

Sierra Madre Soon to be Among the Large Producers

WORK of development in the copper, gold, silver and lead veins of Sierra Madre district during 1906 has been considerable.

The district is a large one, covering an area of 112 square miles. It comprises a large area of the richest part of the Wasatch range. Sierra Madre is without question the most important and inaccessible in the State. Its west face presents a steep cliff of over 6,000 feet from base to the summit, exhibiting a most remarkable example of block faulting. The physical conditions of the mountain are very much like to the governing Cottonwood canyon in the same range. 50 miles to the south and, save that, wherein at Alta from the base of the mountain to the summit the distance is 14 miles and the rise is about 6,000 feet, at Sierra Madre the distance from Laganville at the base of the mountain to the summit is a hundred feet more than two miles and the upraise at that distance is 4,000 feet.

Over the route from the foot of Cottonwood canyon to Alta the grade allows an excellent wagon road, a distance of about 1,200 feet, and a railroad. While over the route from Laganville at the base of Sierra Madre mountain to the Eldorado mine near the summit the surface presents a succession of steep cliffs deep chasms, and the most tortuous route over which to carry pack trails to different mines that are being opened on the west side of the mountain and on its black summit.

SIMILAR TO ALTA.
Sierra Madre and the mountains at Alta are much alike, the base being a wide, open, grassy plain, capped with quartzite and the clay slates and deep bedding of the Silurian limestones. Formerly at Alta there rested a measure of Weber granite over the lime stone, but this has been eroded away. At Sierra Madre this measure yet remains to a depth of about 1,200 feet, and is in contact with the limestone exposed on the west side of the mountain. The limestone is quite prominent in its exposure from North Ogden canyon to the Eldorado mine, a distance of about 14 miles.

The metallic values of this district are found imbedded in veins and boulders, the bedded veins lying in the quartzite and between the limestone and the quartzite. The fissures which carry the veins and fault the quartzite are of the same nature. The Eldorado cross fissure extends prominently from the Eldorado peak to the base of the mountain.

A PROMINENT ORE ZONE.
There exists here a very prominent ore zone, extending east to west across the mountain for a distance of about 14 miles in width, and in this we find the main copper bearing fissures known as the Great Northern, Solomon, Emma Nevada, Napoleon, Santa Maria, Santa South, Copper, Santa Charles and Black Copper veins. Still farther to the west there lies a group known as the Southern Pacific group. Inasmuch as the written record has not visited the latter property for some time, nothing can be said here as to the conditions at the Southern Pacific group at the present, further than that, there has been considerable work done during 1906, and excellent samples of high grade copper have been obtained on the streets of Ogden during the summer of 1906, said to have been taken from this mine.

PRINCIPAL DEVELOPMENT.
During the year 1906 the main development of the district has been done at the Eldorado group of claims, also at the Napoleon and at the Santa Maria. The Napoleon spent about \$50,000 in improvements and development and has been rewarded with an extremely good showing of high grade ore and extensive bodies of siliceous ore.

Sierra Madre mountain contains two classes of metallic ore—silver-gold-copper ores and silver-gold ores. The silver, gold and copper ores existing in the gneiss and quartzite and the silver-lead ores in the quartzite and Silurian limestone. The Napoleon group of claims exist chiefly in the gneiss and partly in the quartzite and its ores are entirely copper bearing gold and silver. Its main source of values are two extensive fissures that run lengthwise through the property for almost 6,000 feet. These copper lodes or fissures run along east and west, rising at the quartzite contact and breaking through the gneiss, varying in width from 16 to 60 feet. Their physical position is such as to enable their development by means of tunnels and crosscuts and such a system of workings has been carried on during the past year with perfect satisfaction to the owners and at the present about 2,000 feet of development work has been done. The copper values of the Napoleon group run from 2 to 25 per cent copper, with gold values going from \$2 to \$10 per ton.

