# ARIZONA SILVER BELT.

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## COPPER MINES OF TROY CAMP

### Progress of Work by the Troy and Manhattan Copper Companies.

### THE PROPERTIES DESCRIBED

Development and Equipment of the Mines of Both Groups. They Have Passed the Doubtful Stage and Are Ready to Enter the List of Producers.

The Troy group of copper claims, comprising thirty-two full claims and fractions of claims, and covering an area of, approximately, 575 acres, are situated in the Mescal range of mountains, about seven miles northeast of of Riverside, on the Gila river. The nearest railroad station and town of any importance is Globe, which lies almost directly north and about twenty-eight miles distant from Troy, over a somewhat devious mountain road. Almost all the supplies for the mines are now freighted by wagon from Casa Grande, a station on the Southern Pacific railroad, about sixty-five miles southwest of Troy.

The Troy claims were located and developed into the prospect stage by miners who were mostly from Globe. In the summer of 1899 Charles H. Cutting secured an option on a number of the claims now included in the Troy group, and he succeeded in enlisting Boston capital to develop them. Work was begun in August, 1899, and continued until the following December, when financial reverses overtook the party who was furnishing the money for development, causing the suspension of work and relinquishment of the bond on the property.

The work that had been done on two or three of the claims opened some good ore, strengthening the belief that the property possessed real merit, and Mr. Cutting, with characteristic confidence and energy, very soon succeeded in placing the property with other Boston people—this time in financially strong hands—and in March, 1900, a working bond was secured on the Troy group, which had been enlarged by the addition of several claims not included in the first deal. The Troy Copper company was organized, and work on the property was resumed in August, 1900, with a few miners under the direction of Thomas Kavanaugh. In October following the force was considerably increased and operations have since been enlarged from time to time, as the progress of the work and conditions warranted. While prospecting has been done on most of the claims of the Troy group, extensive development has been confined to a few of the more promising ones, principally the Last Chance, The '91, Alice, Climax No. 3 and Ipswich.

#### THE LAST CHANCE MINE.

The claim which has been most extensively opened is the Last Chance, the development on which aggregates about 1,700 linear feet in four tunnels, and 250 feet of winzes. The length of the several tunnels is as follows: First level, 150 feet; second (or intermediate) level, 750 feet; third and fourth levels, each 400 feet.

The fourth, or lowest level attains a depth on the lode of 350 feet, and is in sulphide ore carrying 10 per cent copper. The ledge at this level is about twelve feet wide, and an ore shoot sixty feet long has been opened; the tunnel, after passing through this shoot, continues in ore, although the vein is contracted.

The upper and intermediate levels are in carbonate ores of an average value in copper of about 12 per cent. Some fifty tons of ore from the intermediate and third levels, shipped to the El Paso smelter, returned 13 per cent in copper value.

#### THE '91 MINE.

The Davis shaft, the main working shaft of the Troy, is located on the '91 claim; it has been sunk to the depth of 400 feet, with stations and levels at 150, 200, 300 and 350 feet from the surface at the collar of the shaft. Outside connection with the shaft is made at the first level.

The east drift on the first level has been driven 65 feet in 10 per cent. ore and the lode where penetrated by this drift is eight feet in thickness. The west drift on this level is 120 feet long and in ore of a grade similar to that in the east drift, although the lode is somewhat narrower, varying from four to six feet.

On the second and third levels the ore is of considerably lower grade but the reduced value is compensated by the greater width of the lode. On the third level the lode is 95 feet from the shaft, and is 16 feet thick where intersected by the crosscut tunnel. From the point of intersection a drift has been run 180 feet to the east in low-grade sulphide.

A Fairbanks-Morse gasoline hoist of 22-horse power did excellent service in sinking the last 100 feet and in opening the lower levels. This hoist has been transferred to the Sisson shaft, on the Manhattan property, and will be replaced on the Davis shaft by an electric shaft.

#### THE ALICE MINE.

The development of ore in the Alice since the middle of last June has brought this claim prominently to the front as an important factor for the success of the Troy property.

