide ore of the upper levels. Since the floatation method of recovery works excellently on sulphide ores, fine results from these lower levels have been made. Mr. Burgess also stated in his 1930 survey that from the 1900-foot level, the present bottom, we have an additional 500 feet of vein before faulting out. Our present diesel-driven ore-hauling cage goes to the 1900-foot level. He also estimated the amount of ore available between the 1500-foot level and the 1900-foot level on a 65-foot vein and extending to the face of the east workings, a distance of about 450 feet, as 875,000 tons of 14-ounce silver, with some gold - and at today's prices this figures $12,500,000 value of ore in place. Mr. Burgess also stated in his survey that he recommended driving east on the 1700-foot level for at least 2000 feet and we would be in ore all the way. The above figures could then be multiplied by five. He made the following statement to Mr. Gates in 1953 before he died - that, driving east on the 1700-foot level, we would probably open up a new ore body greater than the Northern Belle ever was. He also made the statement several times that there are more values in the vein system than were ever taken out. He remarked also that evidence indicated the vein system to the east a more compact vein than toward the west, with no sign of depletion.

One of the main assets of the mines in the Candelaria area is that the bottom levels are as dry as the top and, according to Burgess, another 500 feet remains before running into water. As a matter of interest, concretion, shells and particles of fossilized matter are encountered all through the Candelaria vein system, even in the lower mine levels. Mr. Burgess gave us complete geological reports and survey maps of the mine workings and today these are considered priceless. This is realized when it is known that the Northern Belle contains 12½ miles of tunnel; and it is said that the Mount Diablo has 60 miles of underground workings. Numerous attempts were made by large companies to buy the Stehr holdings but he was only interested in a lease arrangement, until, due to age, he disposed of the properties to Mr. Gates and Mr. Earl.

When Mr. Gates and Mr. Earl formed the Argentum Consolidated Mines, Inc., as a holding company, they assigned to its control certain other properties that had been in the family for years (see brochure). Some of these California properties offer immense potential for future profit; such as a million tons of flagstone in sight on our Bouquet Canyon claims and our 315 acres of Kaolinic clay deposit which we feel could very easily contain oil. The location is only six miles from the Castaic oil fields and seven miles from Newhall and Placerite fields.

A news item of interest in the September, 1954, issue of the California Mining Journal (page 17) states that the Owens Illinois Glass Company will erect a modern plant at Ione, Amador County, California, near Stockton, for the purpose of extracting the silica from a Kaolinic clay by wet classification, using cyclone separators and modern methods of floatation. The glass produced from this silica is crystal clear with a definite sparkle and will be produced at the company's Oakland plant. The Kaolin runs 60 percent clay. The latter can be used for clay products. It is my understanding that our company kaolin deposit in Bouquet Canyon consists of fundamentally the same elements. It seems reasonable to assume

that being so close to a major city like Los Angeles and since all silica is imported from the eastern states, with some lower grades being processed at Pebble Beach, our Bouquet Canyon properties offer an excellent opportunity for leasing to some large company or perhaps promoted by a subsidiary of our own Argentum Consolidated Mines. This plan, of course, should not interfere with the possible drilling and producing of oil.

The almost pure silica deposit located 13 miles south of Goldfield, Nevada, offers an excellent opportunity for large-scale open-pit mining of this valuable product. With ease of mining and only 100 miles from Big Pine or Lone Pine and then on a first-class highway to Los Angeles, a quick, ready and waiting market may be reached. A sample of this silica was given to Winfield China Company and tested in their ovens. The comment was that it is an excellent grade of silica and that they pay $24.00 per ton for the cheapest grade. The California State Division of Mines in "Information Circular #35" states that as yet no first grade high-refractory silica sand has been produced in California. The market for this high grade silica is ready and waiting in Los Angeles today.

Our mill is also owned by the Holding Company and we are now in the midst of expanding its capacity from 100 tons per day to 400 tons per day. We can do this with practically no additional operating cost, except hauling and reagents. The mill is Diesel-powered and at present not using its full output. The operating man power will remain about the same as for the 100-ton capacity.

In the September, 1954, issue of the Engineering & Mining Journal, the Government estimates the cost of a modern mill at $1,000 to $1,500. per ton per 24-hours. Using the minimum, our new 400-ton mill should be fairly valued at $400,000. Since our entire company is only capitalized for $300,000, we feel that the future offers a pretty attractive setup from the standpoint of investors. Using the value of $7.00 dump ore instead of $9.00, and milling 400 tons per day, we should show at least $3.00 net profit per ton, giving a total of $1200. per day. On better parts of the ore pile, this figure could easily be doubled. In a few weeks, we should be making test on the new mill. Should this new mill be used at full capacity of 400 tons, on the Mount Diablo stock pile alone, it would take 25 years to deplete without using our other sources of ore.

As a matter to be considered, Mr. Burgess strongly recommended intense development of the Lucky Hill Mine, as he identified it as part of the same vein system as the Northern Belle and Mount Diablo. Therefore, its productive zone should extend to the same depth as these two mines. As the Northern Belle bottom is at the 1900-foot level, with 500 feet more vein to go before faulting out, the Lucky Hill should have perhaps 2000 feet before reaching the equivalent level. Also, the most productive rich oxide zones of the other two mines were about 500 feet below the present 200-foot level of the Lucky Hill Mine.

The Galagher Metalurgical Company of Salt Lake City are in charge of our metalurgy or recovery in our mill. They do special work for Homestake and Climax and are considered leaders in the industry, so we feel that we have at our disposal the very best in ore processing. Mr. Kaattari, their Chief Metalurgist, made several statements in my presence that might stand repeating. He said, "There are low grade values everywhere in the Candelaria workings, just like at Homestake," and "In all my travels through Manchuria, South Africa, South America, Asia, and the States, I have never seen a pile of ore like the Mount Diablo stock pile." Mr. Reeves, who we recently appointed transfer agent to handle our stock when we list it on the Salt Lake Stock Exchange, remarked that he was the first auditor for the Candelaria Mines Company and that he always considered the Mount Diablo Stock pile of ore the finest mine in the United States, as all the mining has already been done.

I asked Mr. Graham, the Mining Engineer who made the appraisals on our property, what his impressions were after his examination of our holdings. He said, "You people have the foundation for a mineral empire." The State Mining Inspector for Nevada, after an inspection of our Candelaria property, said, "The Northern Belle was one of the greatest mines in Nevada history, and still is." All of the directors and board members of the Argentum Consolidated Mines, Inc., hope to fulfill Graham's words. As a start in the right direction, it is of interest to note that no officer is receiving salary, except Mr. Carl Earl, president, and he is drawing miner's pay, and I assure you, earning it.

Our mill is located 21 miles south of Mina, on Highway 95, from Reno to Las Vegas, and about 7 miles from the Candelaria Mining district, the actual mill buildings being on a high spot on the Columbus Salt Marsh. Highway 6, from Bishop to Tonapah, girds the other side of the marsh. Mr. Kaattari of Galaghers told us that the water from our well for use in the mill is not fit to drink, as it is loaded with chemicals and that our company should some day give serious consideration to a solar plant for recovery of these chemicals by flooding the lake area.

The Columbus Salt Marsh was the place where Borax was first discovered on the west coast and where the Twenty Mule Team Borax first originated. The lake once housed a thousand Chinamen busily engaged in cooking borax from the marsh deposits. From Bishop you cross through Montgomery Pass, the highest point in Nevada, and on the left at Basalt is a water tank that belongs to the Argentum Company. A 27-mile pipeline terminates here and also at a 2,400,000-gallon reservoir near the Lucky Hill Mine. From Basalt the Great Lakes Carbon Company use our water in operating a large diatamaceous earth plant off to the right of the highway. They pay us $100. per month for water. The officers of the company would all like to see a large mill installed at Candelaria some day, starting with at least 1000 tons a day, in order to take advantage of the enormous ore reserves that remain in our properties.

We would also like to see, in line with the above, mechanized mining underground, and, of course, a plan for a steady increase in both milling and mining tonnage as the business and growth of the company warrants.

We asked Mr. Hogle, Jr., mining investment broker and formerly president of the Salt Lake Exchange, for his advice in the listing of our stock on the Salt Lake Exchange. We explained that all of the mechanics were taken care of, all the deeds to properties recorded with Apple and Marshall, accounting firm of Las Vegas. He advised us to follow the recommendation made by the Galagher Company; namely, to increase our tonnage from 100 to 400 and show a good operating profit. He said that our stock would then get a much better reception. This, we are now doing and in a matter of weeks we should be testing our new mill.

We haven't attempted to do much exploration for Uranium, but we do know from our talks with Mr. Burgess that carnotite was found years ago in the upper oxide levels of the Northern Belle Mine. It was mentioned back in the 90s but no importance was attached to it then. The Atomic Energy Committee went through our 1300, 1500, 1700 foot levels briefly a few weeks ago and found one spot that indicated .15. (The Government stock pile is .1) The Atomic Energy Committee geologist did say that they wanted to return and go through the upper oxide zone levels where we feel they will be more likely to find a deposit. We also have a lease on an iron mine near our mill that shows radiation on a Gieger counter. The Atomic Energy Committee took samples and will send us the results of a chemical analysis when completed. They ventured a thought that it was radio active thorium or cerium. The Sheriff at Mina is reported to have found radio activity at Marietta, about 8 to 10 miles north of Candelaria. We own water and mill site there, with

some buildings. The U. S. Geological Survey #291 reports on a "Uranium Bearing Rhyolitic tuff deposit near the Coaldale District, Esmeralda County. This is about 3 to 4 miles from our mill. In the Mining & Engineering Journal, page 91, Sept., 1954, the Atomic Energy Committee lists as promising exploratory areas south of Austin, Nevada. This is about 100 miles north from our district. Another hot spot reported is said to be about 30 miles north of Candelaria. We naturally feel, with our large deposits of silver, lead and some indium, and lots of rhyolitic tuff in our area, that there is a good chance for radio activity to be found in quantities. The Atomic Energy Committee geologist remarked about the large amount of ore left on the tunnel walls of the Northern Belle. Should we receive a good report from the Atomic Energy Committee or find commercial amounts of radio active minerals ourselves, the recent enacted tax law passed and signed by the President offers excellent opportunities for the forming of operating subsidiaries with the control retained by Argentum Consolidated. The new tax law provides fast write-offs on new plant equipment and permits both the owner and the subsidiary to take a tax deduction of 23% each.

At present, we are milling about 25 tons daily of dump ore on one eight-hour shift, and at the same time installing the new mill. We realize about $150 to $200 per day, which about pays our expenses. We are also selling to the American Smelting & Refining Company of San Francisco, for use in their smelter at Selby, 300,000 tons of old mill tailings. They use these for flux in the smelter and pay us 70¢ per ton, net. They also pay us 5¢ a ton premium for each half cent rise in the price of lead. This Belville area and the tailing pond can be seen if the new road is taken on the left at Basalt, going to Mina or Hawthorne.

We also own a railroad building in Mina that was purchased from the S.P. Railroad for $600. It is converted into a cafe, called the Railway Cafe, and we receive 5% of the gross, which runs to $85 to $100 per month. The insurance company recently placed a valuation of $16,000 on the building.

Samples have been sent from our cinder mine at Warm Springs (this is located 40 miles west of the first Shell Oil well near Current) and our silica claims south of Goldfield to the Nevada Bureau of Mines at Reno. They requested samples from all known sources of titanium deposits in the State. Both of these deposits contain titanium and the silica also has some zirconium.

The capitalization of Argentum Consolidated Mines, Inc., is $300,000, with 1,500,000 shares of 20¢ par value stock. This is the only stock in our company and is non-assessable. Mr. Eugene S. Gates, his brother-in-law, Carl Earl, and his aunts each own less than 1/6 of the common stock, the balance is owned by about 150 stockholders, giving the company the necessary number of stockholders for listing on the Salt Lake Exchange. No public offering has ever been made nor has any premium or any commissions ever been given on the stock to anyone. The company has no funded debt. We feel that it is very difficult to fairly estimate the real worth of our company's holdings and therefore arrive at an approximate price of our stock. A working basis might be made from what the Candelaria Mines Company estimated the value of their leases on some of our properties. It should be taken into consideration that we own the properties that they leased and, in addition, we have in our company's holdings numerous other properties. Since they were capitalized for $3,000,000 and we for $300,000, our 20¢ stock should be worth ten times, or $2.00. Again, the dollar in 1921-22 was worth three times what it is today, so we can multiply this by three, or $6.00 per share.

The question has also been asked what the approximate price should be of our 20¢ par value stock, when it is listed on the Salt Lake Stock Exchange. Again, we can only make a logical estimate based on extremely reasonable appraisals as

summed up in our financial statement of January 1, 1954. This statement was audited by the Public Accounting firm of Apple & Marshall Company of Las Vegas, Nevada, and the net value is shown to be slightly over one million dollars.

Our total capitalization of the Argentum Consolidated Mines is 1,500,000 shares of 20¢ stock, and the value per share figures about 65¢. It should also be pointed out that since this statement was made, considerable additional capital equipment has been installed, such as a second new Diesel unit, fully equipped assay department and building, milling and processing equipment for the handling of increased tonnage from 100 to 400 tons capacity. Therefore, we feel that 65¢ should be a fair price for our stock to be traded in, with 40¢ a reasonable minimum. With the possibility of finding commercial deposits of uranium on our properties, the above reasoning would have to be ignored.

This is not written as an invitation to speculate, but merely to evaluate and clarify the Argentum holdings.

Eugene F. Grossman, Vice President
Argentum Consolidated Mines, Inc.