This property is largely owned in Idaho and Iowa, J. H. Kincaid and Dr. Dabney of Cedar Rapids, Ia., being among the chief owners, and it is from that region that most of the capital required for development was obtained. Next year will see this property fully opened to production for the local ore market.

SANTA MARIA GROUP.
Almost adjoining the Napoleon lies the Santa Maria group, now undergoing extensive development. This group lies in what is known as Santa Maria basin and presents not only an extraordinary system of copper bearing veins running parallel to each other, but their positions with relation to the contour of the mountain presents rare opportunity for developing them by a single tunnel driven from a point down the mountain so as to cut six extensive copper bearing lodes at right angles. The Santa Maria contains 17 claims on the west side of Sierra Madre mountain, extending from the mountain summit three-fourths the way down to the mountain base in the Silurian limestone that lies near the summit. This

property carries through its width 3,000 feet of the Eldorado silver-lead vein, and in the western part of the group lies Santa Maria basin, in which we find the seven copper-bearing lodes above referred to.

Considerable development and exploration work has been carried out on the Santa Maria group to ascertain its merit as a source of copper. A thousand feet of work was done on the Santa Maria vein proper. Crosscuts were made into the New York, South Copper, North Copper lodes and the general results being highly satisfactory, steps were taken to secure such approaches as would enable proper development of the entire system of veins from a common point, this, after patient waiting, having been done, it was found best to start a cross country tunnel as far down the canyon as time and economy would permit and a point in the Clara Belle claim having been what is known as the Clara Belle tunnel, was recently started and is now under way.

This work when completed will control the entire Santa Maria vein system, as it will cut the parallel veins at right angles, varying in depths from 300 to 1,500 feet. Drifting on each vein can be carried forward to right and left of the Clara Belle tunnel. This tunnel will be, when completed, 1,700 feet in length.

As the narrowness of the veins to be thus cut is 14 feet in width, the tonnage that will be come tributary to this tunnel working is simply tremendous, and there lies above its level sufficient ore for handling for the next 20 years.

OBSTACLES BEING OVERCOME.
The natural obstacle that long existed in Sierra Madre mountain because of its steep cliffs inaccessible canyons and several ways of approaches is fast becoming an obsolete condition; wide trails are being cut out along the mountain sides and already three of the three strongest companies working in this district are preparing to construct tramways from their mine workings to railway stations two and a half miles westward at Hot Springs. At present this district is the only one in Utah where development of entirely new properties is being carried forward.

As frequently occurs in the history of mining men whose life experiences has prepared them for the difficult undertaking of opening to production new districts; those who were engaged in the difficult work of development this part of Utah have been compelled to patiently go forward in face of many discouraging conditions that confront them, not the least being the indifference of local capital to the extensive deposits of mineral riches that lie unworked in this mountain of Northern Utah.

UTAH GREATER THAN EVER.
Men leave their own state where many of the very best mining fields lie yet untouched and see fit to gamble over a country and now after 40 years not one of her mining camps has become exhausted; today her output is greater than ever. The deeper man goes in the mountains of Utah the more tremendous become the ore bodies presented to work upon.

During all these bygone days in which the mere Utah mines were being opened only limited outside capital ever came to Utah. We never had a mining boom within our state, every camp has had to struggle against slow development, and the work that has been done on the part of the owner with which to do the work that nature demands in the development of a great mine. Park City, Alta, Bingham, Ephraim, Mercur, Frisco, Clinton, Mountain View, Silver Reef and Park Valley, has each had in its turn to struggle out its term of development before reaching the heyday of success and prosperity.