The trend of the Alice lode is marked on the surface by a strong iron outcrop between lime and birdseye porphyry, which form the hanging-wall and foot-wall, respectively. The shaft was started on the iron capping and followed the pitch of the vein at an angle of about forty-five degrees. No ore of consequence was encountered in sinking until a depth of 70 feet was reached, when copper oxide came in strong and rich and continued in the shaft down to 145 feet. At this point the ore pitched into the foot-wall, and it being impracticable to follow it, the shaft was continued without deviation from its straight course, and is now down 165 feet. At this depth a station is being cut, from which an intermediate level will be run with a view of crosscutting the ore which left the shaft twenty feet above.

The station at the 100-foot level is in ore fourteen feet wide and the drift running west from the shaft 65 feet shows ore almost continuously, and of an average value in copper of 14 per cent.

The dimensions of the shaft below the first level are for two compartments; from that point to the surface the shaft is somewhat smaller and irregular in contour, but is to be enlarged to correspond with the section below.

The Alice shaft has just been equipped with a substantial steam hoist, 40-horse power boiler and air compressor to furnish power for machine drills. This machinery is installed on a solid rock bench, cut in the side of the mountain above the shaft opening; the drum of the hoist will be on a level with the shieve wheel at the top of the gallows frame, now being erected.

Leyner air drills will be used for rapid development in crosscutting to the north lode, a distance of about 100 feet from the shaft.

Water to supply the Alice plant will be pumped from the Hackberry spring on the Dime claim, about 700 feet west; this spring has a flow of from 12 000 to 15,000 gallons every twenty-four hours.

One hundred tons of good smelting ore are piled on the dump at the old surface stope, 150 feet east of the shaft.

Preparations are being made to sink another shaft on the Alice lode, at a point 500 feet east of the present shaft, where the outcrop is about twelve feet wide and carries a small percentage of copper.

All the ore thus far encountered on the Alice carries a good percentage of iron and lime—iron predominating—and is self-fluxing.

#### CLIMAX, NO. 2.

On this claim, which is the eastern extension of the Alice, there has been developed by shallow openings a large body of ore carrying about 60 per cent hemitite iron—very desirable for flux. It is not improbable that the iron overlays the copper, as in the Alice ground, but the determination of this is left to some future time.

#### CLIMAY, NO. 3.

Here ir one of the most important occurrences of sulphide ore yet discovered on the Troy property. Here, too, the physical conditions are favorable to tunnel mining, erosion of the steep mountainside having exposed the vein to a considerable depth.

Three tunnels have been driven into the mountain along the lead, which is about ten feet wide. The two lower tunnels are important, having opened ore their entire length. The second, or middle tunnel penetrates the lode 200 feet and exposes a three-foot vein of rich sulphate of lime carrying 10 per cent copper. The action of moisture and exposure to the air produces a leaching process which deposits the copper from this rich ore on the walls and roof of the tunnel in a gossamer filament of a bright and beautiful green color, which crumbles at the slightest touch.

The third level tunnel is in about 500 feet and shows the same vein of rich ore three feet thick, assaying 10 per cent in copper, with ore of lower grade on either side. On this level, 400 feet from the face of the tunnel, a shoot of azurite, glance and carbonate ores, averaging 20 per cent, is exposed for a length of twenty-four feet and six feet in width, and has every appearance of making a big ore body.

#### IPSWCIH.

There is an 100-foot shaft (well timbered) on this claim, with crosscuts from the bottom, south 107 feet, and north 95 feet. The shaft passes through low grade sulphide, and the crosscuts through the same material—a desirable concentrating ore.

## THE MANHATTAN GROUP.

### Description of the Principal Mines—Their Development and Equipment.

The Helen group of ten claims, adjoining the Troy property on the east, and being on the same mineral belt, were bonded in January, 1901, by some of the principal owners in the Troy company. In April following the Manhattan Copper company, capitalized for $1,500,000, was organized in New York City, to develop the Helen group, to which two more claims were added.

During the spring months of 1901 sufficient prospect work was done to indicate the value of several of the claims, and in June systematic development work was begun on the Rattler and Copper Queen claims, under the supervision of Chas. H. Cutting, who had been appointed superintendent, and the personal direction of Thos. Kavanaugh, foreman.