P. S. Some reference to the Candelaria Mining district may be found in

"U. S. WEST," by L. Beebe

"GOLD, GUNS AND GHOST TOWNS," by W. A. Chalfaut

"THE NEVADA MINING DISTRICTS," by Francis Church Lincoln

"PIONEER NEVADA" Herolds Club, Reno

Strange Treasure of Belleville

The memory of Nevada's toughest mining camp will remain alive as long as the legend of its treasure survives

From "Westways" Feb. 1953

By HAROLD O. WEIGHT

IN THE Nevada desert, 15 miles by road south and west of Mina, rise towering stone walls reminiscent of European castles or the ruins of the Incas. These walls, a scattering of metal, glass, brick and stone, a few desperately time-worn graves —and the legend of a strange buried treasure—are today's only survivals of the wild lost mill camp of Belleville. The walls were built nearly 80 years ago by Cornish stone masons when Belleville's great stamp mills were being readied for the flood of silver ore pouring from the spectacular mines of Candelaria, eight miles to the south. Beautifully, honestly constructed of roughly-shaped, uncemented native stone, most of them still rise straight and true—a sight worth going many miles to see. Such stonework will never be created again. It was possible economically only in a country and a time where the wages of the artisan were less than the cost of bringing timber into a treeless land.

The buried treasure? Ah! That's a story not quite so square and honest. Sometime during the period of Belleville's prosperity an employee of one of the two big mills managed to steal and conceal a considerable number of iron flasks filled with quicksilver. And while we must condemn the morals of that unknown thief, the man did have audacity and skill. It wasn't like snatching a purse or tapping a safe. The quicksilver alone in one of those flasks weighed 76 pounds!

The thief had no intention of becoming godfather to a buried treasure. He purloined the silvery metal—then worth about $40 a flask—purely as a business venture. But such a bulky prize couldn't be hidden around a cabin nor transported inconspicuously. So the flasks were concealed in a dry well or a prospect hole, to be left there until the furor abated. But for some reason—possibly because he was under continued suspicion—the thief was never able to complete his maneuvers. Finally he moved away, leaving the flasks, and in time he died without ever reclaiming them.

But he left with his son the story of the quicksilver and exact directions for locating it. When the son came to Belleville, the town was nearly abandoned, and some of the landmarks had been torn down or burned by a fire that had swept the camp. Still worse, a cloudburst had raged through the townsite and apparently it had filled the all-important shaft level with the surrounding, debris-strewn slope.

The son tried. He searched every foot of old Belleville, examined every hole still open and dug in likely spots. But when he admitted defeat and went away, he must have told the story—or enough of it to set afoot a treasure hunt that has continued sporadically to this day.

The reason for the fluctuation of interest in Belleville's lost treasure is due to the nature of the metal itself, as Carl Sullivan, long-time Nevada miner and resident, explained when he first told me the story of the buried flasks. Quicksilver, or mercury, has a great many peacetime uses, but the available supply is greater than the demand. When there are wars or rumors of war, munition plants and other war industries create a demand that can scarcely be supplied. And when the price of quicksilver soars, Nevada oldtimers start thinking about those buried flasks at Belleville.

Quicksilver has been found there, Sullivan told me, and far more than the hidden flasks could possibly contain. It had escaped from the amalgamating plates of the old mills, and was recovered when the enormous tailing piles of Belleville were reworked for their silver content during the first World War. About a pound and a half of quicksilver was reclaimed from each ton of tailings and, according to Sullivan, more of it and more silver remain in them. But it isn't "the" quicksilver of Belleville, and somehow the thought of flasks of the silvery stuff just waiting to be discovered is far more potent than the actuality of the same metal scattered through a lot of ground-up rock.

None of the oldtimers seems to know the exact date when the quicksilver flasks were stolen, but the history of the mill town points out a likely year. According to most accounts, Belleville came into existence because A. J. Holmes, owner of one of Candelaria's bonanza mines, was out to ruin Columbus, Candelaria's first milling town. Holmes, with Colonel Youngs, had been owner of the original stamp mill at Columbus, which was situ-

ated at the edge of Columbus Marsh, a few miles south of Candelaria. As the result of litigation he was forced out of the partnership, was unable to obtain credit in Columbus stores, and left that town swearing that before he was through grass would grow in its streets.

The first big Belleville mill—20 stamps—was built in 1873 and the second, the same size, was completed in 1876. Water was brought in from Marietta, over the hills to the west. But during the early years of the town it was so expensive that it was suggested Bellevillians were such hard drinkers simply because they could not afford water.

During the late 'seventies and early 'eighties, Belleville attained its peak population of 1,000 and also, according to Wells Drury, co-editor of the Candelaria *True Fissure*, "rejoiced in its reputation as one of the best sporting camps in Nevada."

Tom McLaughlin, an old Comstocker, was shot from his horse, from ambush, on Belleville's streets. Gambler Ramon Montenegro and Judge A. G. Turner met each other there, with guns blazing and with Montenegro the loser. A stable hand named Marshall, fired for drunkenness, killed the man who got his job and next night was hanged by irate citizens. Such was the tenor of life in Belleville.

The town's financial status improved in 1881—and so did its liveliness—when it became the temporary terminus of the Carson and Colorado Railroad, and the point where freighters loaded for the haul into Owens Valley and the Inyo country. But the next year a spur line was carried to Candelaria and in 1883 the main line reached Owens Valley, and the decline of Belleville was under way.

A. J. Holmes, credited with the birth of the town, hastened its ending. In 1883 he filed suit against the Northern Belle, biggest silver producer in Candelaria, charging it had taken large amounts of ore from his mining claim. He won a big award, the Northern Belle suspended operations, and, in 1884, its assets were sold by the U. S. Marshal. Included in the shutdown and sale was the company's big mill in Belleville. According to the records of the Northern Belle, that company at times stored as much as 8,000 pounds of quicksilver in its warehouse and at the mill. A logical place for the flasks to have been obtained would be from such a supply, a logical time for the theft, the period between the mill's shutdown and its sale by the marshal.

Candelaria continued to produce ore until shortly after the price of silver fell drastically in 1893. Candelaria may have continued some milling until that date, but its great days ended long before.

Today Holmes' prediction has been realized. Grass—or anyway desert vegetation—does grow in the streets of Columbus. Unfortunately, it also grows in the streets of Candelaria. And as for Belleville, it is difficult to determine even where the streets ran.

And it is still more difficult to determine the location in Belleville townsite of a filled-up hole which conceals an undetermined number of iron flasks of quicksilver. But the memory of Belleville is going to remain alive as long as treasure hunters are seeking that spot, and with the price of quicksilver currently at $200 a flask—five times what it was when the flasks were hidden—it is probable that Belleville treasure fever is epidemic in Nevada again.

ARGENTUM CONSOLIDATED MINES, INC.

MINE OWNERS AND OPERATORS

GENERAL OFFICES - MINA, NEVADA

GENERAL INFORMATION ON THE CANDELARIA, NEVADA, SILVER PROPERTIES

OF

THE ARGENTUM CONSOLIDATED MINES, INC., A NEVADA CORPORATION
(REFERRED TO AS "CONSOLIDATED")

and

THE ARGENTUM MINING COMPANY OF NEVADA, AN ARIZONA CORPORATION
IN BANKRUPTCY (REFERRED TO AS "MINING")

At times, interested companies with the idea of reactivating the Candelaria, Nevada silver mines, have asked for general information on the property holdings, legal, and financial obligations on the above companies.

In the interest of brevity, and as noted above, hereafter Argemtum Consolidated Mines, Inc. will be referred to as "Consolidated" and the bankrupt Argentum Mining Company of Nevada will be referred to as "Mining."

Various underwriters have expressed the opinion that a comprehensive reactivation plan would be more acceptable and likely to succeed if all productive properties in the district were made available in one package. This has been "Consolidated's" main objective and their financial, property, and legal position, plus the willingness of its officers and friends to donate time, money, and effort toward working out some agreement acceptable to the bankruptcy court whereby the creditors, stockholders, machinery owners, and other claimants against bankrupt "Mining" could salvage some part of their investment, should be convincing proof of our serious intention.

Milton Wichner, 600 Yucca Vine Building, Los Angeles 90028 - Tel: HO-9 6311 is attorney for "Consolidated" and is licensed to practice law in both California and Nevada. He is an authority on mining law, and recently was elected chairman of the Creditors' Committee for bankrupt "Mining."

The late John Burgess was a well known authority and respected geologist, and his large color maps of the NORTHERN BELLE and LUCKY HILL mines and his numerous geological studies are in my possession for examination. All of his estimates of available tonnage for mining and milling are still valid today, as practically no ore has been removed since the operation ceased in the 1920's. His maps and reports

show 55 recommended mining operations for finding new ore bodies (none have been done to date) and offers an enormous amount of virgin ground available for future explorations. Considerable money could be saved if, after confirmation, Burgess' geology and studies were accepted, and could, as Dr Page, Professor of Geology at Stanford University remarked: "Serve as a prelude to an extensive core drilling program."

"Mining" has been in bankruptcy since July 12, 1962 and was originally capitalized in the Territory of Arizona in 1913 (prior to statehood) for 175,000 $1.00 shares - all outstanding with 127 stockholders. The company was thrown into bankruptcy as a result of a sale of about 5 million dollars worth of machinery, which in turn was leased-back through a now defunct partnership. There are about 5-600 machinery owners and I believe half the 5 million dollars was paid back in rental, but the high cost, coupled with power failures and metallurgical problems caused the legal difficulties. One appraisal of the mill equipment placed the salvage value at about $185,000. Some of the leased machinery has been removed or sold, and some damaged by vandals. The secured claims amount to approximately $100,000 which includes county taxes, withholding taxes, back wages, court costs, watchman, and a $27,000 mortgage. The unsecured creditors' claims amount to at least $500,000. Most of the machinery claims are against the lease-back partnership and the opinion is that they have a 'use' claim only against "Mining." Their position is rather critical as the court could order them to remove their machinery after paying the taxes against it, or lose it by default. They would lose money if forced to move and would probably be willing to accept a small settlement - say 10-20% - possibly in stock, if such an offer were made.

"Mining" has 42 patented claims in the Candelaria District, and 52 millsite claims, or about 840 acres of mining property. Fourteen of the 42 claims belong to the MT DIABLO group and are owned 1/6th by "Consolidated." This includes a 1-3 million ton unprocessed stock pile of 5.9 oz. silver ore - also the open pit development that John Glennon, former mine superintendent said would produce 2 million tons of 8-10 oz. silver, 1/10th in gold, some lead and zinc by merely projecting into the face of the mountain without going below the surface.

14 pat. cl. 1/6 Cons.

"Consolidated" is a Nevada Corporation and is capitalized for $300,000 with 1½ million shares of 20¢ stock, all outstanding with 495 stockholders. "Consolidated" holds the only mortgage against the bankrupt plus probably the largest unsecured general creditors' claim of $222,000. This company would require $100,000, the same as "Mining" to solve all obligations, and the release of control of their properties.

The mines and mining claims held by "Consolidated" are as follows:

A 1/6th interest in the 14 patented MT DIABLO group which includes the open pit and large stockpile or ore. The MT DIABLO mine itself is said to contain 65 miles of tunnel with enormous tonnage of milling grade ore used as back-fill. This mine goes down an incline shaft to the 1900 ft. level. Experts say this mine could be leached in 'Situ,' as is being done in some of the large copper mines. Water should be found 500' deeper and this might be one way to provide water for future milling or leaching purposes.

65 Miles Incline 1900

The LUCKY HILL mine consists of 2 patented claims, the 'Atlantic' and 'Original' and according to Burgess, is a mine with a future. The shaft is only down 200 ft from the adit and should continue to the same depth (1900 ft) as the other mines

in the district. A 10,000 tone shipment of 26 oz. silver from this mine in 1921 resulted in the formation of the 'Candelaria Mines Company' with all of the present properties of both companies under bond and lease, and was capitalized for $3,000,000. At today's dollar value this should be multiplied by 5. This company failed when the world panic forced silver to drop to 24¢ per oz. in 1932. (See Candelaria Mines Annual Report). The surface on the LUCKY HILL contains 3 very excellent open-pit developments.

The GREY DAWN quartz claim was taken out at the suggestion of John Burgess at the old town site of Candelaria, as possibly containing the faulted Northern Belle vein. This vein should be cut off in the Northern Belle by the Candelaria fault at the 2400 ft level, and it should be looked for in the GREY DAWN. No exploration has ever been done on this recommendation.

Thirteen additional patented claims were filed on in 1964 when abandoned by the bankrupt "Mining" for failure to perform the required annual assessment work. Originally "Mining" obtained clear title to some of these claims on September 16, 1953 as the result of a Federal Court decision involving a claim jumper, named Figg Hoblyn and his out of state backers. There is a 1500 ft tunnel on these claims built at a cost of $250,000. Three of thse 13 claims, according to Burgess' geology, should contain the extension of the presently intact Northern Belle vein system. This area is also unexplored and offers for inducement, the prophesy made by Burgess that ore might be found here to surpass the 30-35 million dollars in silver the district formerly produced. He indicated that the Northern Belle vein's eastern penetration should continue another 1500-2000 ft or more into these 3 "Consolidated" claims before faulting out and should produce, along with that part of the vein remaining in the Northern Belle, an extimated 875,000 tons of 14 oz. silver with some gold, lead, and zinc.

The JIMMY FRACTION is another key claim in the group and is said to apex a part of the present Northern Belle vein of "Mining."

The ALPHA T open-pit claim is located across from the 'Lucky Hill' and probably apexes the two Bradshaw 'Swastika' claims and would prove important should any legal difficulties arise from previous owners. The bankrupt "Mining" purchased the two Bradshaw claims for a reported $10,000 and a reported $7,000 was paid to Bradshaw.

The two GERTRUDE claims contain the famous PRINCESS mine, formerly owned by Colonel Sutherland (see John Glennon's report) and the enormous Serpentine deposit seen on the surface in Pickhandle Gulch. This deposit, according to Dr Page in Bulletin #56, prepared by him for the Nevada Bureau of Mines, is the largest known body of Serpentine in Nevada. It contains about 42% magnesium and 1/2 - 3/4% low grade nickel.

The LITIGANT'S DELIGHT and BROOKSIDE #1 - two placer claims of 160 acres each are located on the old town site of Candelaria and contain a huge tailing pond, 3-400,000 tone of 3½ to 4 oz. silver, some gold, and recoverable cyanide.