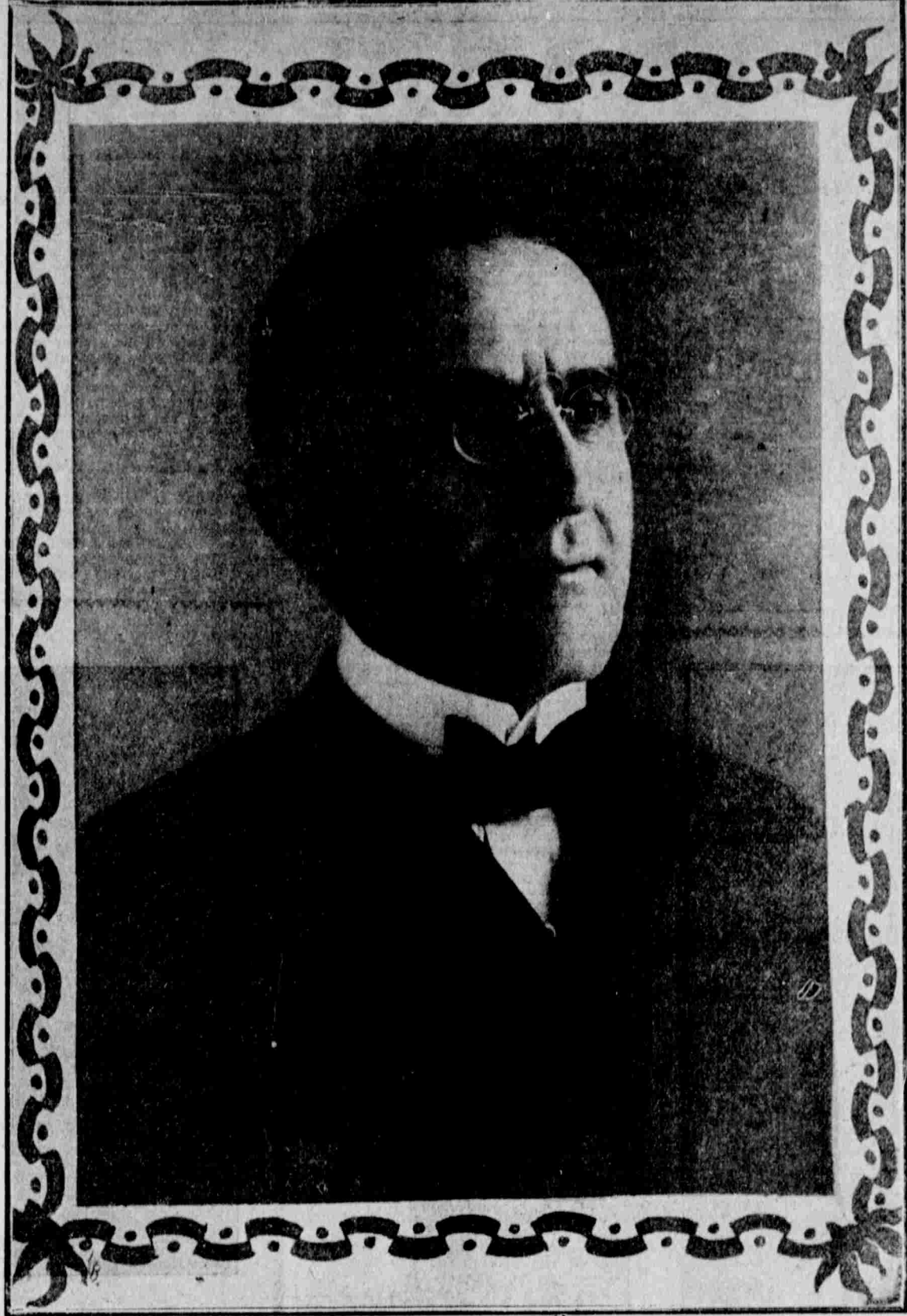
As it has been in the past so like will be in the present and future to day Deep Creek, Sierra Madre Mountain, La Salle, New Foundland and other districts are waiting to be developed. It is to make of each a producer of wealth for our own and other countries.