The company acquired title to the property the first week in July, when the final payments aggregating $57,000, were made.

#### THE RATTLER MINE.

The progress of development on the Rattler, in the eight months since the work was started, has been rapid and the result very satisfactory. The mine is opened by the Sisson incline shaft to the depth of 309 feet and by levels of considerable extent at 100 and 200 feet from the surface. At the first level a tunnel from the east driven on the lead 180 feet, connects with the shaft. A drift has been run west from the shaft 160 feet, showing bunches of lime carbonate ore in iron the entire distance, varying from 4 to 14 per cent. A crosscut from the first level station toward the south, run for the purpose of cutting the south lode, is in forty feet and is nearing the lead. A Leyner air drill is being used for this work and is making an average of seven and a half linear feet for each eight-hour shift.

From the second level station drifts, each about 80 feet, run east and west on the lode, and show 10 per cent oxidized ore their entire length. The lead on this level is equally as strong as it is on the upper level and shows much more ore of better grade, and will turn out a good smelting product. A Leyner drill is used in the development of this level, also. A crosscut, now 65 feet long, is being run toward the south lode.

At the depth of 300 feet in the shaft a station is being cut in solid sulphide ore averaging 12 per cent copper. As soon as development will permit, a machine drill will be used on the third level, and sinking will be resumed immediately after the station has been cut.

#### EQUIPMENT OF THE SISSON SHAFT.

The Sisson shaft is equipped with a Fairbanks-Morse gasoline hoist, which did excellent service on the Davis shaft of the Troy company; also a 40-horse power boiler and air compressor to run the machine drills. Water for the plant is supplied from a spring 800 feet distant, furnishing about 2,500 gallons; also, from a spring on the first level of the mine. The Sisson shaft being an incline, hoisting is done with a skip, which dumps automatically into a bin on the surface. By a series of bins cut in the floors of the mine levels, with chutes located in the shaft for the purpose of loading material into the skip, hoisting is made independent of the tramming in the mine, and this arrangement of hoisting allows of the economical handling of material.

When stoping begins the ore will be hoisted to the bin on the surface and the waste will be dumped into the bin on the first level and trammed to the mouth of the tunnel.

On the east end of the Rattler claim, distant about 600 feet from the Sisson shaft, and on the same lode, at a depth corresponding with the first level, a stope of ore has been opened from the surface, of such quantity and grade as to warrant independent development, and which will be an important factor in furnishing product for the smelter.

#### THE COPPER QUEEN MINE.

The occurrences of ore recently discovered in this mine have greatly enhanced its value in the eyes of the management.

The Queen is being opened by two tunnels, one above the other and 93 feet apart. They are connected by a raise, from which is run an intermediate drift half way between the two levels, and which has developed in the lead (at this point 40 feet wide) a shoot of ore, lying on the foot-wall contact, 20 feet in width and of an average grade of 12 per cent; also, an ore shoot on the hanging-wall two feet wide and of higher grade, the character of the ore being oxide.

Jos. B. Henry, the consulting engineer, has advised sinking on this lode, believing that such development will open a solid body of ore extending from wall to wall. The suggestion will probably be followed.

The Copper Queen is without doubt a very promising mine and with further development should prove a good producer.

## TROY AND MANHATTAN COPPER COMPANIES

### Two Financially Strong Companies, Organized for Legitimate Investment and Conducted on Strictly Business Lines.

### PREPARING FOR THE PRODUCTION OF COPPER

**Smelter to be Erected and Ready to Blow In by the First of May—Ore Product to be Supplied From the Mines of Both Companies—Names of the Officers—Consolidation of the Two Companies Contemplated. Prospect of Success is Encouraging—Visiting Stockholders Pleased.**

The Troy Copper company has its eastern home in Boston; the Manhattan Copper company, in New York but the shares of both companies are largely held in the same hands, stockholders in one company owning shares in the other company, also. The officers and most of the stockholders of the two companies are wealthy men, and much of the stock was sold at par ($10 per share), providing ample funds in the treasuries as working capital for the development and equipment of the mines.