The two CAESAR claims are adjacent to these placer claims.

On the Columbus Salt Marsh, "Consolidated" has four 160-acre placer claims, containing the mill site, water supply, and some impounded 2-300,000 tons of tailings. They are the BROOKSIDE #2, RED STREAM, EARL GATES, and ARGENTOWN. The combined

acreage of "Consolidated's" Candelaria and Columbus Salt Marsh holdings amount to approximately 1280 acres. Most of the lease-back machinery on Columbus Salt marsh is on "Consolidated's" claims under a landlord's waiver, and is being occupied without compensation.

Two additional patented mining claims in the Candelaria district are the LEO and SECRETARY, located next to the 'Lucky Hill.' They are held in trust by Milton Wichner to be used in any solid reactivation plan. This would add 40 acres more to the plan.

The district offers year round mining as there is very little rain or snow, although the weather does get pretty cold in the winter and as a result the mines are all dry even to the 1900 ft level, requiring little or no timbering in the tunnels. The vein system will continue for another 500 ft according to Burgess, all in ore before being cut by the Candelaria fault, and before hitting water. Should future attempts be made to locate the mill and a source of water in Candelaria, it might be a good idea to do the drilling on the 'Grey Dawn' thereby exploring for the faulted Northern Belle vein at the same time.

The lead carbonate has never been commercially recovered in the Candelaria ores, it will run from 1 - 2% or more. No effort has been made to explore for uranium or the rare earths, although Burgess indicated the presence of carnotite. Numerous volcanic chimneys in the district should be explored as a source of beryllium.

The enormous body of sulphide ores in the lower levels of the mines could eventually become a good source of sulphuric acid as a by-product from smelting the concentrates.

Cyanide extraction usually shows a plus or minus 2 oz. tailing - however, there is a refractory element in the ore that requires good metallurgy. It is the general opinion that this can be bettered by a combination floatation and cyanide treatment. The silver is extremely fine and goes into solution rapidly. An interesting fact is that the element carrying the silver values has never been determined. Also the solution can be used repeatedly without fouling, even on sulphide ore and when using brackish marsh water. The ore can be cheaply leached, and from experience, not run through a ball mill, but crushed by rolls or impact to keep the fines, slimes, and collodials from blocking the filtration. Screening the ore will upgrade the mill-heads as the values follow the fines. The unlimited supply of water in Columbus Salt Marsh could be treated by a solar plant for recovering the sodium sulphates, boron, and other chemicals according to Mr Kaattari, floatation expert, formerly with the Gallagher Metallurgical Laboratory, Salt Lake City. He expressed, as an opinion, the possibility that the chemicals could also be recovered by floatation. The old workings of Borax Smith are still to be seen on the surface around Columbus Salt Marsh. This was where he first commercialized borax and started his famous "20 Mule Team Borax."

At present at the mill there is a 40,000 ton stock-pile of mill-feed ore, averaging 6 oz. silver that could be used for determining the best ore treatment and mill flow-sheet for Candelaria ores.

There is available at Mina, Nevada, a metallurgical and assay laboratory service and they also have a permit from the U S Treasury for smelting precipitates into bullion. Available for fast delivery service or aerial surveys is a four passenger #170 Cessna. The mine and mill are located about 22 miles from Mina which is also

a terminal point for the Southern Pacific Railway, and about 60 miles from Hawthorne - all on good highways. The trip from Los Angeles via Bishop and through Montgomery Pass takes about 6 - 7 hours. Hawthorne has daily air service to the El Capitan Casino and their facilities can be used for passenger flight service. Columbus Salt Marsh, the location of the mill, is near the intersection of Highways 95 and 6, not far from Coaldale and Tonopah, Nevada.

Commercial electric power is now available near the Candelaria properties and, no doubt, arrangements can be made for its use in any future mining and milling operations.

Esmeralda County had granted "Mining" an easement on the roadway between the mine and the mill - a distance of 8 miles - permitting the use of trucks without vehicle licenses.

The area is labeled 'distress' for employment by the U S Government, and consequently there should be no trouble in obtaining the Government's 75% participation for silver exploration, as the mines are basically silver. This participation could be limited, if desired, by exploring only one of the many properties or mines.

As an aid in examination by underwriters, there is a good possibility that the services of the former mine superintendent, John Glennon, might be obtained as his knowledge of the underground workings and wagon-drill exploration on the surface open-pit developments would be very valuable. His present home address is: At present he is working for a firm in Elko, Nevada, and can be reached at 1392 - Fourth St. Telephone: 738-6230.

Another plan seriously considered by "Consolidated" would be to interest underwriters in the Candelaria and Columbus Salt Marsh properties, separate from the bankrupt "Mining" including our mortgage and unsecured claims against "Mining." Core drilling and exploration on the 'Lucky Hill' and other "Consolidated" properties could be put into operation immediately and would be independent and separated legally from the bankrupt "Mining" and their properties. "Consolidated" is also confident that any problems, legal or otherwise, between the underwriters and themselves can be readily resolved through a conference with their attorney, Milton Wichner.

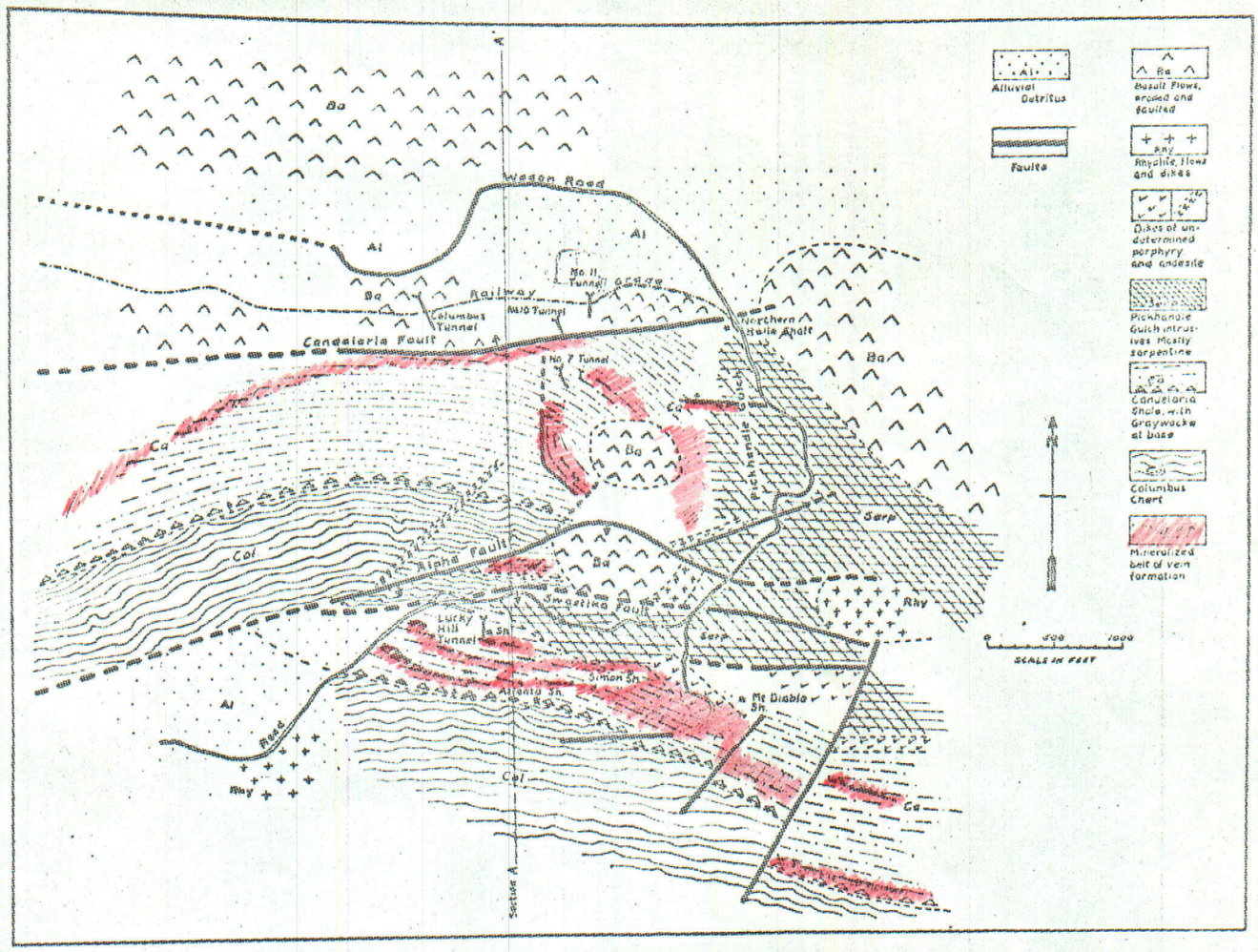
If more information is needed, or an examination of the John Burgess maps and Geology is desired, please contact the writer; and should legal questions arise, or if permission is desired to enter and examine 'Consolidated's" and/or "Mining 's" properties, please contact Mr Wichner.

Respectfully submitted,

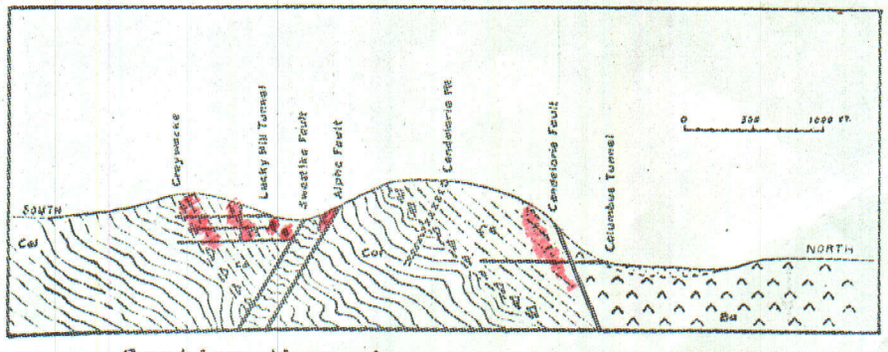
ARGENTUM CONSOLIDATED MINES INC.

By_____
Eugene F Grossman Vice President
1455 - 4th Street
Santa Monica California

Date_____

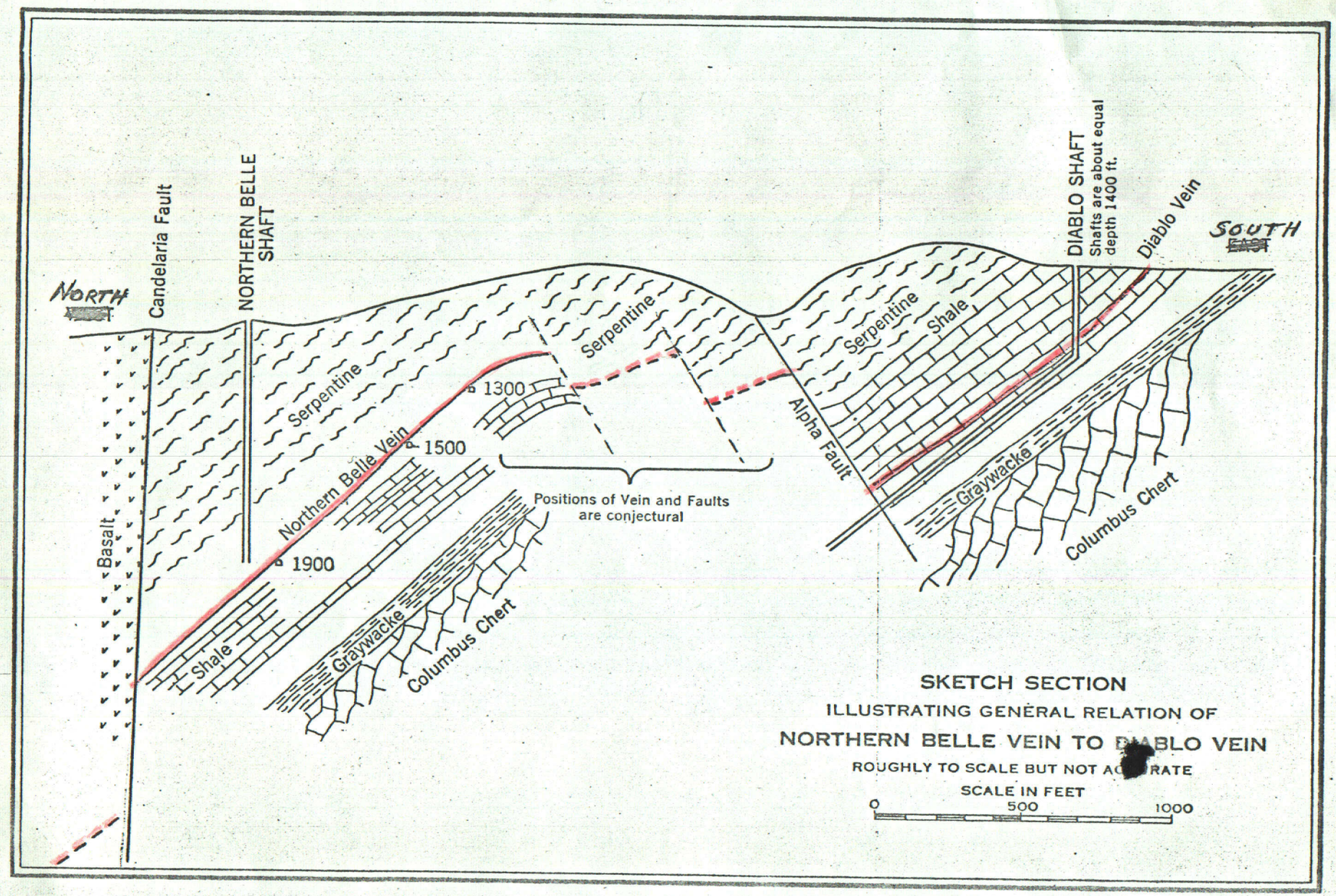


GEOLOGY AT CANDELARIA, NEVADA



Section through A-A Looking West

by John A. Burgess



SKETCH SECTION

ILLUSTRATING GENERAL RELATION OF

NORTHERN BELLE VEIN TO DIABLO VEIN

ROUGHLY TO SCALE BUT NOT ACCURATE

SCALE IN FEET

0 500 1000

Chromite, Candelaria, Nevada

These chromite claims can be best approached by following the road leading to the west from U. S. 95 at a point approximately 10 miles north from Coaldale (between 1/4 to 1/2 mile south of the Mineral-Esmeralda county boundary). This road is on the south side of summit. The first sign erected by Frank Nelson will be found on the westerly road 4 miles from U.S. 95 at a road branching to the left or southerly. From this point on the road is amply made so that one can drive with-in 75 feet of the largest chromite exposure.