SMELTER AT HOT SPRINGS.
Already the Sierra Madre district a smelting plant has been erected near the Hot Springs north of Ogden which is for the treatment of copper ores. This is a most important step in the construction of one for the treatment of silver-lead ores. The locality is most favorable for the smelting industry; custom ore being easily obtained from the Napoleon group. The latter parts of Utah which added to the product of Sierra Madre district itself will, within the next two years be enabled to run an extensive smelting plant for copper and still another for silver-lead ores.

ZINC ORES TOO.
A marked feature of Sierra Madre district is, as to the existence of very high grade zinc ores resting over the silver-lead ores of the Eldorado vein, usually this example received as most valuable comes in the form of a test upon those of zinc. This zinc vein in the Eldorado and Santa Maria properties is about 12 feet in thickness some of which will go as high in spall as 50 per cent and all of it makes an excellent concentrating ore which carries not only some lead values but small values in gold and silver.

A second remarkable feature is the presence of the vein of spicular iron before mentioned in this article. This lies in a measure of chlorite slate and varies in width from 15 to 60 feet in thickness, it largely overlies all other values found in Sierra Madre district. Its outcrop along the summit of the mountain is very plain and it will in time doubtless become the source of material for iron production within our state.

ANOTHER FEATURE.
A third feature of the mountain is the presence of a large garnet vein that rises at the quartzite contact, in the Santa Maria group passes through westward to the Napoleon and continues through the Eldorado to the base of the mountain. This lode or vein is about 40 feet wide and its makeup consists of rhynolite, epidote and garnet. The garnet occurring in enormous masses the size of paper cones to that of a walnut, and easily constitutes one-half the entire rock mass of this lode. Garnet as an abrasive and for other kinds of uses has had a prominent place in the American market for the past 40 years. At present North Carolina and Pennsylvania are the American sources for supply, the remainder of the world's supply coming from abroad; the supply required to meet the demand of the American market amounts in value to about \$35,000,000 per year. The big garnet lode in Sierra Madre is sufficient, if worked, to supply the United States for centuries to come; its value concentrated is about \$30 per ton. A peculiar feature of garnet is that when copper occurs in the older rocks it almost invariably is associated with garnet in greater or lesser quantities. Examples in our country are in limited quantities



SAMUEL NEWHOUSE.

The Great Mining Magnate and Business Man Who is Investing Millions Towards Building Up the Greater Salt Lake.

NO single individual does the Beehive state owe more for wide publicity along lines advocated by the Commercial club of Salt Lake City than to Mr. Samuel Newhouse, mining man and property owner. In that memorable parliament consisting of delegates banded together for the purpose of advocating "See Europe if you must, but see America first," none entered into the spirit of the affair more than did Mr. Newhouse. But in order to attract visitors and permanent residents to Utah and Salt Lake City in particular, Mr. Newhouse recognized the absolute necessity of doing something other than discuss matters in convention assembled. Suing his desires for the advancement of Salt Lake City to the world, Mr. Newhouse last month consummated one of the greatest realty deals in the history of Utah, thereby becoming at once one of the public benefactors not alone of the City of the Saints, but of the entire western empire included within the borders of the intermountain country.

THE CRESCENT OF UTAH.
It is but telling the simple truth in writing of Mr. Newhouse when the statement is made that his wealth entitles him to the distinction of being the crescent of Utah, and it is equally true in saying of him that unlike many others of wealth, Mr. Newhouse is willing to abide in and invest by far his greatest capital in the city and state of his adoption.

Listen to Mr. Newhouse's statement regarding Salt Lake City and its possibilities:
"I made my money in Utah with my base of operations in Salt Lake City. I have undying faith in the future of this city and the state in general. I believed in Salt Lake City before I decided to make it my home and I certainly have never had reason to regret my choice. I believe that it is my duty to spend the fruits of my labors largely in that commonwealth which was responsible for my success."

The above statement literally interpreted, means that Mr. Newhouse is a firm believer in investing his money in Salt Lake real estate and Utah mining projects in particular. Of course it is equally true that Mr. Newhouse is interested in many foreign mining propositions, but his recent great real estate purchase in the city of Salt Lake, a new theater, a fine hotel, a department store structure and a large office building to be devoted to the exclusive usage of lawyers and other professional people.