Neither enterprise is in any respect speculative. The properties were bought and the companies organized as legitimate business propositions and the stock is held in few hands, for investment.

The two companies being so intimately related, both as to the location of their holdings and the transaction of their business, it would appear to be not only feasible, but mutually advantageous, that they be merged into one, and we are informed that such a consolidation is contemplated, to take place in the near future.

#### OFFICERS OF THE TROY COMPANY.

President—William H. Davis.
Vice President—Charles H. Barney.
Treasurer—John B. Humphrey.
Secretary—Jos. B. Martin.

The office of the Troy Copper company is in the Ames building, Boston.

#### OFFICERS OF THE MANHATTAN COMPANY.

President—John W. Sisson.
Vice President—William LaRoche.
Treasurer—Geo. E. W. Stivers.
Secretary—Vincent P. Tommins.

The office of the Manhattan Copper company is in the Postal Telegraph building, 253 Broadway, New York.

#### VISITORS TO TROY.

A party of stockholders of the Manhattan Copper company, from New York, accompanied by Chas. H. Cutting and wife, who met the visitors at Bowie, arrived on Monday night's train, and departed Tuesday morning for Troy. The party included Miles Tierney, wife and daughter, Vincent P. Tommins, secretary of the Manhattan company; Edward H. Peugnet, of the firm of Mitchell, Norris & Co., New York, and William Endler.

Mr. Tierney is president of the Hudson Trust company, and stands very high in the financial circles of New York city. He is one of the largest holders of Manhattan stock. After a stay of a few days at Troy, Mr. Tierney and party will proceed on their journey to California, where they will spend several weeks.

Chas. H. Barney and wife, of Boston; John W. Sisson and wife, Edwin D. Washburne, Dr. M. C. O'Brien, M. S. Chambers, M. D., and Edward Potts Williams, of New York, were the guests of Mr. and Mrs. Cutting for almost a week. Their visit was a pleasant one, and they expressed themselves as being well satisfied with the development of the mines, delighted with the fine situation of Troy and with its superb climate. When they return east their friends will hear a great deal in praise of Arizona.

## THE MANAGEMENT AT TROY.

### Manager Chas. H. Cutting and the Efficient Force of Employes.

The mines at Troy are under one management, Mr. Chas. H. Cutting being the manager of the Troy, and the superintendent of the Manhattan, and to him largely belongs the credit of initiating these two important enterprises and bringing them to their present satisfactory position. Mr. Cutting's knowledge of the business management of mines was acquired at Globe, where he held a position of reponsibility, first with the Old Dominion Copper Mining and Smelting company and later with the United Globe Mines. Energy, executive ability, conservative judgment and high integrity fit him for the place he now holds.

Thomas Kavanaugh, mine foreman for both the Troy and Manhattan companies, is well equipped for the position, and his advice in planning, and services in executing, many of the measures for the development of the two properties, have been invaluable to Manager Cutting. The officers of the Troy and Manhattan companies repose confidence in Mr. Kavanaugh, and he is also popular with the employes.

The shift foremen on the Manhattan are Peter Malloy and Chas. F. Lucas, and on the Troy, E. W. Leighton and Jos. Bartson—all oldtimers in this section, and good miners.

Fred Douglass is the master mechanic for both companies. He is well spoken of by the management.

Of the office force, John B. Lunn is chief clerk, and R. S. Maclay, receiving clerk, and those who knew them here will agree that the positions are well filled.

The chemist and surveyor for the companies at Troy is Edward P. Fleming, a graduate of the Boston Institute of Technology. He has had some nice problems in surveying to solve since he went to Troy, and it is sufficient to say that his work has been very satisfactory to the management.

The company physician is Dr. Wm. Lawrence Woodruff, formerly of Phoenix, a pleasant gentleman, who stands well in the profession.

The Troy company has a small store at Troy for the accommodation of employes and others, and in which the postoffice is located. Here we found John Kavanaugh installed as storekeeper and deputy postmaster.