Nelson's cabin is about 3/4 mile up a small canyon from the second sign "Baroid".

Mr. Nelson and Mr. Brown, partners, are presently engaged in developing a local barite deposit which they have under lease and option to the Baroid Co. of Los Angeles. It is understood that they have exposed barite 30" to 72" wide and the specific gravity is about 4.5. The barite is pretty good but it is apparent that the Sp. Gr. given is only for picked samples rather than the mine run. Mining is expected to commence some time in the near future. It is Mr. Brown's understanding that the barite will be used as drilling mud.

Reference to the barite has been made for the reason that an occurance of that mineral is found about 75 feet south (foot-wall side) of the serpentine belt.* These mineral deposits are on the north slope of a prominent east-west ridge. The barite being developed is approximately 250 feet (elevation) above the serpentine belt and, probably in the lava capping found on many of the ridges. A large number of the existing ridges are covered with a lava capping which creates the impression of a plateau.

The principal chromite "showing" is found on the C. & M. #1 claim described as being 1500 feet (easterly) by 600 feet (north). This claim is joined on the west by C. & M. #2. Photograph #1 was taken from the discovery monument looking N. 7° E. toward a discovery pit or cut sunk in talc (4 - 5 feet wide) between walls of serpentine. This cut is near the channel of a small ravine. The grade of the talc is not as good as required (reported by Nelson). A second talc occurance near the north side line of the C. & M. #1 has been explored to a depth of 12 feet. These occurances, in the order noted, are presently considered to be in the footwall and hangingwall sections of the serpentine belt. There is an indication that the serpentine belt dips to the north at about 40°. This is seen in the serpentine shown in Photo. #1, the chromite lenses fifty feet east of the west endline of the C. & M. #1 claim and numerous other workings on the east end of the claim.

It was not possible to determine the extent of the serpentine belt in the limited time available. On the C. & M. #1 claim, it appears that the serpentine belt varies from 200 to 400 feet in width (possibly more in places) and strikes S. 82° E. The approximate strike was observed at the principal chromite lenses. West from that point, the serpentine belt appears to strike a few degrees south of west. This change of course is probably due to fault displacement (fault along

* The principal occurence of the barite now under development is about 4500 feet south of the serpentine belt. (Inadvertently omitted)

course of ravine photograph #1). The fault is suggested by the locally prominent breccia cropping on the east side of the ravine. For the present time, it is assumed that the serpentine belt may extend at least 1000 to 1500 feet westerly from this ravine. (C. & M. #2 Claim). In the easterly direction, the serpentine belt extends the full length of the C. & M. #1 and probably the full length of a third claim. For the present time, the length of the belt is in excess of 3000 feet. The full extent of the belt may be obscured by the lava capping. On the C. & M. claims, the volcanics have been erroded away.

The footwall and hangingwall of the serpentine belt appears to be shale. It is the opinion of the writer that the serpentine has been derived from the alteration of a ferro-magnesium intrusive (dike). The color of the serpentine varies from reddish-brown to dark green in contrast to the light greay color of the wall rocks. It is the general impression that the darker serpentine prevails in the central part of the belt. In the writer's limited opinion, this serpentine is similar to that found in California and believed to be derived from ultrabasic intrusives. In one shallow shaft, near the east end of the C. & M. #1 claim and the footwall of the serpentine belt, an altered sedimentary stratum has been exposed to a depth of 10 or 12 feet. This stratum is about 36" wide and contains a few narrow irregular seams of a waxy yellow to light green serpentine considered to possibly have been derived from magnesium rich sedimentries. The seams vary from 1/2" to 1" in width.

As previously noted, two small lenses of chromite crop on the surface and have been further exposed by Nelson and Brown (west end of the C. & M. #1 claim). The upper, and what looks like the higher grade, chromite lens is about 6' long by 6' on the northerly dip by 10" thick. Exploration work has fairly well indicated that the lens does not extend to depth. The second lens, spearated from the first by serpentine, appears to have greater dimensions along the strike of the serpentine belt and to extend to greater depths on the dip. The footwall of the lens has not been exposed, therefore the width of the possible ore is not known. It is the impression that both lenses are small for the reason that chromite is limited to an area of about four hundred square feet. (20' by 20').

Chromite is reported to have been found at other places along the strike of the serpentine belt both east and west from the above noted croppings. A few small piles of chromite, plies consisting of 6 or more small pieces, were found at widely separated points. At such points no additional chromite was seen. No disseminated chromite was observed in the vicinity of these piles or the croppings referred to in the preceeding paragraph. In the absence of more positive evidence of chromite in the serpentine, these small piles suggest possible salting. This idea is discounted in favor of the possibility that the chromite has been taken from small separated segregations exposed by erosion, early prospectors and the present prospectors. The recent prospectors (Nelson & Brown) have gone over the serpentine cropping with a fair degree of care during the past year and a half.

Since chromite has been found in-place on and near the west end of the C. & M. #1 claim, observed in small piles at other points on the same claim and, reported to have been found on the adjoining claims on the strike of the serpentine, it is the opinion that chromite lenses may be expected along the serpentine exposure.

As the lenses which have been found and presently crop on the surface are small, it is suggested that the serpentine belt be explored with a magnetometer or possibly a Fisher M-Scope. This would be an ideal place to try the latter instrument. It is quite desirable to try to outline deeper and possible larger lenses and this can only be economically done with the aid of geophysical instruments.

At about the middle of the claim, adjoining the C. & M. #1 claim on the east, a four foot seam of highly altered material (probably serpentine?) contains considerable green mineral taken to be garnierite. A small sample of the material has been brought in for a positive nickel determination. It is the opinion of the writer that nickel occurs at other mining properties in the Candelaria district. It was reported that an older assayer formerly employed in the district stated nickel had been found in the principal mines.

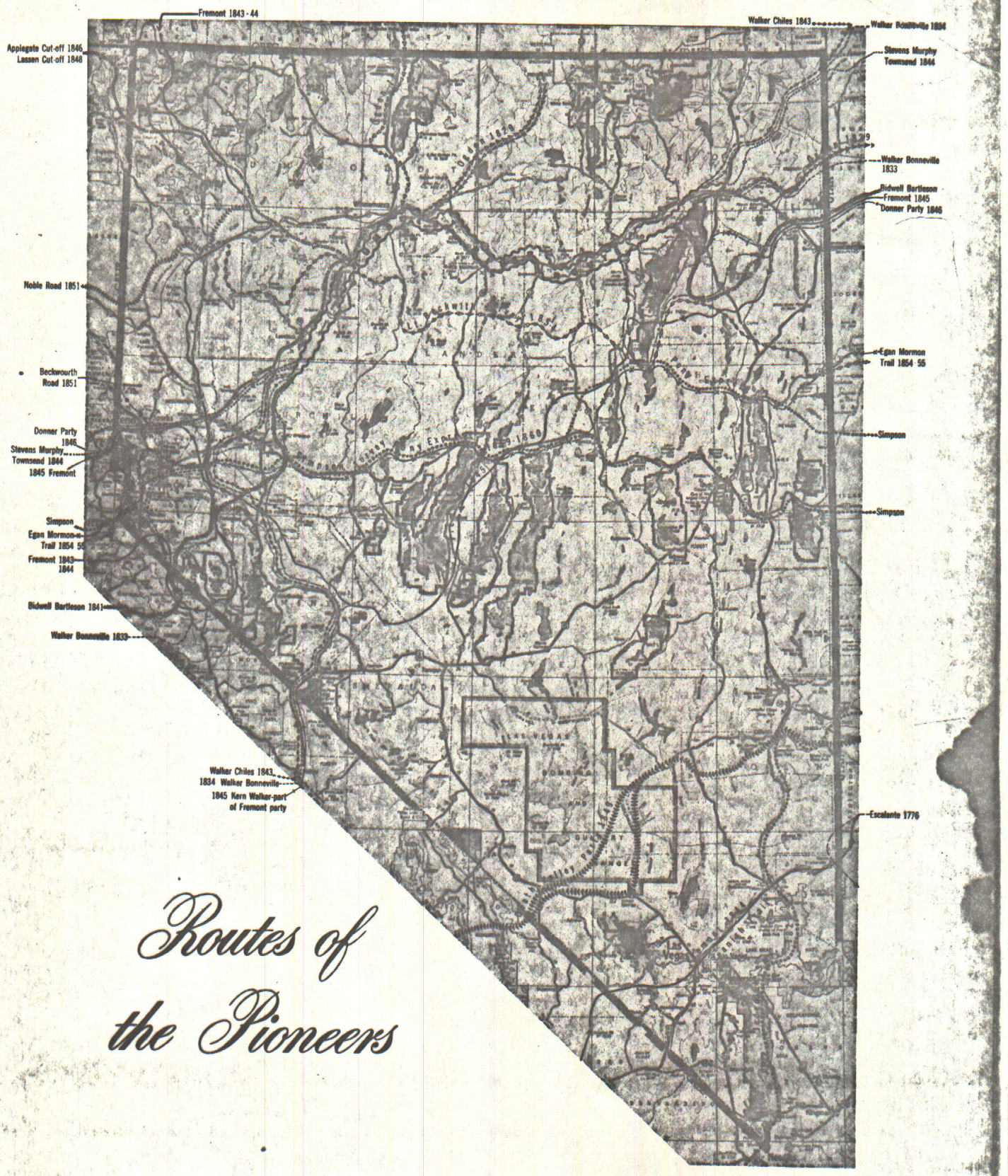
It is considered advisable to proceed with a detailed study of the Candelaria chromite deposits and the remainder of the district.

PIONEER NEVAD

Where it happened

The area at left is simply a larger scale version of the area shown in the rectangle on the Map of Nevada above. Page numbers on the two maps are not identical, however, because of space limitations.

Numbers on this map of Nevada correspond to the numbers of the pages in this volume. For example, the story appearing on Page 50 took place where 50 appears on the map. Some stories, like those dealing with the Indian legends of the creation of the world cannot be given a specific location in Nevada, and thus do not appear on the map. Acknowledgement for permission to use the Official Map of Nevada is gratefully made to the Nevada State Department of Highways.



Routes of the Pioneers

Early routes across Nevada are reproduced here, based on information gathered in more than six years of research. Old newspaper files, early day records, and interviews with people living in the various districts of Nevada all went into making this map. In some instances it was possible to consult the journals or diaries kept by the parties when crossing the state, or to check contemporary newspaper accounts.

However, a large proportion of the routes shown here have been studied in relation to the actual terrain. Early day accounts and maps often were so loosely drawn or reconstructed as to indicate routes over extremely difficult sections, when the obvious and easier path lay a few miles to right or left. Much of the area shown here has been covered by field party in an attempt to give the practical and logical routes covered.

Nevada Camel Caravans

WINNING OF the Western empire was assured late
the '60's when the Central Pacific Railroad spanned the
ation with a steel ribbon, but in the years preceding its
onstruction, pioneers who first saw the possibilities of this
ontier land, had not been asleep on the transportation job.
he Pony Express provided a fleet mail service while Over-
nd Stages and Wells Fargo opened the avenues of passen-
er and freight transportation. Most interesting of all the
rly modes of freight shipment, however, was
evada's camel experiment.

As early as 1855 the war department had
xperimented with the use of camels in New
lexico and California, but most of the attempts
ad been unsuccessful. In 1860 Captain Han-
ock started a camel express known as the
Dromedary Line" between Los Angeles and
ort Mojave, but this venture also petered out
fter a few trips, and in 1863, Secretary of War
tanton ordered the army camels sold at public
uction.