A PUBLIC BENEFACTOR.
This latter decision alone on the part of the purchaser is sufficient in itself to entitle him to the title so aptly applied to him, that of a public benefactor. Any man of means who by his fellow creatures is a public benefactor

factor, but the individual who not alone aids the individual, but who looks so far ahead as to upbuild an entire community, is entitled to the laurels that an ever ready American people are never slow to bestow upon him. Yet, on the other hand, Mr. Newhouse is an unostentatious man; he does not court notoriety, neither does he "hide under a bushel basket." His acts of individual charity, which equal those of any philanthropically inclined man of wealth invariably go unrecorded. This is the true spirit of the brotherhood of man towards man and as nearly as it is possible for Mr. Newhouse to live according to those ethics of religion, it can be truthfully said he does so.

UNFOLDS HIS PLANS.
In matters where the general public is deeply interested, such as the purchase of property for improvement, by which citizens in general are to be the gainers, Mr. Newhouse at once unfolds his plans. There are selfish motives in his so doing, for he recognizes the fact that there can accrue no better publicity for a city than the general advertisement of its advantages and facilities for the intending investor and resident.

Mr. Newhouse is a man quite reticent when it comes to discussing his personality. He is one of the very best illustrations of the self-made man of today, typifying such men as the late Marshall Field, of Chicago, the great dry goods prince of the middle west; the late Potter Palmer and Andrew Carnegie. His start in life was obscure. As he admits, he made his money in Utah and he came here from the Centennial state, after working hard and at times as a miner in and about the silver camps of Leadville.

MINERS' WAGES INCREASED.
One of his latest acts was the increasing of wages of all his mine employees 25 cents per day. He believes in sharing some of the profits in his vast copper enterprises with his men. He once worked in mines himself and he has not forgotten those days.
"As long as copper remains at 18 cents per pound or goes higher, my employees shall have higher wages," was the way Mr. Newhouse put the matter when he voluntarily raised wages all along the line.

CACTUS MINE OPTION.
The Cactus mine, in Beaver county, the nucleus of the town of Newhouse, unprofitable for years after its values had been ascertained, its only mission, seemingly, being to disappoint the ambitious and wreck the fortunes of its successive unsuccessful promoters. Less than six years ago Mr. Newhouse obtained an option on this apparent Golgotha and commenced building successes where failures had held sway. The enterprise is now rounded out. A plaza, oasis like, covered with bluegrass and flowers is the central figure in a community of homes. A railroad has been built to it across a country to barren that it was avoided by riders of the range. The hum of a colossal mill has been substituted for the howl of the coyote.

WATERWORKS SYSTEM.
A system of waterworks has been established into which water is brought by a pipe line from the mountainside across the desert eight miles away. The stubborn old prospect, the Cactus with apices, has been subdued and forced to give up its riches. These are a part of his work in Utah only. Mr. Newhouse is president and managing director of the Boston Consolidated, one of the largest copper mining propositions in the world. Mr. Newhouse is also operating in Nevada, Canada, Montana, Idaho and Colorado.

A MINING EXPERT.
Among mining men and engineers of every part of the world it is said of Sam Newhouse that he can see farther into the ground than any other living man. Wealth has never changed the character of Mr. Newhouse. As a toiler he identified himself with the Democratic party and while he has never bidden for office of any character, he is a staunch supporter of the principles of Jeffersonianism and never once in any local or national campaign has he swerved.

Mr. Newhouse is equally at home on the European continent, yet at no time are his principles other than purely American. It is said of Mr. Newhouse that he is one of the most heavily insured person in the intermountain country. One of the first considerations of Mr. Newhouse was his affairs after death. It is said that all life policies carried are fully paid up.