At the Sisson shaft, when we were there, I. W. Frye was running the hoist. "Jud" Frye, as he is familiarly called, is a first-class mechanic, and thoroughly understands gasoline engines, as is shown by an invention of his own applied to the hoist. The supply of gasoline in the cylinder and the speed of the hoist was regulated by a foot lever. "Jud" changed this so that the lever is worked by hand, and the result is the better control of the speed and a large saving of gasoline.

Among the miners at Troy we met with several acquaintances and many familiar faces. They are as good a lot of miners as are to be found in any camp in Arizona, and their relations with the companies are harmonious. During the past month, while machinery was being installed, the force was somewhat reduced, but is now being raised to the regular quota of one hundred men, and when smelting begins will be further increased.

The eight hour system obtains at Troy, and the result is satisfactory to the management as well as to the employes. It has been found that miners working eight hours do as much and better work than in ten-hour shifts. Three dollars is the ruling wage.

## TROY, THE MODEL MINING CAMP.

### Pleasantly Situated in a Dimple of the Mountain---It's Fine Climate.

### A PROSPEROUS COMMUNITY.

Troy is Fast Assuming the Importance of a Town, and Shows Signs of Progress and Permanency. Improvements Already Made and Others Contemplated. Personals.

The town of Troy is pleasantly situated on a high tableland, or mesa, near the summit of the Mescal range. It is sheltered on the west by several peaks, the highest of which is locally known as Troy mountain. The mesa has a gradual slope to the northeast affording a fine view of Pinal mountain and of the Gila range far to the east.

Troy is emerging from the chrysalis stage of the crude mining camp into the more sightly aspect of a town showing many evidences of thrift and permanence. The company has erected a number of wooden buildings from the design of Manager Cutting, with low projecting roofs, the space between the roof and ceiling of the rooms being left open or ventilated by trap-doors at the eaves, securing the free circulation of air and thereby greatly moderating the temperature in the rooms during the summer months. All the houses are substantially built and the interior walls and ceilings finished in California redwood.

The general offices are in a building the dimensions of which are 40x80 feet. The assay office is 16x20 feet, and there is another company house 20x22 feet. The most pretentious building is the boarding house, 40x80 feet, with a long veranda in front. In the attic are four large and well-finished rooms for the use of the boarding-house employes. There is also a detached kitchen, 14x30 feet, the equipment of which is equal to the requirements of a first-class hotel.

The management of the boarding-house deserves special mention. The premises are leased to Mrs. L. K. Drais, late of Florence, and the company is fortunate in having secured so desirable a tenant. Mrs. Drais is an experienced caterer and generous provider, as was proven to our satisfaction. The table is supplied with a variety of well-cooked food, including articles considered delicacies in most mining camps.

One of the large buildings at Troy is the Miners' union hall, located on an elevation near the boarding-house. It was erected by the union, aided by contributions from several of the company's stockholders. The union has kindly given the use of the building for school purposes until a school-house can be erected.

The union is well conducted and has a large membership of conservative, level-headed men. The officers are: President, Jas. J. McCarthy; secretary, W. S. Crowe.

Mrs. Jos. W. Meador is the school teacher, and there are about twenty-four children enrolled. The teacher's salary is subscribed by employes of

[CONTINUED ON FOURTH PAGE.]

## A SMELTER FOR TROY.

### The Order for a Smelter Has Been Placed, and Its Delivery Promised April 1.

The purchase of a smelter has been urged for some time by the eastern officers of the Troy and Manhattan copper companies, but they deferred to the judgment of Manager Cutting, who thought best to wait until the development of the mines fully justified such a step. That time has now arrived, the ore bodies opened in four or five of the mines, and available for stoping, being sufficiently large to supply the proposed smelting plant, which will be a small one.

The smelter was ordered several weeks ago, and its delivery is promised April 1, and it is hoped to have it erected and ready to blow in by the first of May. The work of grading the smelter site and erecting the building will begin next week.

The smelter equipment will include a generator which will furnish power for an electric pump and electricity for lighting and for running a hoist at the Davis shaft.

The smelter site is located on the Idaho claim, of the Troy group, at an elevation which will allow of tramming on surface tracks from the producing mines, and from which site a line for a road has been run down Idaho canyon to the Gila river, four miles distant.