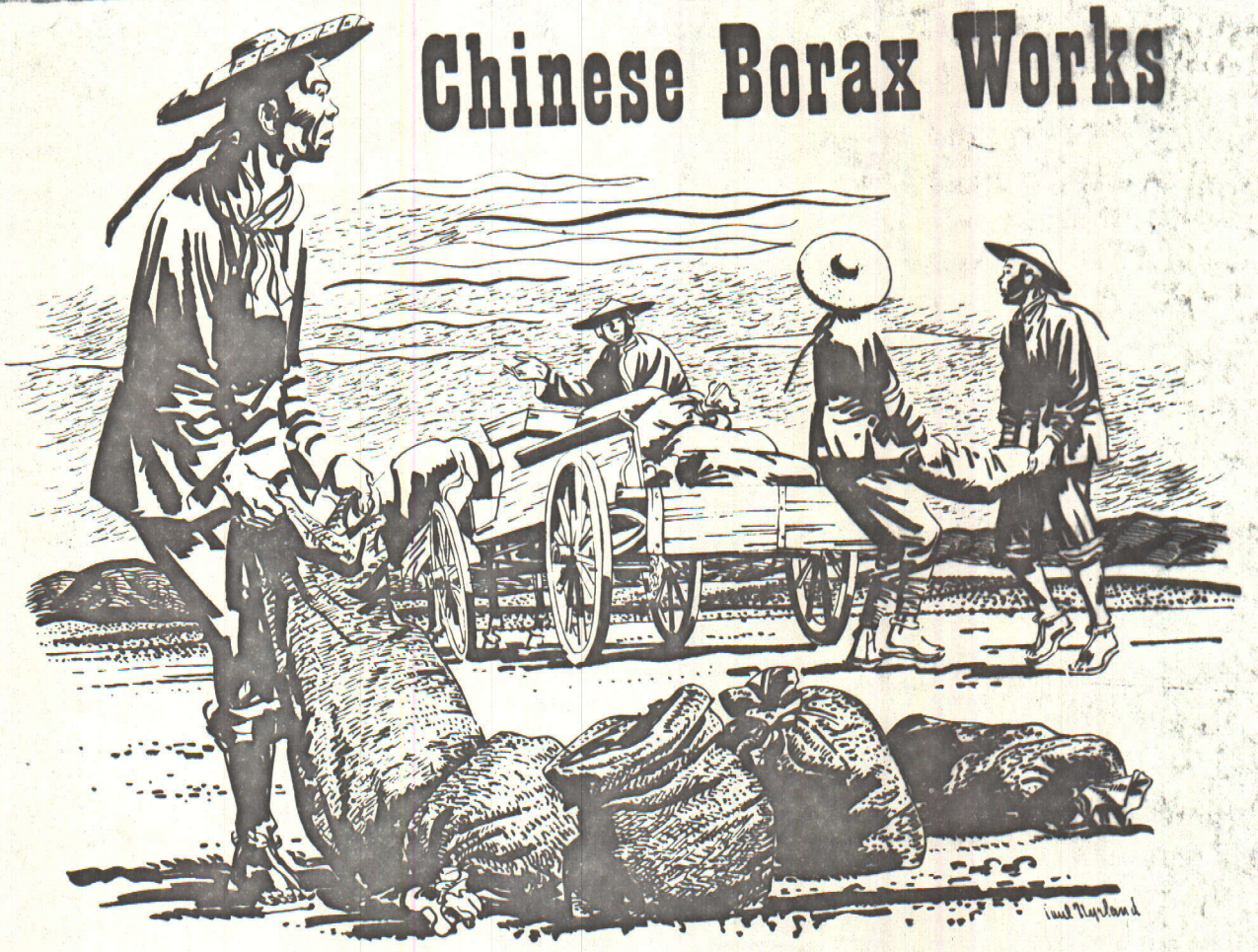
Sam McLeneghan bought a number of these beasts of
urden and selected ten of the best to carry freight between
acramento and points in Nevada territory. His original
dea never developed, but McLeneghan did succeed in selling
is camels to a mining company in Austin and they were
mmediately put to work ferrying salt across desert wastes
rom the marshes near Walker Lake to Austin's quartz mills.

Meanwhile, another enterprising merchant of San Francisco, Otto Esche, went into Mongolia to purchase thirty-two head of Bactrian camels for use in the Nevada deserts. His dream of great profits dwindled when only fifteen of his original herd lived out the voyage to San Francisco. The survivors were auctioned for use as pack animals between Placerville and the Nevada mining camps, but they eventually came to serve the Virginia City and Carson River mills, transporting salt from the Esmeralda marshes. Carrying loads upwards of 500 pounds, the animals proved capable to the job, but when salt was discovered near the Carson River only 60 miles from the mills, the long trek from the central Nevada marshes proved to be a needless expense and the camels were turned out to roam an unfamiliar desert.

The camels had provided a lot of color and hazard to traffic along the roads and trails, for most teams of horses went completely hysterical at the sight of the ungainly beasts. The advent of a camel string was the signal for teamsters and passengers to alight and stand to their horses' heads until the camels had passed.

Once these strange animals were turned loose on the open range they provided a source for generations of real and imaginary stories. Camel adventures were a stock in trade for every bartender, pan-handler, and prospector.

Chinese Borax Works



AS YOU DRIVE along the highway, some 25 miles south of Mina, you pass the old Columbia Marsh, an area which was extremely active and colorful in the '60's and '70's. Here in 1865 started the town of Columbus, providing salt and water for the mills working the silver, and later those from booming Candelaria.

Activity at the salt marshes had started in 1864, and during the Candelaria boom the rich silver ore was freighted down to the mills on the backs of Mexican pack trains. In 1871 a former Comstock miner arrived on the scene. He believed the marsh contained borax and succeeded in refining some in a wash boiler. A year later William T. Coleman entered the borax business but soon sold out to Borax Smith of Twenty Mule Team fame, who continued there through the '70's.

Columbus was as wild and woolly as most pioneer Nevada boom towns. A man was lynched at the old slaughter-house a mile west of town and there were numerous shootings. But Columbus got most of its color from the Chinese laborers who were brought in to work the borax.

At one time there were more than a thousand coolies working on the marsh. The heat had proved too great for white laborers, and the work was almost entirely done by Chinese. They spread out over the vast marshes in little groups, wearing wide straw coolie hats, long "pig-tails," shirts outside their pants, trousers rolled up out of the mud, and light sandals. They worked seven main boilers, scattered out in the brush. The boilers were fired by sagebrush, and Chinese gangs stripped the desert for this fuel as far south as the old Dyer Ranch in Fish Lake Valley. The marsh water containing soda, was boiled in these crude vats, the Chinese stirring it with long handled shovels until it was syphoned off into galvanized tanks and crystalized.

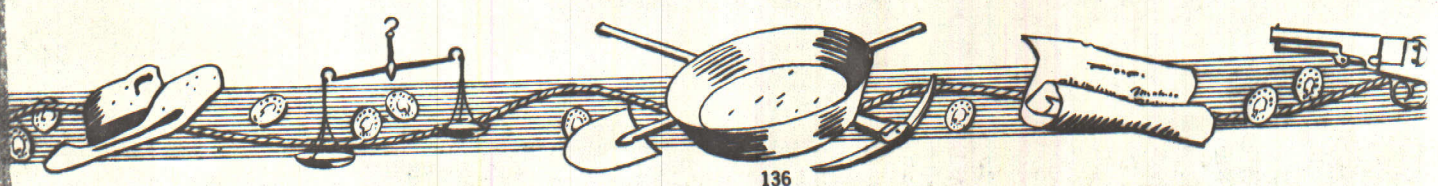
Transportation on the soft marsh was limited to very light wagons, drawn by two horses, and handled by Chinese drivers and swampers. The finished product was freighted to Wadsworth and loaded on the Central Pacific during the '70's and later in the '80's it was hauled to Candelaria instead, usually in 100-pound sacks.

Old-timers told how the Chinese and their wagons crawled up the steep grade into Candelaria, emptied their load, and returned to Columbus by an even more precipitious shortcut. There were no brakes on the little wagons, and as they bounced down the grade, the wagons crowded the teams, the teams would begin to bolt, and the Chinese drivers would get panicky. They always entered Columbus'

main street at a terrifc speed, hanging on for dear life and shouting and screaming at the horses at the top of their lungs in Chinese. The coolies never learned to return to town in any different manner, and it became a daily feature of life at Columbus.

The thousand Chinese lived in adobe huts for the most part. Many had cellars for opium dens underneath but these were ignored by the white employers whose main policy was to "keep John Chinaman at work."

Columbus produced borax until about 1890, but the main interest withdrew in 1875, marking the start of the downgrade which sooner or later comes to every mining camp.



Joke at Columbus

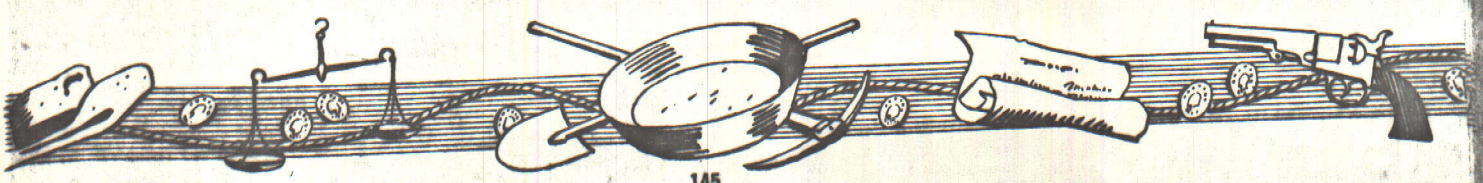
IT WAS New Year's Eve, 1873, at Columbus and women for the big dance were scarce. One American girl had come in from Fish Lake Valley, and a Chilean woman was playing a guitar as part of the orchestra. Except for the one girl, the floor was filled with men, half of whom were designated as "ladies" by the handkerchiefs tied around their arms.

When the fun was at its height, a Mexican named Victor Monega objected loudly to the Chilean woman playing for the dance. He snatched her guitar, smashed it to bits, and slipped out the door. A respected restaurant keeper quietly remonstrated with the Mexican over his conduct, and in a flash the latter slipped a long knife into his heart! Sobered by the sudden tragedy, the dance broke up, and the town hunted for Monega. In a few minutes they had him in the town jail.

Soon a delegation of leading citizens called on the two Columbus police officers, detaining them in a friendly fashion, with plenty of drinks all around. The officers were not harmed, but soon found they could not leave a room in which a party was rapidly developing in place of the ruined New Year's Ball. Columbus was bound to have some form of fun "to see in" the New 1874. Meanwhile, another committee quickly removed Monega from the jail and strung him up on a huge butcher's windlass normally used to hoist the carcasses of beef. It was a cold, white, moonlit night, almost as bright as day. Out on the silvery marshes the coyotes howled. If Monega made any sound, it was drowned out by the hearty guffaws of the "committee," the creak of the huge wheel, and the sudden deadly tightening of the noose at his throat. The "committee" then joined the party with the officers and had a few drinks.

Two of the lynchers were sent out to cut the body down but soon came back. Although the corpse was visible in the bright moonlight from any point on the main street, the men claimed they had been unable to find Monega, and a few more rounds were enjoyed. Another "committee" went out "to search for Monega" and had just started to lower the body when it gave a convulsive kick, so they stopped and returned for another drink, reporting they could not find Monega.

It turned into quite a hilarious party, everyone enjoying the good joke on Monega. In the morning the corpse was tossed into a hole and covered. But it seemed Monega had the last laugh on the committee. A few days later a deputy sheriff from San Bernardino county arrived and advised them Monega was wanted for the brutal murder of a California family. A reward of a thousand dollars had slipped through the hands of the impulsive committee, a little too anxious to play a joke on Monega.



Belleville Hits Water

MANY A NEVADA town was built on a dusty, dry site, and only a desert dweller can appreciate the true value of water. Belleville in 1873 had no water and teaming it to town made it more rare and precious than gold.

Plans were made for running a pipe line for miles across the arid desert for the new eight stamp mill. Meanwhile, it was almost cheaper to drink whiskey. The whole town dreamed of a well, and hotel keeper Johnny Nicholson hired a crew and sank a shaft in the hope of getting water. The entire town was agog, and watched each shovelful of dirt for moisture. But it was a sad and discouraging piece of busir ess.

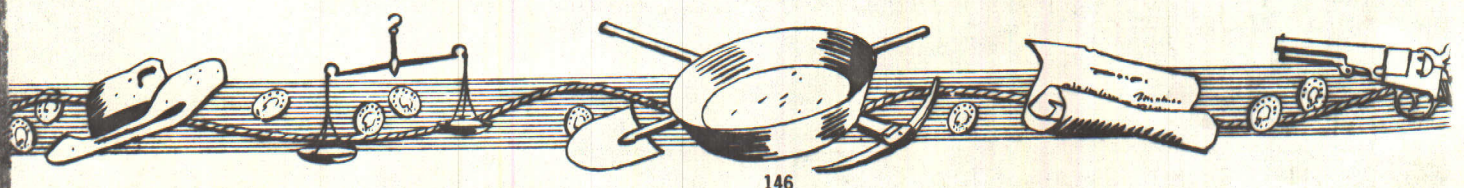
One blistering day, when the perspiring well diggers were eating lunch in the hotel, enjoving a brief respite from the hot sandstorms and the white alkali glare, a few practical jokesters dumped a whole barrel or two of precious water down the well shaft. The well diggers soon returned to the job, and gave the first man down the shaft the usual brisk ride on the windlass bucket.

They were thunderstruck to hear a loud splash from below, and frantic screams for help from drowning! Men came tumbling from nearby doors. The loafing windlass crew sprang guiltily and excitedly from the cool shade. Unbelievingly, but hastily, they hauled up the windlass lifting to view a man soaked to the skin and shaking with panic. Instantly, as reason dawned, pandemonium broke loose. The town had water!

Men beat on tin pans. Work stopped at the new mill. Chinamen fired crackers. Proudly the owner of the new well opened his bar stock to the whole town! Liquor flowed in all directions. It rapidly turned into the biggest town drunk in many a year, all under a white hot desert sun. Men lined up at the bar. Barrels were rolled outside in the dust and broached as there was no longer room indoors. It was the granddaddy of all gigantic parties.

And like so many good parties it was followed by a king-size hangover. Tottering up to the shaft the next morning, nursing throbbing heads and queasy stomachs, the well digging crew had the additional shock of discovering that all the water had seeped away! Realization of the hoax led to an outraged search for the identity of the jokesters but history tails to record their discovery.

Belleville finally got pipe line water from the mountains, but lost the milling business to Candelaria. When the Carson and Colorado Railroad was under construction the town enjoyed a temporary recovery and boom as a work camp and terminus. It had a few ups and downs but eventually gained the ghost town status of so many little mine and mill towns, which it keeps today.



Blue Dick's Funeral

ENTERTAINMENT IN the raw, new mining camp of Candelaria was scarce, so the residents went to extreme lengths at times to provide original forms of diversion. One of the most widely told tales, and later related by Wells Drury, was one concerning Richard (Blue Dick) Hartman, who had been in a mine blast accident which peppered his face with gun powder, resulting in a vivid blue complexion.

Blue Dick came to Candelaria with the reputation of a fearless gun fighter on the Comstock. He was envied, hated, and feared by a man named Joe who was a great bully and hanger-on at the Northern Belle Mine, and the Roaring Gimlet Saloon.