The Newhouse residence on South Temple street is one of the palatial homes of Salt Lake City.
AN AUTOMOBILE ENTHUSIAST.
While ordinarily a very busy man when at home, Mr. Newhouse is a great sportsman and no other sport receives more of his attention than automobilism. He maintains the finest and most expensive private garage in the intermountain country, and his latest addition is an automobile constructed for him abroad of Parisian manufacture. Besides the latter he has several other latest improved cars.
One thing of which Mr. Newhouse is particularly proud is his achievement in having erected the famous Platon building, that much talked about skyscraper structure of New York City. Millions were invested in real estate and construction. The building besides being one of the sights of Greater New York, is also one of the best paying investments in that city.

ered with bluegrass and flowers is the central figure in a community of homes. A railroad has been built to it across a country to barren that it was avoided by riders of the range. The hum of a colossal mill has been substituted for the howl of the coyote.

WATERWORKS SYSTEM.
A system of waterworks has been established into which water is brought by a pipe line from the mountainside across the desert eight miles away. The stubborn old prospect, the Cactus with apices, has been subdued and forced to give up its riches. These are a part of his work in Utah only. Mr. Newhouse is president and managing director of the Boston Consolidated, one of the largest copper mining propositions in the world. Mr. Newhouse is also operating in Nevada, Canada, Montana, Idaho and Colorado.

A MINING EXPERT.
Among mining men and engineers of every part of the world it is said of Sam Newhouse that he can see farther into the ground than any other living man. Wealth has never changed the character of Mr. Newhouse. As a toiler he identified himself with the Democratic party and while he has never bidden for office of any character, he is a staunch supporter of the principles of Jeffersonianism and never once in any local or national campaign has he swerved.

Mr. Newhouse is equally at home on the European continent, yet at no time are his principles other than purely American. It is said of Mr. Newhouse that he is one of the most heavily insured person in the intermountain country. One of the first considerations of Mr. Newhouse was his affairs after death. It is said that all life policies carried are fully paid up.

The Newhouse residence on South Temple street is one of the palatial homes of Salt Lake City.
AN AUTOMOBILE ENTHUSIAST.
While ordinarily a very busy man when at home, Mr. Newhouse is a great sportsman and no other sport receives more of his attention than automobilism. He maintains the finest and most expensive private garage in the intermountain country, and his latest addition is an automobile constructed for him abroad of Parisian manufacture. Besides the latter he has several other latest improved cars.

One thing of which Mr. Newhouse is particularly proud is his achievement in having erected the famous Platon building, that much talked about skyscraper structure of New York City. Millions were invested in real estate and construction. The building besides being one of the sights of Greater New York, is also one of the best paying investments in that city.

Mercur Continues to Give Up Its Golden Treasures.

CONSOLIDATED MERCUR is Utah's greatest gold mine, and in point of tonnage enjoys the distinction of being the heaviest producer in the state. The company's annual report for the fiscal year ending June 30, 1906, shows that 302,808 tons of ore were mined and milled, being an average of 830 tons for each day of the year. No other mine in Utah, and very few in the United States, can boast of such a large output.

Taking into consideration the conditions under which the Consolidated Mercur Gold Mines company operates, it is also undoubtedly true that during the past year it has come very close to making a world's record for economy of operation. There are mines which work by means of open cuts, "glory holes," or tunnels, and have nothing but oxidized ore, which can show a lower cost per ton. The Consolidated Mercur, however, gets practically all of its ore by underground mining; all of the ore has to be hoisted a long distance, and all of it has to be hoisted to the mill, and about half of the ore is in the form of a sulphide, requiring roasting before it can be treated by the cyanide process, thereby entailing an extra expense of \$1 per ton. Furthermore, the company is obliged to pay a high price for power, and it has to buy its water. In spite of these drawbacks, General Manager George H. Dern reports that for the last fiscal year he reduced the expenses to \$2.48 per ton. This includes not only the ordinary expenses of mining and milling, but also all items of general expense, including prospecting, maintenance, repairs, administration, salaries, taxes, and, in fact all of the company's expenses except construction work.

Utah has many able mine managers, but any of them might be proud of such a record.

ORE OF TWO CHARACTERS.

The Mercur ore is of two characters, oxidized and base. The former is simply crushed, charged into leaching vats, and treated by the ordinary cyanide process. The base, or sulphide ore, requires roasting before it is amenable to cyaniding, and for this reason it is ground finer than the oxidized. After its treatment is identical with that of the oxidized, the two being charged together in the leaching vats.

METALLURGICAL SKILL SHOWN.

Mercur ore is low grade, having averaged \$2.76 per ton during the past year. It is obvious that on such low grade material keen metallurgical work, and low operating costs are essential. That skill in these lines was in evidence the past year is shown by the fact that the company's net earnings aggregated \$12,787.15. Of this amount \$109,000 was paid to the stockholders in dividends, \$3,104.34 went for construction items, and the remainder was added to the company's surplus, which amounted, on June 30, to \$127,125.05.

BIG MILLING PLANT.

The Con. Mercur mill, or the "Golden Gate Mill," as it is generally known, is a wonderful plant. For a long time it was the largest straight cyaniding plant in the world, and even now it is surpassed but by few. If any, New York is the largest mill with which it is compared, employ a combination of processes, usually amalgamation followed by cyaniding.

AN INTERESTING FEATURE.

One of the interesting features about the plant is that everything is driven by electricity. From the Mercur mine to the shaft the ore is hauled by electric locomotives. Thence it is elevated to the mill by electric hoists. In the mill, the crushers, rolls, roasters, pumps, air compressors, and, in fact, all the machines are driven by electric motors. The electric current is brought from the Telluride Power company and is transmitted from the generating plant at Provo and Logan to Mercur at 49,000 volts. It is then stepped down to suitable voltage for use in the motors.

PROGRESSIVENESS SHOWN.

As instances of the company's progressiveness may be mentioned the fact that during the past year a foundry was built, so that the Consolidated Mercur company now makes all of its own iron and brass castings, of which it necessarily consumes large quantities. Investigation has shown that this work could be done cheaper at home than by the castings, and the foundry went up. Similarly, a lime kiln was built. Large quantities of lime are used in leaching the ore, and this lime was being shipped in at considerable cost. Limestone is the "country rock" at Mercur, and there appeared to Mr. Dern to be no reason why quicklime could not be burnt in the camp. A first-class lime kiln was therefore built and the com-

pany's lime is now costing about half what it costs to ship it in.

A NEW LIMESTONE PLANT.

The most important announcement that has come from the company for a long time came from President John Dern on Nov. 15 last. It was to the effect that at a meeting of the board of directors held on that date, the management was authorized to proceed with the installation of a new lime plant. The residue values in the ore after treatment have in the past averaged close to \$1 per ton, sometimes a little higher, and sometimes slightly lower. Last year's average was 35 cents. On the tonnage treated, this means that nearly \$240,000 went over the dump in the tailings. Exhaustive tests have shown that the tailings, by other methods of treatment, can be brought down to 50 cents per ton. This means that nearly half of the gold that now goes out in the tailings is recoverable. It is obvious that if this recovery can be economically made, it will mean tremendously increased profits to the company.

SOLUTION OF A PROBLEM.

The solution of this problem has engaged the attention of the manager and his technical staff for the past year, and in November their researches had progressed to a point where they were willing to recommend that a new plant should be built. The directors immediately voted in favor of the plan, and gave instructions that the work be pushed to completion without any unnecessary delay. The company's capable metallurgist, Mr. W. T. Janney is now perfecting the designs for the new installation and construction work will begin forthwith. While details have not been given out, it is stated that the process will consist of separating the sand from the slime, leaching the sand and filtering the slimes. It is hinted that the plant will embody some new ideas which promise superiority over any method heretofore used. The improvements will cost in the neighborhood of \$25,000, and should be completed before spring.