One morning, the story went around the camp that an unknown gunman had killed Blue Dick, and the body had been laid out in McKissick's Saloon. Most of the miners rushed down to see, and the barroom soon filled to capacity. Sure enough, over in one corner reposed Blue Dick, laid out in state on a gaming table. A sheet covered the body except for his big brogans, showing he had died with "his boots on."

The crowd began to eulogize the departed and it was decided he should have a "genuine first class funeral." The barkeep put up the first twenty dollars for the house, and once the ball started rolling, the crowd began to toss contributions into Dick's stetson which lay on the table beside him. When the pile of money overflowed out of the hat, onto the table, and finally on the floor, one of the boys asked to see the man who had been the pride and fear of Candelaria.

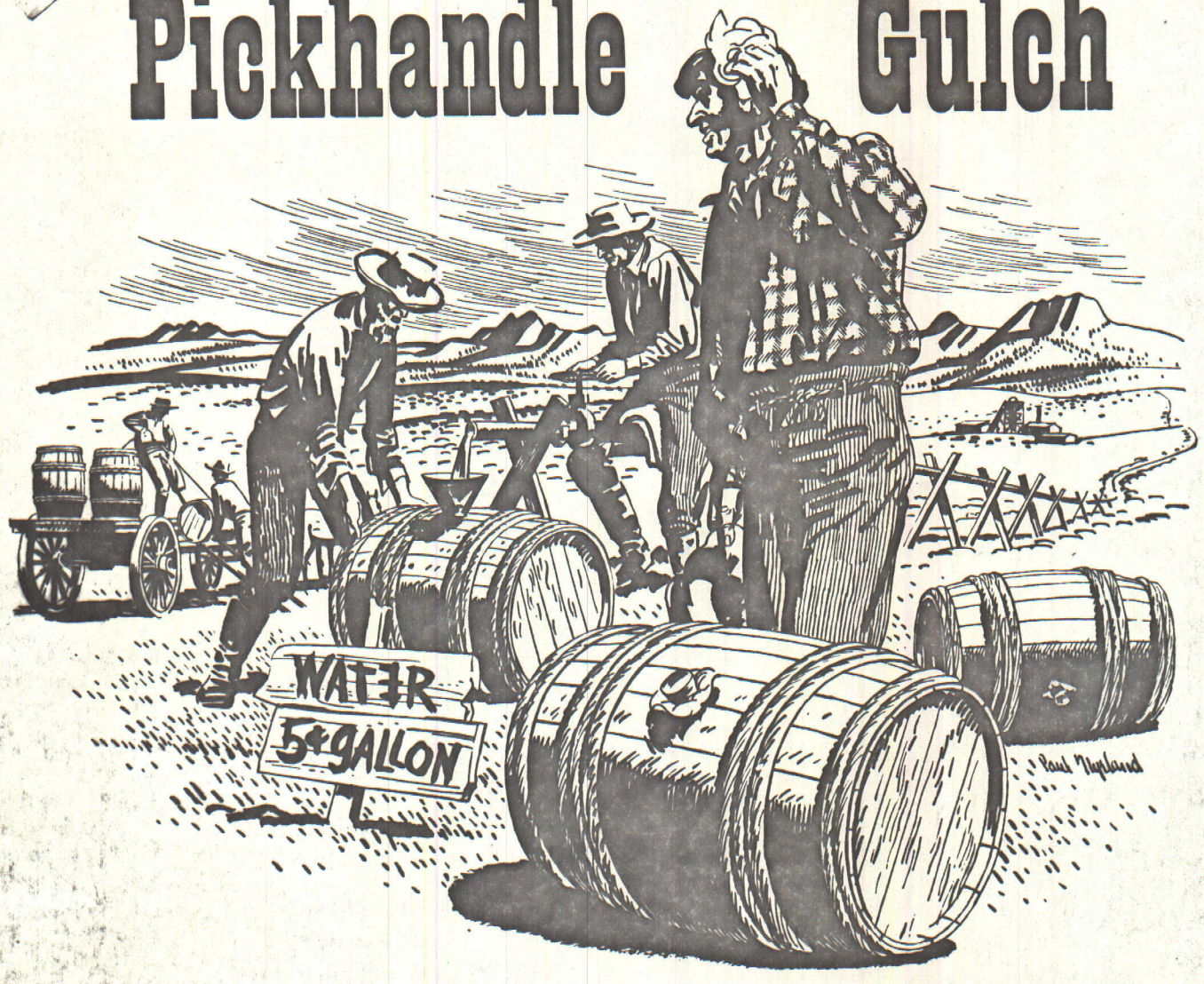
The sheet was pulled back, and there lay the hero, steel gray eyes fixed on the ceiling. Just as one spectator thought he saw an eye quiver, the right eye of Blue Dick solemnly winked! A shout went up, and Dick rose to a sitting position. He got up, swaggered to the bar, and as the barkeep walked over with the heavy hat of money, he roared, "Set 'em up." The cheering crowd then proceeded to drink up the entire proceeds of Blue Dick's funeral fund.

By now it was time for the second shift to come off work at the mines. Blue Dick hastily returned to the table and the sheet was spread over him again. As the boys came down the street they were told the sad news, so they hastened down to see the body and to contribute to the funeral fund. It was just about this time that Bully Boy Joe appeared. Looking for the barkeeper, he saw the crowd milling around the body on the table. One miner spoke up, "Joe, our old friend Blue Dick is no more." But unlike the others, Joe had no praise for his rival.

"It's lucky somebody plugged him," he announced, "or I might have had to do it myself, for the good of the camp."

At these words, Blue Dick sprang up from the table, enraged. Draped and entangled in the sheet, he made a dash for Joe. The latter, thinking he had seen a ghost, turned ashen, and finally finding strength in his legs, bolted through the open door and headed across the desert for Columbus. Dick was right behind him, cursing, shouting, and shooting but fear lent such wings to Joe's legs that he outraced the danger. Dick gave up the chase and returned to drink with his friends who had so openhandedly contributed for his funeral.

Pickhandle Gulch



FROM '64 until the early eighties nearly twenty million dollars worth of silver and gold ore lay sweltering under a yellow-white alkali blanket at Candelaria awaiting development.

In the closing year of the Civil War a Mexican prospector discovered unmistakable signs of silver deposits seven miles from Rhodes Marsh in Esmeralda county, and a year later laid claim to the most promising portion of the prospect. But, for some strange reason, no steps were taken toward development and the property was forgotten until some five years later when it was re-discovered.

Like any new strike Candelaria flourished since gold as well as silver ore proved a valuable part of the deposit. Before long the Northern Belle became one of the state's leading producers.

Problems of providing for the ever increasing influx of miners and their families were multiple. As soon as the Northern Belle proved its worth telegraph lines were strung across the dry hot desert to Candelaria. The townsite was so barren of vegetation or water that the telegrapher had to seek out the 1700 foot level of the Mount Diablo shaft before he discovered a spot damp enough to attach his ground wire.

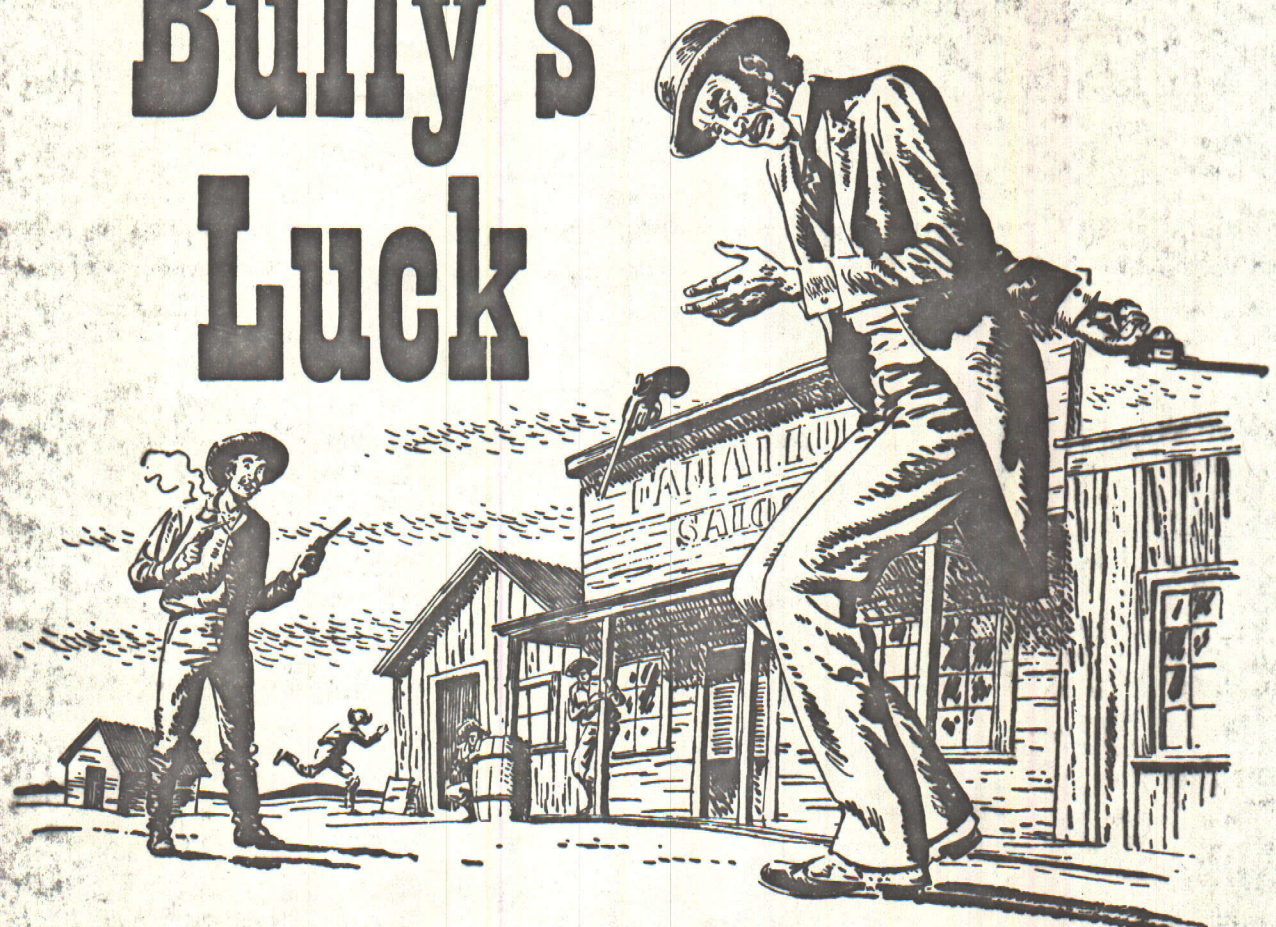
Nine miles away a tiny spring became almost as valuable as the mineral properties. Water hauled to Candelaria sold for a dollar a gallon, and even at that price was in great demand. Realizing the potential of the camp, the White Mountain Water Company set about running a pipe line to Pickhandle Gulch, just below Candelaria. At the same time the Carson-Colorado railroad commenced a feverish race with the water people to bring train and freight service to the new camp.

By 1882 Candelaria was the largest town in Esmeralda county and the race between railroad and water company to bring their services to the flourishing camp reached a frantic pitch.

On February 25 a trickle of water began flowing into the reservoir at Pickhandle Gulch and the price of this precious commodity immediately tumbled from one dollar to five cents a gallon. A week later the first train of the C and C rolled into the station and Candelaria was able to shed its role of outpost town.

One of the immediate effects in the transformation to city status was the sign Barber Leo Eberle put in his window. It announced "baths at a reasonable rate . . . Hot water $1.25 . . . cold water 75c."

Bully's Luck



"TWO GUN" Mike Kennedy was the toughest man that ever came out of the East. At least that was Mike Kennedy's brag, and he seemed pretty well on the way to making it stick as he bullied the citizens of Sodaville for many weeks before his bluff was called.

Sodaville in 1904 was a pretty tough town to bully because it was just about the most important stop between Reno and Tonopah where all the railroad freight destined for the mushrooming Nye County silver camp was unloaded and transferred to stages for the desert haul. It was also a place that saw lots of boomers and numerous toughies during their brief wait for transportation to Tonopah. But "Two Gun" Mike bluffed out his claim until he ran into a quiet and peaceful miner one night.

James Lund was in from the diggin's for a little fun one Saturday night, the same night that Mike Kennedy was particularly vociferous. Though unarmed, Lund called "Two Gun" Mike's bluff, and Kennedy invited the miner to shoot it out. The two squared off in the center of town as residents took nearby cover. They blazed away and the "toughest man ever to come out of the East" fell with six bullets lodged in his body. Slightly bewildered, but unscratched, James Lund walked back into the saloon for another drink, and the congratulations of bystanders.

Sodaville had its light side, too, for instance, the time that an unthinking storekeeper, deciding to have a little fun, appeared behind his counter one Saturday night in a Hallowe'en mask. It was a sad mistake as the place was filled with Indians.

Suddenly sighting the apparition behind the counter, the redmen bolted for the great outdoors. Not bothering to seek the door, they plunged through the window glass and made for the sagebrush. Not even pleading, could again induce them inside the Sodaville store, for they were convinced that the devil had appeared among them and they weren't aiming to be present for a second visit.

and pyrite, appears to have been mined only at the high prices prevailing during World War I.

Pilot Mountains. The principal productive districts of the Pilot Mountains, which have yielded quicksilver in the central part of the range (Bailey and Phoenix, 1944, pp. 118-130; Phoenix and Cathcart, 1952) and tungsten on the east flank (Bateman and Erickson, 1943; Lemmon, in preparation), lie outside this quadrangle. At the Belleville gold mine, in the upper part of Telephone Canyon, a few small pockets of high-grade ore yielded a little wire gold from sooty manganese oxide in calcite veins that cut the Excelsior formation near the granodiorite contact.