IN GOOD CONDITION.

The Con. Mercur properties are reported to be in prime condition. It is well known that the mines have very large ore reserves and gratifying new developments are made from time to time, so that the mine is in a position not seem to diminish. The company continually spends large sums in prospecting which is necessary where such a large tonnage is mined.

James Quinn is superintendent and under his able supervision, the mines are kept in good condition and are economically operated. The company has been fortunate in securing singularly free from serious accidents to its employees. The general offices of the Consolidated Mercur Gold Mines company are at Room 516 Deely Block, Salt Lake City. The board of directors is as follows: John Dern, president; Hubbard W. Reed, vice president; A. Reeves, secretary and G. H. Dern treasurer and general manager.

QUICKSILVER PRODUCER.

The Sacramento is the next mine in importance in the Mercur or Camp Floyd mining districts. This property contains large deposits of cinchona ore, and while the production of gold continues to be an important factor in the Sacramento company's operations, the shipments of quicksilver is equally so. In fact this is the only mine in Utah where quicksilver is profitably mined and shipped in the few instances in the United States.

A few other properties have been worked on a small scale in the district this year. The Overland mine at Sunnyside was closed and may remain so permanently.

ARMY OF IRONWORKERS.

Krupp Works in Germany Employ About 67,000 Persons.

The famous Krupp works, for gun-making, keeps on its rolls 62,535 workmen, and 5,065 officials, and the immense area it covers includes the Essen works, and the most modern testing cannons at Meppen and Tannenberg, steel works at Annen, the Gruson works at Buckau, the Germania shipbuilding yard at Kiel, the smelting works at Dortmund, the rolling mills at Rheinfelden, the blast furnaces at Newuland and Engers, the melting works, machine works and iron foundry at Sayn, three coal mines and a large number of iron mines in Germany and northern Spain and a steamship company at Rotterdam.

Communication is carried on between the various workshops by means of a railway 4 1/2 miles in length. The telegraph system of the works consists of 21 stations and 50 1/2 miles of wire; the telephone system has 560 connections, with 2 1/2 miles of wire.

Insurance and pensions for workmen is, as elsewhere in Germany, quite common. There is also a hospital, two isolated hospitals for infectious diseases, a convalescent home, two almshouses, a workmen's home with rooms for 613 persons, a club for the officers and another for the foremen, a school for teaching house-keeping, an industrial school for adults, three industrial schools for girls attending school, a library, a savings bank, a life insurance society and a dental hospital.

Under the terms fixed by the imperial law concerning insurance the Krupp works paid \$250,000 for sick insurance, \$300,000 for insurance against accidents and \$100,000 for old-age pensions during 1904. This money has been put aside by the workmen themselves, but the Krupp works out of its own funds paid for the increased welfare of its workers during 1904 \$1,622,000.

Everything in the Mining and Milling Machinery Line

WE CARRY A FULL LINE OF

Engines—Gasoline and Steam
Hoists—Gasoline and Steam
Boilers, Ore Cars,
Ore Buckets,
Wire Rope,
Sheave Wheels,
Blowers, Fans,
Wood Pulleys,
Sturtevant Crushers
and Rolls.

General Distributors for
Utah, Nevada,
Idaho, Western Wyoming

We Build Pumps for All Duties and Service

Simple and Compound Steam, Also Power Pumps, General Service, Boiler Feeding and High Duty Mine Pumps. A Large Stock Carried. Estimates Furnished for Complete Plants

WE CARRY A FULL LINE OF

Leather and Canvas Belting,
Centrifugal Pumps,
Warehouse Trucks,
Barrett Jacks,
Steam Pumps,
Fairbanks-Morse
Dynamos and Motors
Elspass Mills,
Etc., Etc.

Catalogues and Circulars
Furnished
on application

FAIRBANKS, MORSE & COMPANY

218-220 South West Temple Street, Salt Lake City