Gold Range (*Camp Douglas, Silver Star*). The vein system at the eastern end of the Excelsior Mountains consists primarily of veins following and branching from two major faults bounding a horst in the central part of the district (cross section *C-C'*). The Silver Dyke vein and its branches, which follow the southern fault, yielded silver and a little gold in its upper part and scheelite at depth. The veins along the northern fault, and particularly the branching veins which feather out from it into the hanging wall, have produced only gold, though a little scheelite has been reported at depth.

The veins, though principally within the Excelsior and Dunlap formations, also cut Tertiary rhyolite and the overlying andesite. The Esmeralda formation is not present in this area, so definite dating is not possible; but the sequence of lavas suggests that the veins may be of Pliocene age.

The Silver Dyke group of veins (Kerr, 1936; Vanderburg, 1937; Lemmon, in preparation) consists of fine-grained quartz, which is mostly massive at depth but comby or banded near the surface and in part pseudomorphic after tabular calcite. The veins, first worked for silver, contained near the surface a very finely divided telluride mineral in porcelainlike banded quartz, with a little free gold. At shallow depth this ore gave place to ore containing scheelite, which was mined to a depth of more than 500 feet. The exact production is unknown but is estimated to have been about 50,000 units of WO_3 (Lemmon, in preparation). The value of output during different periods of operation since 1915 is close to $1,500,000 (Couch and Carpenter, 1943, p. 107).

The veins of the northern system near Camp Douglas (Ferguson and Muller, 1949, p. 14; Hill, 1915, pp. 177-179) are similar in character but the comby quartz contains some adularia. The value of the production, chiefly gold, has probably been about $2,000,000. The most persistent vein, which follows the major fault, has been less productive than the smaller veins, which branch out into the hanging wall. Free gold and pyrite are the principal metallic constituents; a little scheelite has been reported from the deeper levels of one mine. At the eastern end of the district there is widespread alteration of the andesite to a dense clay, which swells in water like bentonite, but was determined by C. S. Ross to be a very finely divided sericite. Scattered through this clay are irregular reefs of very fine grained quartz. The quartz is barren, but at one mine the sericite adjoining the quartz carried a little free gold, associated with stibnite and marcasite. A short distance to the east this clay has been mined as "bentonite" for drilling mud (see below). Still farther east, near Sodaville, sinter deposited from hot springs carries manganese oxide and tungsten (Lemmon, in preparation).

Marietta. Quartz veins cutting the Excelsior and Dunlap formations in the vicinity of Marietta (Hill, 1915, pp. 179-181; Vanderburg, 1937, pp. 40-43) [illegible] tion, estimated to exceed $2,000,000 (Lincoln, 1923, pp. 154-155), was largely made prior to 1884 from oxidized ore consisting of cerussite, smithsonite, and copper carbonates with a high content of silver. Available figures from tax returns, however, suggest a smaller output (Couch and Carpenter, 1943, p. 103). Molybdenum-bearing scheelite in tactite close to the granodiorite contact was recently prospected as potential tungsten ore in the hills west of Teels Marsh (Lemmon, in preparation).

Candelaria. The production of the Candelaria mines, estimated to have been between $14,000,000 (Couch and Carpenter, 1943, p. 101) and $21,000,000 (Knopf, 1923), principally prior to 1884, was derived from oxidized manganiferous ores that were very rich in silver. The veins, which are several hundred feet long by a few feet wide, are principally within argillites of the Palmetto formation, here intruded by numerous felsitic or aplitic sills and dikes. The ore mined consisted of a pulverulent mixture of manganese and iron oxides with varying amounts of bindheimite, very rich in silver. Oxidation extended more than 1300 feet below the outcrop, but the silver content diminished with depth. The primary ore, consisting of jamesonite and pyrite with some chalcopyrite and galena, in a gangue of manganiferous ferrodolomite, has not proved workable.

Scheelite showings in tactite formed from calcareous beds in the Cambrian rocks have been prospected at the eastern end of Miller Mountain (Lemmon, in preparation).

NONMETALLIC DEPOSITS

Barite. There has been some production of barite from small veins cutting the Excelsior formation in the northwestern Garfield Hills near Kinkaid Siding, a short distance north of the map area. The principal output was made during World War I.

Clay. Finely divided sericite forming a clay with the swelling property of bentonite has been mined for use as well-drilling mud from the eastern end of the Excelsior Mountains about 2 miles southwest of Sodaville. Output between 1928 and 1936 amounted to about 15,000 tons (Vanderburg, 1937, p. 77). The deposit is the result of hydrothermal alteration of the enclosing andesite, probably along one or more faults. A smaller deposit, probably of the same type and origin, on the west flank of Pilot Mountains about 3 miles northwest of Mina, has been prospected (Vanderburg, 1937, p. 55).

Diatomite. A deposit of diatomaceous earth in the Esmeralda formation at the southern border of the quadrangle, 4 miles east of Basalt, is said to be 3 miles long, half a mile wide, and at least 135 feet thick (Vanderburg, 1937, p. 16). Production has been hindered by high transportation costs. In 1928 and 1929 about 5000 tons was shipped.

Salines. The enclosed basins of Teels Marsh, Rhodes Marsh, and Columbus Salt Marsh formerly yielded a considerable production of saline minerals (Vanderburg, 1937, pp. 64-66, 77-78). Salt, periodically scraped from the surface of the playas, was produced as early as 1864, and during the next few years the chlorination plants of the silver mines as far distant as Comstock were supplied with salt from these basins. Shipment of salt to Comstock was one of the few instances of commercial use of camels in this country.

Borax production began in 1872, but it was abandoned about 1892 after the discovery of the richer colemanite deposits in the Death Valley region. In Rhodes Marsh the borax occurred as nodules of ulexite ("cottonballs") a few inches below the surface; in Teels Marsh natural borax was mixed with other salts as a thin crust on the surface and thin layers at shallow depth. sodium sulfate occurs as the mineral thenardite, in lenses 3 to 5 feet thick that are 2 to 6 feet below the surface. At greater depths disseminated soluble sulfate (mirabilite, Glauber salt) is present; attempts to recover it by solution and evaporation were unsuccessful.

The Columbus Marsh playa has been unsuccessfully prospected for potash salts (Gale, 1914; Hicks, 1916).

Value of output for Teels Marsh, 1874 to 1893, as shown by tax returns was $929,743; for Rhodes Marsh, 1884 to 1888, presumably borax and salt, $87,197; 1932 to 1934, presumably sodium sulfate, $112,985 (Couch and Carpenter 1943, pp. 102-103). The output of Columbus Marsh is unknown but may have been larger.

Turquoise and variscite. Turquoise and variscite have been mined intermittently in the hills northwest of the abandoned town of Columbus. The total production is unknown, but one group of claims is reported to have yielded more than 1000 pounds of rough turquoise between 1916 and 1936 (Vanderburg, 1937, p. 27). As far as observed these minerals are confined to the Palmetto formation and occur in small veins, rarely more than half an inch wide and a few feet long, which follow the jointing of the slate and chert.

REFERENCES

Axelrod, D. I., 1940, The Pliocene Esmeralda formation of west-central Nevada: Washington Acad. Sci. Jour., vol. 30, pp. 163-174.

Bailey, E. H., and Phoenix, D. A., 1944, Quicksilver deposits in Nevada: Univ. Nevada Bull., vol. 38, no. 5.

Ball, S. H., 1907, A geologic reconnaissance of southwestern Nevada and eastern California: U. S. Geol. Survey Bull. 308.

Bateman, P. C., and Erickson, M. P., 1943, Tungsten deposits in the Pilot Mountains, Nevada: U. S. Geol. Survey open file report.

Barksdale, J. D., 1949, Volcanic rocks in the Candelaria district, west-central Nevada: Geol. Soc. American Bull. (Abs.), vol. 60, p. 1936.

Berry, E. W., 1927, The flora of the Esmeralda formation in western Nevada: U. S. Nat. Mus. Proc., vol. 72, pp. 1-15.

Callaghan, Eugene, and Gianella, V. P., 1935, The earthquake of January 20, 1934, at Excelsior Mountains, Nevada: Seism. of Soc. America Bull., vol. 25, pp. 161-168.

Couch, B. F., and Carpenter, J. A., 1943, Nevada's metal and mineral production: Univ. Nevada Bull., vol. 37, no. 4.

Deevey, E. S., Jr., 1949, Biogeography of the Pleistocene, Geol. Soc. America Bull., vol. 60, pp. 1315-1416.

Eardley, A. J., 1947, Paleozoic Cordilleran geosyncline and related orogeny, Jour. Geology, vol. 55, pp. 309-342.

Ferguson, H. G., 1924, Geology and ore deposits of the Manhattan district, Nevada: U. S. Geol. Survey Bull. 723.

Ferguson, H. G., and Muller, S. W., 1949, Structural geology of the Hawthorne and Tonopah quadrangles, Nevada: U. S. Geol. Survey Prof. Paper 216.

Ferguson, H. G., Muller, S. W., and Cathcart, S. H., 1953 , Geologic map of the Coaldale quadrangle, Nevada: U. S. Geol. Survey Geologic Quadrangle Map.

Ferguson, H. G., Roberts, Ralph J., and Muller, S. W., 1952 , Geologic map of the Golconda quadrangle, Nevada: U. S. Geol. Survey Geologic

Columbus Marsh, N Geol. Survey Bull. 540.

Gianella, V. P., and C 1934, The earthquake 20, 1932, at Cedar Mou da, and its bearing on basin range structure: J vol. 42, pp. 1-22.

Gilbert, C. M., 1941, I geology southeast of California: Geol. Soc. A vol. 52, pp. 781-816.

Hicks, W. B., 1916, The c the muds of Columbus Geol. Survey Prof. P 1-11.

Hill, J. M., 1915, Some mi in northeastern Californ western Nevada: U. S. Bull. 594.

Hubbs, C. L., and Miller, The Great Basin—II, T evidence: Univ. Utah I no. 20, pp. 18-166; also: Oceanography Contrib

Kay, Marshall, 1947, Geo menclature and the Assoc. Petroleum Geol vol. 31, pp. 1289-1293.

Kerr, P. F., 1936, Tungs ization at Silver Dyk Univ. Nevada Bull., vo

Kirk, Edwin, 1918, Stratig Inyo Range: U. S. G Prof. Paper 110, pp. 19-

Knopf, Adolph, 1918, Geo deposits of the Yering Nevada: U. S. Geol. S Paper 114.

Knopf, Adolph, 1923, The silver district, Nevada: Survey Bull. 735, pp. 1

Knowlton, F. H., 1900, Fo the Esmeralda formation Survey 21st Ann. Rept 209-220.

Lemmon, D. M. (in prepara sten deposits of the Ur U. S. Geol. Survey Prof

Lincoln, F. C., 1923, Min and mineral resources Nevada Newsletter Pub

Merriam, C. W., 1949, Pal of Antelope Valley, Eur Nevada: Geol. Soc. Ar (Abs.), vol. 60, p. 1942.

Merriam, C. W., and And 1942, Reconnaissance su Roberts Mountains, Ne Soc. America Bull., vol. 1723.

Muller, S. W., and Fergu 1939, Mesozoic stratigra Hawthorne and Tono rangles, Nevada: Geol. S Bull., vol. 50, pp. 1573-

Nolan, T. B., 1928, A lat positive area in Nevada Sci., 5th ser., vol. 16, p

Nolan, T. B., 1943, The Range province inUtah, N California: U. S. Geol. S Paper 197, pp. 141-196.

Phoenix, D. A., and Catl 1952, Quicksilver de the Pilot Mountains County, Nevada: U. S. G Bull. 973.

Roberts, Ralph J., 1951, the Antler Peak quadrang U. S. Geol. Survey Geol rangle Map series.

Stirton, R. A., 1932, Correl Fish Lake Valley and Ce tain beds: Science, new s pp. 60-61.

Turner, H. W., 1900, The formation, a fresh water l U. S. Geol. Survey 21st pt. 2, pp. 191-208.

Turner, H. W., 1902, A sk historical geology of Esm unty, Nevada: Am. Geolo pp. 261-272.

Turner, H. W., 1909, Co to the geology of the S quadrangle, Nevada: Geo Bull., vol. 20, pp. 223-26

Vanderburg, W. O., 1937,

GEOLOGY
OF THE
MINA QUADRANGLE, NEVADA

By H. G. Ferguson, S. W. Muller, and S. H. Cathcart

oyabe Ranges,
ast (Ferguson
-52) and near
0 miles to the
s, and Muller,
apparently a
ly in this local-
f the Coaldale
re corals, in-
and *Campo-*
opod *Cleiothy-*

on was for the
e the deposition
r Triassic Can-
ere is, however,
discordance, and
nce for orogeny
as found farther
erts, and Muller,
kness of bitumi-
above the
ls from the
ey included
Meekoceras
9, pp. 1583-

IC(?)
ATION

at the base of the Dunlap formation, and the deposition of the formation itself, records the initial phases of the Jurassic orogeny. The lowest unit of the formation, basal conglomerate and cross-bedded sandstone with a few lenses of marine limestone, though locally conformable on the Sunrise, over most of the area is unconformable on the Luning and Excelsior formations, indicating deposition during the first stages of folding. Increased intensity of folding produced the coarse conglomerates of the upper part of the formation, whose pebbles were largely derived from the rising folds of the Luning formation. These conglomerates appear to have been deposited in local structural troughs, largely near the southern margin of the Luning formation. Deposition of the Dunlap formation continued during the earlier stages of thrusting. "Thrust conglomerates," composed of gravels derived from the upper plates of surface thrusts and overridden by the same thrusts, occupy parts of the planes of the thrusts in the Pilot Mountains and Gabbs Valley Range. Andesitic lavas and breccia, varying in amount in different ranges accompanied the later stages of Dun-

Esmeralda formation yielded no determinable fossils in this quadrangle. At the type locality in Big Smoky Valley, a few miles southeast, sediments originally considered upper Miocene (Knowlton, 1900; Turner, 1900) have more recently been referred to the lower Pliocene (Stirton, 1932; Axelrod, 1940); similar deposits in Coal Valley, a few miles to the northwest, have been determined as upper Miocene (Berry, 1927; Axelrod, 1940).

In this quadrangle the formation appears to have been deposited in closed basins, roughly coextensive with the present valleys. The disruption of integrated drainage suggested by its distribution may mark the first establishment of a topography resulting from normal faulting. Miocene and lower Pliocene sedimentary formations are widespread throughout the Basin and Range province (Nolan, 1943, pp. 165-168).

Sequence of lavas. At the southern border of the quadrangle rhyolite overlies the Esmeralda conformably and is therefore probably equivalent to the Oddie rhyolite of the adjoining Coaldale quadrangle (Ferguson, Muller, and Cathcart, in press). Elsewhere rhyolite flows and tuffs rest on deeply eroded

rangle the highest peaks do not exceed 9000 feet in altitude, but in this general area a few peaks reach altitudes of 10,000 and 11,000 feet. The total relief was greater, as valleys occupied by through drainage are now the sites of desert basins. Biogeographical evidence suggests that the valleys of the early Pleistocene river system draining the Lahontan region were not far above sea level (Hubbs and Miller, 1948, p. 26; Deevey, 1949, pp. 1397-1398). Uplift of this surface was followed by revived erosion and also by renewed movement along the earlier faults. A widespread surface near 6500 feet, apparently an uplifted pediment now being dissected, suggests a period of relative quiet. Pediments approximately accordant with present local base levels are well developed only in the Candelaria region.

Integrated drainage may have persisted well into Pleistocene time, and the present undrained basins may be due in part to renewed movement along old fault lines such as those indicated by the faulted gravel east of Marietta, the gravel scarp at the northern end of the Pilot Mountains, and the faulted basalt and gravel west of Teels Marsh. Other contributing causes of undrained basins were disruption of drainage by basalt flows, possibly responsible for

and pyri
only at t
World W
Pilot
ductive
tains, v
in the c
and Ph
nix ar
sten or
Erickso
tion),
the Be
part of
pocket
little v
oxide
celsior
conta
Gol
Star)
end
sists
bran
boun
of th
Silve
whic
silve
and
the r
bran
it int
only

History of Local Railroad Recalled

By Paul K. Gardner

April 14, 1881 was a big day in Hawthorne. On April 7, the Carson & Colorado Railroad had reach the site. On Apri 14, 800 people took advantage of a free ride from Mound House, near Carson City, to the proposed new town of Hawthorne. Among them was Governor Kinkead.

Locomotive Candelaria No. 1 pulled the train. It consisted of an express car, four coaches and 12 flat cars.

Upon arrival in the townsite of Hawthorne, it was found that there were no buildings. Habitations consisted of tents housing a butcher shop, lodging house and general store and saloons with names such Silver Palace, Bank Exchange and Big Bonanza. A professional gambler had a red and black game going.

Auctioneering of 35 lots started. During a three-hour program, sales were from $100 to $195. Newsmen said they were ready to start four different newspapers. None did.

Paiutes made money by selling fish caught in Walker Lake. There was little water, and it was warm after being transported four miles from its source.

Actual work on the C & C started at Mound House, 10 miles east of Carson City, on May 31, 1880. It followed the Carson River to Fort Churchill and then went south to Mason Valley farming district.

The town of Pizen Switch wanted it to pass through it badly and changed its name to Yerington, hoping to win favor of the road president and general superintendent, H. M. Yerington. But it never went from Wabuska to that community.

Instead, it continued following the Carson River. It twice crossed the river in working 38 miles to Schurz. Then it skirted the eastern shore of Walker Lake and continued to Hawthorne, four miles below the extremity of the lake. The station of Thorne was established at the southeastern edge of the lake.

Regular trains brought in a dozen people each trip. Most of them were enroute to the burgeoning camps of Bodie and Candelaria. The town was growing. The main line ran along F Street to the depot and then to the freight station, located at Fifth Street where the Elks' Lodge is now, then turned east on Sixth Street to continue toward Candelaria. An extension of the F Street line southward, plus the addition of two switches and a curved section of track to connect the extension with the line east on Sixth Street, furnished the C & C with a wye facility for turning locomotives at the end of their runs.

C & C was planned to tap numerous mining camps that were showing prosperity. In the Hawthorne area were Bodie and Candelaria. The line was extended through Mina and Belleville and on to Candelaria. The Bodie branch was surveyed but not built. The teaming industry was important to the town and inhabitants wanted to encourage the industry.

Hawthorne's line was extended southward to Cottonwood in 1890 for a wood supply. Hawthorne lost both its connection with the main line and Cottonwood in 1905 when the line was standard gauged. By 1883, the line was extended over Montgomery Pass to Keeler on the east side of Owens Lake where it ended. Plans to extend it on to the Colorado River were canceled by Darious O. Mills following an inspection trip.

Had the railroad gone to the west side of Owens Lake, instead of following a sandy desert to mining areas, the story might have been different. But Mr. Mills declared, "The railroad has either been built 300 miles too long or 300 years to soon." It was actually 293 miles from Mound-House to Keeler. A dozen or more profitable mines were operating and adding to the revenues of the railroad.

One of the big shipments on the road was marble from a quarry near Keeler. Two hundred carloads were shipped to build the Mills Building in San Francisco.

Traffic dwindled during the 1890s and in March, 1900, the Southern Pacific bought the property. In 1905 the C & C became the Nevada and California Railroad. Mound House lost much of its importance when the SP constructed a branch from Hazen to Churchill that is still used to service Wabuska.

In 1905, Mina became an important railroad point with a large switchyard. The track had been standard gauged. Traffic from Keeler's narrow gauge line was transferred there. The T&G from Tonopah and Goldfield was connected up. But the principal cause of Mina developing was water. The logical point was Sodaville, which had enjoyed railroading. But a Robert Stewart had filed on water rights and demanded $100,000 for them. So the town of Mina was born where water was available.

In September, 1907 the SP employed 225 people in Mina. That year, the peak of the Tonopah-Goldfield mining boom was reached. The SP built a $5000 schoolhouse in Mina. Before the mills were built in Tonopah, five and six ore trains were run each day. They went to the Selby smelter near San Francisco or the Utah smelter near the Great Salt Lake.

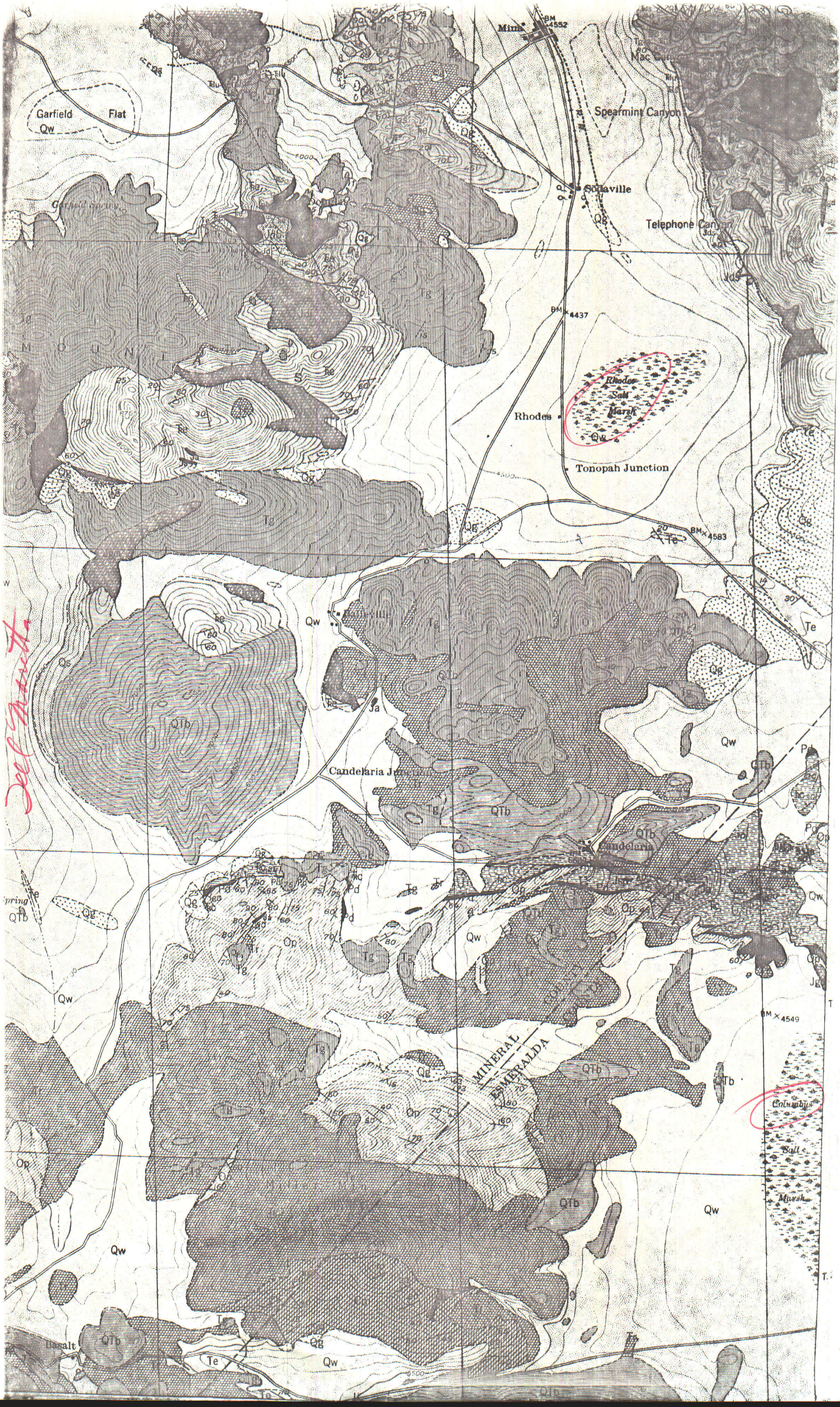
When Hawthorne became the terminus of the C & C, its prestige enabled it to wrest the Esmeralda County seat away from Aurora. In 1905 Hawthorne lost its county seat to Goldfield but again became a county seat in 1911 when Mineral County was formed. Twenty years later, it got back its railroad (part way) when in 1930 the government constructed a railroad to the U. S. Navy Ammunition Depot at Hawthorne.

In 1947-48, the T & G Railroad was abandoned. Mining in the Mina-Luning area, including Gabbs, and at Weed Heights, plus the heavy shipments from the Hawthorne Naval Depot have preserved the railroad into Mineral county

MARKING HEART'S 20th BIRTHDAY

DR. PAUL DUDLEY WHITE, famed cardiologist, cuts cake in celebration of American Heart Association's twentieth anniversary and to mark the Heart Fund Campaign being conducted nationally throughout February.

MINERAL COUNTY INDEPENDENT-NEWS
PUBLISHED EVERY WEDNESDAY
At Hawthorne, Nevada 89415
501 D Street P.O. Box 1277
TELEPHONE WI 5-2414
Entered as second-class mail matter at the Post Office, Hawthorne, Nevada under the act of March 8, 1879.
Subscription Rates (In Advance)
One Year $5.00 Six Months $2.75
J. R. McCloskey, Owner and Publisher


Garfield Flat
Qw
Mina
BM 4552
Spearmint Canyon
Mac Canyon
Sodaville
Telephone Canyon
BM 4437
Rhodes Salt Marsh
Rhodes
Tonopah Junction
BM 4583
M O U N T A I N S
Teel Marsh
Candelaria Junction
Candelaria
Spring
MINERAL
ESMERALDA
BM 4549
Columbus Salt Marsh
Basalt
Qw
Qg
QTb
Te
Tg
Op
Pd
Jg
Jds
Ja

50.
20 ACRE PLACER
LITIGENTS DELIGHT C
OLD TOWN of CANDELARIA
B. Brookside #1 Placer 160 ACRES C
Tailings
3-400,000 tons of tailings in both placer claims
CANDELARIA ROAD
R.R. TIE
GREY DAWN C
See BURGESS
Rock Bank Bldg
CESAR PLACER 160 ACRES
Tailings
Cemetery Post
2640 sq.
Emperador #2 C
Emperador #1 C = Consolidated
"Cemetery Post"
Newmont Tunnel
Loka
Big Bell
Candelaria No. 1
Candelaria No. 2
Hopeful
Columbus
Grand
Western Belle
Morning Star
Royal
Peter No. 2
Peter No. 1
Good Faith (Pat)
Blanch
Fairview
Fairview Fraction
Spruce
Hecla (Pat)
N.B. Shaft
NB All Shaded Claims "Argentum Mining"
Belle East Extention
Belle East Extention #1
Belle East Extention Fraction
C Precioso #4
C Precioso #3
C Precioso #2
C Precioso
C Precioso East Ext. Fraction #1
1000'
1500' face
2000' face
could "Apex" Northern Bell Vn. System
N
Cesar
Leconia
Coraldine
Edna
Consuelo
Alma
CHIEF of the Hills
Dan
Northern Belle
FAULT
Rescue Noble Ext.
Noble
PETRAL
PRINCESA C
PRINCESS Mine
PRINCESA #1 C
Commodore
Commodore No. 2
Wedge
C
ALPHA FAULT
Falta
Lucky Jim
ATLANTIC
ORIGINAL
Lucky Hill
Atlanta
Simon
C½
MT DIABLO VEIN
Mt Diablo
Small Hopes
Tom Paine
Black Prince
C½ H
Mt. Diablo
Paris
C½ Tipton
Diego Fraction
Suerte Fraction
C
½ interest Consolidated
Mono Tiempo
Black Hawk
Tramp C½
Lightning C½
Silver Queen C½
High Grade No. 2
High Grade
High Grade No. 1
Badger
Badger Boy
24.
ARGENTUM MINING Co. of Nev. (Patented)
C ARGENTUM Consol. Mines Inc. (un-patented) except Atlantic + Original and Lee & Secretary
C½ Mt. Diablo Group of Patented Claims Held ⅙th by ARGENTUM Consol.
All Claims Approx. 1500' x 600'
121
0930 0011